



Australian Government
Australian Maritime Safety Authority

MARINE ORDERS

Part 43

Cargo & Cargo Handling—Livestock

Issue 5 (Amendment)

Order No 4 of 2004

Pursuant to subsection 425(1AA) of the *Navigation Act 1912*, I hereby make this Order amending Marine Orders, Part 43, Issue 5, by omitting pages (i), 1-16, 19-22, 25, 26, 31, 32, 35-38, 51, 52, 55-58, 61-68, 71-74, 81 and 82 and issuing the attached pages (i), 1-16A, 19-22A, 25, 26, 31, 32, 35-38A, 51, 52, 55-58, 61-68A, 71-74, 81 and 82, to come into operation on 27 May 2004.

Clive Davidson
Chief Executive Officer
13 May 2004

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Previous issues

Issue 1, Order No 2 of 1983
—*Amended by Order No 8 of 1983*
Issue 2, Order No 3 of 1991
—*Amended by Order No 5 of 1997*

Issue 3, Order No. 6 of 1997
Issue 4, Order No.16 of 1999
—*Amended by Order No.21 of 1999*
Issue 5, Order No.12 of 2001

1 Purpose & power

1.1 Purpose

This Part of Marine Orders makes provision for the carriage of livestock on board ships.

1.2 Power

1.2.1 Section 190B of the *Navigation Act 1912* provides for the regulations to make provision for and in relation to the survey and inspection of ships. Section 257 of that Act provides for the regulations to make provision for the stowing and carriage of cargo.

1.2.2 Subsection 425(1AA) of the *Navigation Act 1912* provides that AMSA may make orders with respect to any matter for or in relation to which provision may be made by regulation.

2 Definitions of words and phrases used in this Part

AMSA means the Australian Maritime Safety Authority established by the *Australian Maritime Safety Authority Act 1990*;

anniversary date means the day and the month of each year which will correspond to the date of expiry of the Australian Certificate for the Carriage of Livestock;

approved means approved by the Chief Marine Surveyor;

Australian Livestock Export Standards (ALES) means the Australian Livestock Export Standards, relevant extracts from which are reproduced at Appendix 7;

Chief Marine Surveyor means the person occupying the position of Manager, Ship Inspections, in AMSA or, in respect of any particular purpose under this Part, a suitable qualified person authorised by the Manager, Ship Inspections, for that purpose;

classification society means a corporation that is a full member of the International Association of Classification Societies (IACS);¹

fresh water generator includes a reverse osmosis water plant;

General Manager means the General Manager, Maritime Operations, in AMSA;

horses includes mules and asses;

¹ Current full members of IACS are: American Bureau of Shipping (ABS); Korean Register of Shipping (KR); Bureau Veritas (BV); Lloyd's Register of Shipping (LR); China Classification Society (CCS); Nippon Kaiji Kyokai (NK); Det Norske Veritas (DNV); Registro Italiano Navale (RINA); Germanischer Lloyd (GL); and Russian Maritime Register of Shipping (RS).

inspector of stock has the same meaning as “**inspector**” in the *Livestock Disease Control Act 1994* (Vic.) and the *Animal Health Act 1995* (Tas.);

livestock includes sheep, cattle (including buffalo), horses, goats, pigs, camels, circus animals and other animals that may be used in commercial enterprise or security organisations, but does not include household pets;

livestock services means all of the following:

- (a) ventilation;
- (b) fresh water supplies;
- (c) fodder supplies;
- (d) lighting;
- (e) effluent removal systems;

MARPOL 73/78 has the same meaning as 'the Convention' in the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983*;

operator means the owner of the ship or any other organization or person, such as the manager or bareboat charterer, who has assumed responsibility for the operation of the ship from the shipowner;^{1a}

penal provision means a penal provision for the purposes of Regulation 4 of the Navigation (Orders) Regulations;²

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

SOLAS means the Safety Convention as defined in the *Navigation Act 1912*;

surveyor means a person appointed to be a surveyor under s.190 of the *Navigation Act 1912*;

surveyor-in-charge, in relation to a port, means:

1a The operator would normally be taken as the organisation whose name appears as 'Company' on the Document of Compliance issued under the International Safety Management Code.

² Subregulation 4(1) of the Navigation (Orders) Regulations provides that a person who fails to comply with a provision of an order made under subsection 425(1AA) of the *Navigation Act 1912* that is expressed to be a penal provision is guilty of an offence and is punishable by:

- (a) if the offender is an individual—a fine not exceeding 20 penalty units; or
- (b) if the offender is a body corporate—a fine not exceeding 50 penalty units.

By virtue of section 4AA of the *Crimes Act 1914*, a penalty unit is equivalent to \$110.

- (a) in the case of a port where an AMSA marine survey office is located—the surveyor in charge of that office; and
- (b) in the case of any other port—the surveyor in charge of the AMSA marine survey office nearest to that port;

uppermost continuous deck means the uppermost complete deck of a ship that is exposed to the weather and sea, being a deck fitted as an integral part of the ship's structure and all openings in the weather positions of which are fitted with permanent means of closing;

veterinary officer means a veterinary officer as defined in the Export Control (Animals) Orders as amended.

3 Interpretation

3.1 In this Part, a reference to the date on which a ship was constructed means the date on which not less than 50 tonnes or one per cent of the proposed total mass of the structural material of the ship, whichever is the less, has been assembled.

3.2 In this Part, a reference to the date on which a ship was converted means the date on which the conversion commenced.

3.3 For the purposes of this Part, the arrangements for the carriage of livestock are considered to be substantially changed if:

- (a) modifications are made to the livestock structures affecting 50 per cent or more of the pen area; or
- (b) the pen area is increased by 10 per cent or more.³

3.4 If one or more of provisions 17, 18, 19, 21, 25, 29, 33, 34 or 35 are inconsistent with an order made under section 17 of the *Australian Meat and Live-stock Industry Act 1997*, the latter is to prevail.

3.5 In this Part:

- (a) headings and subheadings are part of the Part;
- (b) each Appendix is part of the Part;

³ Modifications affecting less than 10 per cent of the livestock structures, or increasing the pen area by less than 2 per cent, may be carried out on the principle of 'like for like'. Modifications affecting between 10 and 50 per cent of the livestock structures, or increasing the pen area by between 2 and 10 per cent, should be carried out in accordance with the standards of this Issue for the portions of the ship affected.

- (c) a footnote is not part of the Part, but may provide additional information or guidance in applying the Part.

4 Application

4.1 Subject to 4.2, this Part applies to and in relation to:

- (a) all ships on which it is intended to take on, that are taking on, or have on board livestock at any port in Australia or that are carrying livestock to sea from any port in Australia; and
- (b) Australian-registered ships on which it is intended to take on, that are taking on, have on board or are carrying livestock between ports outside Australia.

4.2 This Part does not apply to a ship arriving at a port in Australia carrying livestock loaded at a port outside Australia for discharge at:

- (a) a port in Australia; or
- (b) a port outside Australia, if a surveyor is satisfied that the provisions of this Part are being substantially complied with in respect of that livestock.

5 Modifications & equivalents

5.1 If the Chief Marine Surveyor considers that the application of any of the provisions of this Part may be modified in respect of a ship or class of ships without danger to persons or detriment to the proper carriage of livestock, the Chief Marine Surveyor may allow the modification of the application of those provisions to such extent and subject to such conditions as, in that officer's opinion, the circumstances of the case warrant.

5.2 If a provision of this Part requires a particular fitting, material, appliance or apparatus, or type thereof, to be fitted or carried in a ship or class of ships or a particular provision to be made in a ship or class of ships, the Chief Marine Surveyor may allow, subject to such conditions considered appropriate, any other fitting, material, appliance or apparatus, or type thereof, to be fitted or carried, or any other provision to be made, if that officer is satisfied that the other fitting, material, appliance or apparatus, or type thereof, or provision, is at least as effective as that required by that provision of this Part.

5.3 Application for a modification under 5.1 or the allowance of an equivalent under 5.2 must be made in writing to the Chief Marine Surveyor and must be accompanied by such information as the Chief Marine Surveyor requires to enable that officer to make a proper decision.

5.4 The Chief Marine Surveyor must not allow a modification or equivalent under 5.1 or 5.2 if this would be inconsistent with a prohibition in 10.5.

6 Review of decisions

6.1 Internal review

6.1.1 If the Chief Marine Surveyor or a surveyor makes a decision under this Part, a person affected by the decision may apply to the General Manager for review of that decision.

6.1.2 An application for internal review under 6.1.1 must be made in writing to the General Manager and must be accompanied by such information as the General Manager requires to enable that officer to make a proper decision.

6.1.3 The General Manager may:

- (a) affirm the original decision by the Chief Marine Surveyor or surveyor; or
- (b) make any decision that could be made by the Chief Marine Surveyor or surveyor in accordance with this Part.

6.2 Review by the AAT

6.2.1 Application may be made to the Administrative Appeals Tribunal for review of a decision by the General Manager under 6.1.3.

6.2.2 The General Manager must give his or her decision in writing within 28 days of receiving the application for internal review. The notice must include a statement to the effect that, if the person is dissatisfied with the decision, application may, subject to the *Administrative Appeals Tribunal Act 1975*, be made to the Administrative Appeals Tribunal for review of the decision. The notice must also include a statement to the effect that the person may request a statement under section 28 of that Act.

6.2.3 Failure to comply with 6.2.2 in relation to a decision does not affect the validity of that decision.

7 Notification & inspection

7.1 Pre-loading inspection⁴

7.1.1 Subject to 7.1.3, the master of a ship must not allow livestock to be loaded on

⁴ A surveyor making an inspection for the purpose of 7.1.1 or 7.1.2 may be accompanied by a veterinary officer to advise the surveyor in matters of animal husbandry.

to the ship at a port in Australia, other than for carriage on a short voyage, until a surveyor has carried out an initial pre-loading inspection of the ship, and such subsequent pre-loading inspections as the surveyor considers necessary, to ascertain that the livestock fittings, livestock equipment and carrying arrangements on the ship comply with the provisions of this Part or with the Australian Certificate for the Carriage of Livestock for the ship and are in a fit state for the proper carriage of the livestock to be loaded.

This is a penal provision.

7.1.2 Subject to 7.1.3, the master of a ship must not allow livestock to be loaded on to the ship at a port in Australia for carriage on a short voyage until a surveyor has carried out such pre-loading inspections of the ship, including its transport equipment, as the surveyor considers necessary to ascertain that the livestock fittings, livestock equipment and carrying arrangements comply with the relevant provisions of this Part and are in a fit state for the proper carriage of the livestock.

This is a penal provision.

7.1.3 Provisions 7.1.1 and 7.1.2 do not apply to the loading of cattle on to a ship undertaking a voyage of less than 10 days if:

- (a) a satisfactory pre-loading inspection has been carried out within 60 days prior to the intended loading;
- (b) a surveyor considers that a further pre-loading inspection is not warranted; and
- (c) the information specified in 7.2 has been provided prior to loading.

7.1.4 Species other than cattle may be loaded as well as cattle under 7.1.3 if:

- (a) the maximum total area permitted for species other than cattle is 400m², or 25 per cent of the net pen area (as described in the Record of Equipment and Arrangements), whichever is the less; and
- (b) the Record of Equipment and Arrangements indicates that the ship is approved for all species of livestock to be carried.

7.2 Notification of intention to load livestock

An inspection required by 7.1 will not be carried out until the following information has been provided to the surveyor-in-charge for the port of loading:⁵

⁵ The notice required by 7.2 must be given: for items (a), (b), (c) and (f), and an estimate of item (d)—not less than 72 hours before the time at which the ship will be available for inspection; and for items (e), (g) and (h) and final data for item (d)—prior to departure. Notice may be made by telephone, followed by notice in writing. Failure to provide notice within these time limits not less than 72 hours before the time at which the ship will be available for inspection may result in delay to loading or sailing of the ship.

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- (a) the name of the ship;
 - (b) the voyage number;
 - (c) the port and berth, and the date and time, at which the ship will be available for inspection, together with the estimated time of commencement of loading;
 - (d) a description of the livestock to be carried including the type, number and estimated average mass of the livestock;
 - (e) the type of proposed containment in the case of a ship that is to carry livestock on a short voyage;
 - (f) the port of discharge;
 - (g) the expected length of voyage, in days;
 - (h) confirmation that all equipment, other than equipment specifically declared to be non-operational, required for providing services to livestock, including primary and secondary power sources, is in full working order.

7.3 Prohibition on loading

7.3.1 If a surveyor is of the opinion that the provisions of this Part are not being complied with, the surveyor may order⁶ that:

- (a) the loading of livestock must not be commenced or continued until such time as a surveyor is satisfied that compliance with the provisions of this Part has been achieved and the order revoked; or
- (b) spaces nominated in the order must not be used for the carriage of livestock until such time as a surveyor is satisfied that compliance with the provisions of this Part has been achieved in respect of those spaces and the order revoked.

7.3.2 A person must not act in contravention of a surveyor's order under 7.3.1.

This is a penal provision.

7.4 Inspections during and after loading

7.4.1 A surveyor or a veterinary officer may inspect a ship at any time during or after loading in order to ascertain whether the requirements of this Part are being, or have been, complied with.

⁶ It may not always be practical for a surveyor to give such order in writing in the first instance. However, an order given orally will be followed by written confirmation at the earliest opportunity.

7.4.2 If a surveyor or a veterinary officer is satisfied that the requirements of this Part are not being, or have not been, complied with, he or she is to advise the master of the circumstances as soon as possible.

7.5 Taking a ship to sea^{6a}

7.5.1 The master must not take a ship to sea with livestock unless:

- (a) the ship is in compliance with, and the livestock has been loaded in accordance with, the requirements of this Part; and
- (b) information has been provided to the master detailing the actual number, weight and type of livestock loaded on board the ship.

This is a penal provision.

7.5.2 A person must not provide the master of ship with inaccurate information regarding the actual number, weight and type of livestock loaded on board the ship.

This is a penal provision.

7.6 Maintenance of services and arrangements while at sea

7.6.1 The master of a ship must ensure that, throughout the voyage, livestock services are maintained in serviceable condition in accordance with the particulars shown on the ship's Record of Equipment and Arrangements.

This is a penal provision.

7.6.2 A person must not, without the express authority of the master, make any alteration during the voyage to any livestock fittings, livestock equipment or carrying arrangements.

This is a penal provision.

8 Restrictions on carriage of livestock

8.1 Livestock must not be carried or loaded for carriage on or in any part of a ship where the livestock, livestock fittings, livestock equipment or carrying arrangements would:

^{6a} Severe weather conditions substantially increase the risk of injury and mortality to livestock. If there is a possibility of such conditions being experienced on the proposed route, the master should consider action to be taken to minimise the risk, such as the use of a weather routing service. The master may need to consider delaying loading if there is an imminent threat of severe weather conditions.

- (a) obstruct access to any accommodation space or working space necessary for the safe running of the ship, or the means of egress from any hold or underdeck space; or
- (b) interfere with life-saving or fire-fighting appliances; or
- (c) interfere with the sounding of tanks or bilges; or
- (d) interfere with the operation of closing appliances; or
- (e) interfere with the operation of freeing ports; or
- (f) interfere with the lighting or ventilation of other parts of the ship; or
- (g) interfere with the proper navigation of the ship.

8.2 If the casing or bulkhead of an engine room, boiler room or heated fuel tank forms the boundary of a space in which livestock is to be carried, adequate measures must be taken to ensure that there is no resultant undesirable rise in temperature in the livestock space⁷ above the ambient temperature of the space.

8.3 Subject to 8.4, livestock must not be carried in more than one tier on any deck.

8.4 Sheep, goats and pigs may be carried in more than one tier on any one deck subject to compliance with provisions 22, 23, 24, 33, 34 and 37 of this Part.

8.5 Livestock must not be carried over a hatchway unless the hatchway is protected against consequent damage and the hatchway covers are secured against movement.

8.6 Livestock must not be carried unless contained in pens, stalls or other similar fittings permitted by this Part.

8.7 Livestock must not be carried:

- (a) within the same underdeck compartment as; or
- (b) within 6 metres horizontally from; or
- (c) otherwise in a position where the livestock might be affected by the spillage of, dangerous goods to which the International Maritime Dangerous Goods (IMDG) Code⁸ applies.

⁷ Generally, where the ambient temperature in the space is expected to exceed 22°C, an increase of 3°C is considered undesirable. Adequate measures may include insulation of the bulkhead or other boundary of the space.

⁸ The IMDG Code is defined in s.248 of the *Navigation Act 1912*.

9 Structure & protective arrangements

9.1 The livestock structure of a ship, its connections to the hull, its fittings and equipment, and all items provided for the needs of livestock outside the livestock structure must be constructed and maintained to a standard no less than that which would be applicable to similar structures, connections, fittings, equipment and items surveyed by the ship's classification society.

9.2 A ship to be used for the carriage of livestock must be provided with durable fittings so manufactured, assembled or positioned as to protect the livestock from injury, avoidable suffering and exposure to weather and sea.

9.3 If more than one species of livestock are carried, the livestock must be segregated according to species.⁹

9.4 Cattle, buffalo, sheep and goats must be loaded and penned on a ship in accordance with the Australian Livestock Export Standards. Other species must, when loaded and penned on a ship, be segregated by size, sex, age or any other characteristic necessary to avoid competitive or aggressive behaviour.

10 Australian Certificate for the Carriage of Livestock

10.1 Requirement for certificate

10.1.1 The operator of a ship that is permanently equipped for the carriage of livestock must not allow the ship to carry livestock from a port in Australia unless there is in force in respect of the ship an Australian Certificate for the Carriage of Livestock valid for the species¹⁰ of livestock to be carried.

This is a penal provision.

10.1.2 The master of a ship that is permanently equipped for the carriage of livestock must not take the ship to sea with livestock on board from a port in Australia unless there is in force in respect of the ship an Australian Certificate for the Carriage of Livestock valid for the species¹⁰ of livestock to be carried.

This is a penal provision.

⁹ Pens containing cattle or buffalo should be separated from other species by a passageway, empty pen, or an effective impermeable barrier to the satisfaction of a veterinary officer.

¹⁰ Provisions 10.1.1 and 10.1.2 may be modified under provision 5 of this Part to allow occasional shipments of species not provided for on the ship's Australian Certificate for the Carriage of Livestock. Where more frequent shipments of such species are expected, however, the ship's Australian Certificate for the Carriage of Livestock should be amended to cater for these.

10.2 Application for certificate

10.2.1 Application for the issue, reissue or endorsement of an Australian Certificate for the Carriage of Livestock must be made by the owner or agent of a ship by submitting to the Chief Marine Surveyor in writing the information specified in Appendix 2.¹¹ If the application is for the initial issue of a certificate, such information as is reasonably necessary to assess compliance with this Part must also be submitted, including three copies of each of the following documents:

- (a) scale drawings that provide details of:
- the design, materials, methods of construction and arrangement of fittings for the containment and movement of the livestock;
 - ventilation arrangements,^{11a} together with the gross volume of enclosed spaces;
 - lighting;
 - the provisions for storage and distribution of fodder and water;
 - drainage arrangements;
 - arrangements of main and secondary supplies of power;
 - the provision of fire-fighting appliances;
 - the general arrangement of the ship, both before and after modification to carry livestock, if a converted ship;
 - the structural fire protection plan of the ship, both before and after modification to carry livestock, if a converted ship;
- (b) stability data for the ship with livestock on board;
- (c) a documented maintenance program¹² related to:
- the livestock containment structure (including accessways, ramps between decks and ship/shore livestock accesses);
 - ventilation, lighting and drainage arrangements for the livestock areas of the ship, including main and secondary sources of power;
 - the arrangements for storage and distribution of fodder and water;

¹¹ A form that may be used for this purpose is obtainable from AMSA's website at www.amsa.gov.au.

^{11a} Including current test measurements.

¹² This may be incorporated into the ship's Safety Management System. If it is, the operator should provide a document that details where and how each of the listed requirements has been addressed in the Safety Management System.

- the making of potable water on board (if this is required to provide for the necessary quantity of water to supply the livestock); and
 - the fire-fighting appliances in the livestock areas of the ship; and
- (d) a Record of Equipment and Arrangements in accordance with Form 1 of Appendix 1.

10.2.2 All information required by 10.2.1 must be in English or accompanied by an English translation.

10.2.3 A copy of the information required by 10.2.1 must be kept on board the ship.

10.3 Issue or reissue of certificate

10.3.1 If, following a survey of a ship, the Chief Marine Surveyor is satisfied that:

- (a) the livestock fittings, livestock equipment and carrying arrangements of the ship:
 - (i) fully comply with the provisions of this Part; or
 - (ii) are of a standard that is at least equivalent to the provisions of this Part; or
 - (iii) if the ship was engaged in carrying livestock from Australia before 1 July 1983, are of a standard substantially in compliance with the provisions of this Part; and
- (b) the ship complies with or, if it was constructed or converted for the carriage of livestock before 1 July 2000 substantially complies with, the bridge visibility requirements of Regulation 22 of Chapter V of SOLAS; and:
- (c) issue or reissue of a certificate is not prohibited by 10.5,

the Chief Marine Surveyor will issue, or where appropriate reissue, in respect of the ship an Australian Certificate for the Carriage of Livestock for the species of livestock for the carriage of which the ship complies, in the form specified in Form 1 of Appendix 1.

10.3.2 In circumstances where there is insufficient time for the issue or reissue of an Australian Certificate for the Carriage of Livestock before the ship is due to sail, the Chief Marine Surveyor may issue an Interim Document in the form specified in Form 2 of Appendix 1 for a period not exceeding one month, and that Interim Document has effect as though it were an Australian Certificate for the Carriage of Livestock.

10.4 Annual endorsement of certificate

10.4.1 An Australian Certificate for the Carriage of Livestock is subject to annual endorsement.

10.4.2 If, following a survey of a ship, the Chief Marine Surveyor is satisfied that the carrying arrangements¹³ have been maintained in accordance with this Part, and that endorsement of the certificate is not prohibited by 10.5, the Chief Marine Surveyor will endorse the ship's Australian Certificate for the Carriage of Livestock accordingly.

10.5 Prohibition on issue, reissue or endorsement of certificate

An Australian Certificate for the Carriage of Livestock is not to be issued, endorsed or reissued in respect of any ship unless:

- (a) the ship is classed by a classification society; and
- (b) there is in force in respect of the ship certification under the International Safety Management Code; and
- (c) one of the following apply:
 - (i) irrespective of the date of construction, the ship meets the requirements of the Safety Convention applicable to ships constructed on or after 1 September 1984;¹⁴ or
 - (ii) an Australian Certificate for the Carriage of Livestock has been previously issued in respect of the ship, the operator of the ship has not changed, and the requirements specified in 10.3 for reissue of that certificate are met on, or within the three months following, its validity ceasing for whatever reason.

10.6 Validity and duration of certificate

10.6.1 Subject to 10.6.2, an Australian Certificate for the Carriage of Livestock remains valid for a maximum of five years from the date of issue, although if the ship's Safety Construction Certificate or equivalent survey certificate is extended in accordance with SOLAS or Marine Orders Part 31, the Chief Marine Surveyor may extend its validity in a like manner.¹⁵

10.6.2 Subject to 10.7, an Australian Certificate for the Carriage of Livestock ceases to be valid:

¹³ The carrying arrangements include, but are not limited to, services provided for the carriage of livestock, livestock containment structures, fodder and water tanks, connections to the ship, and all fittings and equipment, whether required by this Part or not, necessary for the carriage of livestock.

¹⁴ These requirements are contained in SOLAS 74, as amended by the 1978 SOLAS Protocol and the 1981 SOLAS amendments adopted by IMO resolution MSC.1(XLV) which entered into force on 1 September 1984.

¹⁵ The expiry date of the Certificate will normally be aligned with the expiry date of the ship's Cargo Ship Safety Construction Certificate, and the survey for annual endorsement of the Australian Certificate for the Carriage of Livestock should be carried out, as far as practical, at the same time as the survey for the annual endorsement of the Cargo Ship Safety Construction Certificate.

- (a) if the ship's certificate of survey or Safety Convention certificate becomes invalid for any reason—for such period as that certificate remains invalid; or
- (b) if a survey for endorsement of the Australian Certificate for the Carriage of Livestock has not been satisfactorily completed within three months of its anniversary date—until the endorsement is carried out; or
- (c) if one or more of the requirements of 10.3.1 are no longer met in respect of a ship—until the requirements of 10.3.1 are again being met in respect of the ship; or
- (d) if one or more of the prohibitions on the issue of a certificate set out in 10.5 now apply in relation to a ship—until no prohibitions on the issue of a certificate set out in 10.5 now apply in relation to the ship; or
- (e) if the operator of the ship changes.

10.6.3 The operator of a ship in respect of which the Australian Certificate for the Carriage of Livestock has become invalid must return the certificate to the Chief Marine Surveyor at any time if requested to do so by the Chief Marine Surveyor.

This is a penal provision.

10.7 Limitation on use of certificate

10.7.1 If:

- (a) an Australian Certificate for the Carriage of Livestock has become invalid because one or more of the requirements of 10.3 are no longer met in respect of a ship; and
 - (b) the Chief Marine Surveyor is of the opinion that it would nevertheless be reasonable in the circumstances to allow the ship to continue to operate subject to conditions,
- the Chief Marine Surveyor may give written notice to the operator of the ship of those conditions.

10.7.2 If the ship is operated in accordance with the conditions, the Australian Certificate for the Carriage of Livestock in respect of the ship is considered to be valid, despite 10.6.2.

10.8 Certificate to be kept on board ship

The operator of a ship must ensure that the Australian Certificate for the Carriage of Livestock in respect of the ship, together with its associated Record of Equipment and Arrangements, is on board the ship at all times when the ship is engaged in the loading and carriage of livestock.

This is a penal provision.

10.9 Production of certificate

The master of a ship must, on the request of a surveyor, produce the Australian Certificate for the Carriage of Livestock in respect of the ship.

This is a penal provision.

10.10 Livestock to be carried in compliance with certificate

The master of a ship must ensure that, when livestock is on board the ship, the livestock fittings, livestock equipment and carrying arrangements shown in the Australian Certificate for the Carriage of Livestock are in position and in good order and the livestock are contained and carried in compliance with the certificate.

This is a penal provision.

10.11 Alterations

The operator of a ship in respect of which an Australian Certificate for the Carriage of Livestock is in force must advise the Chief Marine Surveyor as soon as practicable if:

- (a) the ship is sold or scrapped; or
- (b) the ship changes flag or port of registry; or
- (c) the ship changes name; or
- (d) the ship's classification society changes; or
- (e) a change is made in the ship's equipment, services or arrangements provided for the carriage of livestock.

This is a penal provision.

11 Stability

11.1 The master of a ship must, before loading commences, ensure that the ship has the ability to comply with the stability criteria specified in the IMO Code on Intact Stability¹⁶ at all stages of the voyage, taking into account, as specified in Appendix 3, the effects of shift of livestock and fodder and the effect of wind.

This is a penal provision.

11.2 The master of a ship on which livestock is to be loaded must, if requested by a surveyor, produce for examination the stability information specified by Appendix 3 and the stability calculations for the intended voyage and, if requested, must provide a copy to the surveyor.

This is a penal provision.

¹⁶ Annex to IMO Resolution A.749(18).

12 Livestock services

12.1 A ship 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.

12.2 Compliance with Appendix 4 will meet this requirement. However, as an alternative, an operator may demonstrate adequate redundancy in systems and equipment by supplying to the Chief Marine Surveyor a risk analysis of the systems involved.¹⁷ A revised risk analysis must be provided whenever the arrangements referred to in that analysis are changed. An alternative will not be accepted if:

- (a) it is inconsistent with Annex IV of MARPOL 73/78; or
- (b) it does not comply with 6.8 of Appendix 4.

13 Fire-fighting appliances

13.1 Fire hydrants must be provided so that at least two jets of water from separate hydrants can be simultaneously directed to any part of a space or deck where livestock are located. One of those jets of water must be provided by a single length of hose. The hydrants must be connected to the fire main provided on the ship.¹⁸

13.2 A fire hose, together with the necessary connections and a nozzle capable of directing water in the form of a spray and a jet, must be provided:

- (a) in an enclosed space—for each hydrant; and
- (b) in any other space or on a deck—for each 50 metres length, or part thereof, of space or deck.

Each hose must be capable of being connected to any hydrant and to any other hose (other than hydrants and hoses within the engine room or accommodation spaces).

13.3 The master of the ship must ensure that each fire hose, with its connections and nozzle, is kept in a conspicuous position near the hydrant with, or close to the entrances or stairways leading to the space or deck in which it is intended to be used.

This is a penal provision.

13.4 If hay or straw is carried or used in a space where livestock is located, there must be provided:

¹⁷ Guidance for the preparation of risk analyses is contained in Australian Standard AS3931:1998.

¹⁸ The hydrants should be located so that two jets of water can be directed at a single point without the necessity for hoses to pass over or through pens.

- (a) a portable fire extinguisher that uses water as the extinguishing medium, for every 18 metres or part thereof of the space, one of which must be placed adjacent to an entrance to the space; or
- (b) an approved fire-fighting arrangement that uses water as the extinguishing medium.

13.5 If electrical equipment, other than for the purposes of lighting, is situated in an enclosed livestock space, an adequate number of portable fire extinguishers or a fixed fire-fighting installation suitable for use with electrical equipment, must be provided in that space.

13.6 Hydrants, hoses, hose connections and nozzles, portable fire extinguishers and fixed fire-fighting installations provided for the purposes of 13 must be of equivalent standard to fire appliances required to be carried for the issue of a Cargo Ship Safety Equipment Certificate.¹⁹

13.7 Notices must be prominently displayed prohibiting smoking or the use of naked lights in livestock spaces and any spaces used for the storage of fodder, hay, bedding or any other flammable material.

13.8 Fire extinguishers provided in compliance with 13.4 or 13.5 must be tested at intervals not exceeding five years in the same manner as they would be tested for the issue of a Safety Equipment Certificate.

14 Loading of bulk fodder

14.1 When bulk fodder is to be loaded, areas where flammable dusts may be present (such as spaces used for the storage or handling of bulk fodder) must be classified in accordance with Australian Standard AS 61241.3 (IEC 61241-3:1997). Electrical equipment to be installed in spaces so categorised should be selected, installed, certified and maintained in compliance with Australian Standards AS 2381.1 and AS 61241.1.2 (IEC 61241-1-2:1999) or alternatively the components must be electrically isolated.

14.2 When bulk fodder is loaded by means of portable piping, the following provisions must be complied with:

- (a) a bulk fodder truck must be effectively earthed to a suitable part of the wharf or quay and, if a separate blower trailer is used, both truck and trailer must be earthed;

[Continued on Page 17]

¹⁹ Fire-fighting appliances carried in addition to those required by 13 may be positioned to the requirements of the owner of a ship.

- (b) the piping must, if possible, be so arranged that it is electrically continuous and if the pipes are so manufactured that they are not electrically continuous, 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 millimetres;
- (c) the piping must be effectively earthed to the ship and all earth connections must be secured with clips so that there can be no interruption or disconnection during the handling or manoeuvring of the piping;
- (d) if more than one pipe length is used, they must not, if practicable, be insulated from one another;
- (e) if pipe connections depend on heavy duty seals that are not electrically conductive, each individual pipe length must be earthed to the adjoining length by metal straps or must be earthed separately;
- (f) a conductive sleeve approximately 500 millimetres long must be fitted at the discharge end of the pipe and must be electrically continuous with the pipe or, if fitted, the bare spiralled wire referred to above.

14.3.1 Subject to 14.3.2, fodder tanks must be emptied before loading pelletised fodder.²⁰

14.3.2 Where fodder remains from a previous voyage and it is not practical to empty all tanks completely:

- (a) where there are two or more tanks—one may contain left over fodder, the remainder being emptied; and
- (b) where there is only one tank—compacted residues are broken up and, so far as practical, moved so as to ensure their being consumed during the subsequent voyage,

provided that each tank is completely emptied at least once in every 90 days.

14.3.3 The master of the ship must maintain records of emptying and must make such records available for inspection by a surveyor.

This is a penal provision.

15 Means of egress and access for persons

15.1 In a ship constructed or converted for the carriage of livestock after 1 July 1983 there must be provided in each space in which livestock is carried no fewer than two

²⁰ Attention is drawn to the potential danger of working in confined spaces, oxygen depletion being likely in any space containing large amounts of vegetable matter. Appropriate confined space entry procedures should be followed.

means of egress widely separated and giving access to an open deck.

15.2 Access to a livestock space for persons must be safe and, if combined with a ramp used for moving livestock between decks, must be separated from the livestock ramp by protective fencing.

15.3 A pen, stall or similar fitting must be provided with a means of access for persons with a secure closing arrangement having a structural strength equivalent to the strength of that part of the pen, stall or fitting.

15.4 If access is required between a ship's side and a pen, stall or similar fitting for the purposes of the safe and proper operation of the ship, a passageway must be provided that has a clear width of not less than 750 millimetres between the ship's rail or bulwark and the rails or receptacles of the pen, stall or fitting, except that obstructions outside the pen rails, such as receptacles, pipework, etc., may reduce the passageway measured from the ship's rail to 550 millimetres.

15.5 If a means of egress or access is provided in accordance with 15, or if a passageway is provided in accordance with this Part, the master must ensure that the means of egress, access or passageway is kept clear at all times during a voyage.

This is a penal provision.

16 Means of access for livestock

16.1 A ramp or other suitable means of access appropriate to the species, must be provided for the loading or unloading of livestock. It must be so erected as to prevent any gap occurring between it and the ship and must be set at a gradient not excessive for the species to be loaded or unloaded.²¹

16.2 A means of access must be fitted with:

- (a) side panels free of protrusions and of sufficient strength and height to prevent escape of livestock;
- (b) a walking surface of battens suitable for the species; and
- (c) a closing arrangement sited at either the top or the bottom of the ramp.²²

16.3 If a means of access is part of the ship's equipment, it must be designed to support a uniformly distributed load over the walking surface not less than the values specified in

²¹ For suitable dimensions for ramps, refer to Provisions 24.3 for sheep and 28.3 for cattle.

²² The positioning of the closing arrangement will depend on the species of livestock; for cattle it should be located as close as possible to the point of entry to the ship.

Table 1.

Table 1

<i>Species</i>	<i>Load (newtons per square metre)</i>
Cattle and horses	4,700
Sheep, goats and pigs	2,400

16.4 The maximum permissible tensile stress for material used in the construction of a means of access must not exceed the values specified in Table 2 for the applicable specified load.

Table 2

<i>Material</i>	<i>Maximum permissible tensile strength</i>
Steel	0.5 x minimum yield stress
Aluminium	0.5 x 0.2% proof stress
Other	As specified by the Chief Marine Surveyor

16.5 If it is necessary for persons to be on a means of access during the movement of livestock, it must be provided with a passage of not less than 550 millimetres width that must be:

- (a) fenced to a height of not less than one metre and with an intermediate horizontal rail approximately 550 millimetres above the walking surface; and
- (b) fitted with treads at suitable stepping distances.

17 Care of livestock on board

17.1 The operator and master of a ship carrying livestock must ensure that there is carried at all times a sufficient number of persons, which may include members of the ship's crew, as are necessary to provide satisfactory tending, feeding and watering of the livestock using the normal means described in the Record of Equipment and Arrangements.²³

This is a penal provision.

17.2 If the normal means of tending, feeding and watering of the livestock is wholly or partially by automatic means, the number of persons required by 17.1 must be

²³ The attention of owners, masters and agents is drawn to orders under section 17 of the *Australian Meat and Live-stock Industry Act 1997*. Note also that the provision of appropriate resources for tending cargo is among the master's responsibilities under the ISM Code.

sufficient to provide satisfactory tending, feeding and watering of the livestock in the event of a malfunction of the automatic means, but without compromising the safe navigation of the ship.

18 Provision of humane killing device & veterinary equipment²⁴

18.1 There must be provided on a ship carrying livestock a means of humanely killing livestock appropriate for use with the species carried.

18.2 There must be provided on a ship on which livestock is carried, veterinary equipment, including medicines, instruments and stores, suitable for the species and number of livestock carried.

19 Patrols

The master of a ship on which livestock is carried must operate a patrol system to ensure the safety of the ship and welfare of the livestock throughout the period during which livestock is on board, the scope and frequency of which must be determined by the master, taking into account the use of automatic surveillance devices and alarms.

This is a penal provision.

20 Master's report

Upon completion of a voyage, other than a short voyage, during which livestock has been carried, the master of a ship must make a report in writing to the Chief Marine Surveyor in accordance with Form 3 in Appendix 1.²⁵

This is a penal provision.

21 Sheep—number that may be carried

The maximum number of sheep that may be carried on a ship or a part of a ship, and minimum amount of pen area per head are those specified in the Australian Livestock Export Standards.

²⁴ For cattle, buffalo, sheep and goats, compliance with the relevant sections of the Australian Livestock Export Standards is satisfactory evidence of compliance with 18.1 and 18.2.

²⁵ On receipt, these reports will be made available to relevant government agencies to assist them in carrying out their animal welfare role. See also Provision 40. The submission of false or misleading information may constitute an offence under the *Criminal Code Act 1995*.

22 Sheep—design of pens & passageways

22.1.1 Subject to 22.1.2, the construction of pens for sheep and of adjacent passageways must comply with the details specified in Table 3.

Table 3

<i>Detail of design</i>	<i>Dimension</i>
Maximum breadth	4.5 metres
Minimum breadth	2.0 metres
Maximum length	Not more than twice the breadth
Minimum length	Not less than the breadth
Maximum clear floor area within pen	40.5 square metres
Minimum clear height within pen	1.1 metres
Maximum clear vertical distance between rails	300 millimetres
Maximum clear vertical distance below bottom edge of lowest rail of pen installed at deck level	200 millimetres
Maximum clear vertical distance below bottom edge of lowest rail of pen not installed at deck level except where a vertical plate or board is fitted in accordance with 24.4	50 millimetres
Minimum height of top edge of uppermost rail above pen floor except that the height of that rail may be decreased if the clear height above that rail does not exceed 300 millimetres.	900 millimetres
Minimum width of adjacent passageway clear of receptacles and any other obstructions	550 millimetres

22.1.2 In open structures above the weather deck, where pen rails form the outer perimeter containment, reduced pen rail spacing is required to minimise the risk of animals being lost overboard. These spacings are:

- (a) the maximum clear vertical space below the bottom edge of the lowest rail and the top of a deck boundary angle or fashion plate, must be 100 millimetres; and
- (b) the maximum clear vertical space between rails must be 200 millimetres except that the maximum clear vertical space between the uppermost rail and the next lower rail may be 250 millimetres.

22.2 The clear floor area within a pen referred to in Table 3 is the area of the pen

exclusive of any receptacle or other object or structure occupying any part of the area of the pen.²⁶

22.3 The deck within pens, passageways and ramps between decks must have a surface that provides a satisfactory non-slip foothold for the sheep.

22.4 The closing arrangement referred to in 16.2 must be a gate capable of being quickly closed to control the movement of sheep from shore to ship and vice versa. Within the ship, sliding or swinging gates must be provided where necessary to control the movement of sheep to and from pens.

23 Sheep—strength of pen fittings

23.1 Subject to 23.4, rails and stanchions forming a fore and aft boundary of a sheep pen must be capable of withstanding a load per metre length determined by the application of Formula 1, uniformly distributed up to the height of the top of the uppermost rail the centre of which is at a height of not more than 900 millimetres above the pen floor.²⁷

Formula 1

$$F = 1668 B (0.574 + 0.0252 Z) \text{ newtons per metre length}$$

where: F = load per metre length of boundary;

B = maximum breadth of pen, in metres; and

Z = the vertical distance from a point 0.50 metre above the pen floor to the ship's water-line corresponding to the anticipated lightest load, in metres.

23.2 Rails and stanchions forming a boundary of a sheep pen other than a fore and aft boundary referred to in 23.1, must be of substantially the same method of construction and of substantially the same scantlings as required for the fore and aft boundaries.

23.3.1 Subject to 23.4, the floor and floor supports of a sheep pen must be capable of withstanding a load, determined by the application of Formula 2, uniformly distributed over any two-thirds of the area of the pen floor.

²⁶ A bar fitted in accordance with 7.8.2 of Appendix 4 is not regarded as forming an obstruction.

²⁷ A rail, the centre of which is at a height of more than 900 millimetres above the pen floor, is not considered to be load bearing.

Formula 2

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

where: F = floor load, in newtons per square metre
d = draught of the ship corresponding to the anticipated lightest loaded water-line, in metres;
y = longitudinal distance from the midpoint of the pen to amidships, in metres; and
L = length between the perpendiculars of the ship in metres.

23.3.2 A floor support of a sheep pen that also forms a boundary of a lower pen must comply with 23.1, 23.2 and 23.3.1.

23.4 In respect of a livestock pen structure above the uppermost continuous deck, the requirements of 23.1, 23.2 and 23.3.1 may be dispensed with if the owner of a ship obtains the approval of the Chief Marine Surveyor to calculations showing that the rails and stanchions of the pens and the pen floor and floor supports of those pens in that structure are capable of withstanding appropriate design forces using the criteria specified by the classification society responsible for approving the design of the

[Continued on Page 23]

structure.

23.5 The maximum stresses permissible for materials used in the construction of the boundaries and floors of a pen must not exceed the values specified in Table 4 when under the loads determined in accordance with 23.1, 23.3.1 and 23.4, as appropriate.

Table 4

<i>Material</i>	<i>Maximum permissible tensile stress</i>	<i>Maximum permissible shear stress</i>
Steel	0.75 x minimum yield stress	50 per cent of maximum permissible tensile stress
Aluminium	0.75 x 0.2 per cent proof stress	50 per cent of maximum permissible tensile stress
Other	As specified by the Chief Marine Surveyor	As specified by the Chief Marine Surveyor

24 Sheep—arrangement of pens

24.1 A passageway must be provided on at least one side of each sheep pen.²⁸

24.2 The means of closing sheep access to a pen may be a gate or portable rails:

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

24.3 If sheep are to be moved between decks, a ramp must be provided that must:

- (a) have a minimum clear width of 550 millimetres;
- (b) have sides that are free from protrusions and that extend to a height of not less than 900 millimetres perpendicular to the ramp floor;
- (c) be fitted with foot battens:
 - of a minimum height of 25 millimetres and a minimum breadth of 10 millimetres with edges well rounded; and
 - spaced at regular intervals of not more than 300 millimetres, each end batten being not more than 100 millimetres from the end of the ramp; and
- (d) have a gradient not exceeding 1 in 2.

²⁸ To ensure adequate access by animals for feeding purposes, the passageway should be on the longest pen boundary.

24.4 If a lower tiered pen on a deck has a water or food receptacle adjacent to a passageway, the upper tiered pen must have fitted to the side adjoining the passageway, a vertical plate or board of a height not less than 225 millimetres that abuts the floor of the pen.²⁹

24.5 If pens are on an exposed deck, the uppermost pens must be fitted with a roof of a height that provides at least the minimum clear height specified by 22 for each pen and that is waterproof and extends not less than 450 millimetres beyond the deck area occupied by the pens.

24.6 Pens and stalls at the forward end of a livestock structure on or above the uppermost continuous deck and the feeding and watering arrangements provided for those pens and stalls must be effectively screened from sea spray. Suitable arrangements must be made to prevent the ingress of seawater to any part of the pens or stalls in any sea condition.³⁰

24.7.1 If pens are constructed in more than one tier on a deck, walkways must be provided so that no pen floor is at a height of more than 1.50 metres above the deck or a walkway.

24.7.2 Walkways referred to in 24.7.1 must be so constructed as to not interfere with the safe use of any passageway beneath a walkway and must:

- (a) in a ship that was engaged in carrying livestock from Australia before 1 July 1983—have a minimum clear height of 1.8 metres; and
- (b) in any other ship—have a minimum clear height of 2.0 metres.

25 Cattle—number that may be carried

The maximum number of cattle that may be carried on a ship or a part of a ship, and minimum amount of pen area per head are those specified in the Australian Livestock Export Standards.

26 Cattle—design of pens, stalls & passageways

26.1 Subject to 26.2, the construction of pens for cattle and of adjacent passageways must comply with the details specified in Table 5.

²⁹ This provision is intended to prevent the fouling of food and water of livestock in lower tiers.

³⁰ Spaces enclosed or partially enclosed to meet this requirement should be provided with a mechanical ventilation system in accordance with 3.2.1 of Appendix 4 or equivalent.

Table 5

<i>Detail of design</i>	<i>Dimension</i>
Maximum breadth	4.5 metres
Minimum breadth	2.1 metres
Minimum length	2.3 metres
Maximum clear floor area within pen	21.0 sq metres
Maximum height of top edge of lowest rail above pen floor between pens	600 millimetres
Minimum clear height within pen:	
(a) if a mechanical ventilation system is provided in accordance with 13	1.8 metres
(b) in any other case	2.3 metres
Minimum width of adjacent passageway, measured clear between rails, when pens are on both sides of the passageway and cattle are loaded and discharged through the pens	1.0 metre
Minimum width of adjacent passageway, measured clear of any fixed structure, fittings, receptacles or obstruction (eg pillars, feed chutes, fixed fodder or water troughs), when pens are on both sides of the passageway and cattle are loaded and discharged through the pens	0.7 metre
Minimum width of adjacent passageway, measured clear of any fixed obstructions, when pens are on both sides of the passageway and cattle are loaded and discharged through the passageway	1.0 metre
Minimum width of adjacent passageway measured clear from rails, when pens are on one side only of the passageway ³¹	0.75 metre

26.2 The height of the rails of a pen may be varied, with the approval of a surveyor, to the extent of 75 millimetres either way from those specified in Table 5.

26.3.1 Subject to 26.3.2, there must be a maximum clear space of 300 millimetres between the rails of a pen, or between the lowest rail and the pen floor, or between a rail and the overhead structure of the ship except that a rail need not be placed at a height of more than 1.40 metres.

26.3.2 If a water or food receptacle is fitted to the outside of a pen or if fodder is distributed on the floor outside a pen, a clear vertical space of not more than 500 millimetres, for the purpose of watering or feeding livestock in the pen, may be provided between adjacent pen rails on the side of the pen adjoining the passageway.

³¹ Where such a passageway is required to service livestock any fixed obstruction must not reduce width below 0.7 m. If such a passageway is required for safe operation of the ship, refer to Provision 15.4.

26.4 The clear floor area within a pen referred to in Table 5 is the area of the pen exclusive of any receptacle or other object or structure occupying any part of the area of the pen.

26.5 If cattle are to be carried in stalls, the design and dimensions of the stalls must comply with 30.1.

26.6 The deck within pens, passageways and ramps between decks must have a surface that provides a satisfactory non-slip foothold for the cattle.

26.7 The closing arrangement referred to in 16.2(c) must be a sliding gate capable of being quickly closed to control the movement of cattle from shore to ship and vice versa. Within the ship, sliding or swinging gates must be provided where necessary to control the movement of cattle to and from pens.

27 Cattle—strength of pen & stall fittings

27.1 Subject to 27.4, rails and stanchions forming a fore and aft boundary of a cattle pen must be capable of withstanding a load per metre length determined by the application of Formula 3, uniformly distributed up to the height of the top of the uppermost rail the centre of which is at a height of not more than 1.40 metres above the pen floor.³²

Formula 3

$$F = 3336 B (0.574 + 0.0252 Z) \text{ newtons per metre length}$$

where: F = load per metre length of boundary;

B = maximum breadth of pen, in metres; and

Z = the vertical distance from a point 0.75 metre above the pen floor to the ship's water-line corresponding to the anticipated lightest load, in metres.

27.2 Rails and stanchions forming a boundary of a cattle pen, other than a fore and aft boundary referred to in 27.1, must be of substantially the same method of construction and of substantially the same scantlings as determined to be required for the fore and aft boundaries.

27.3.1 Subject to 27.4, the floor and floor supports of a cattle pen must be capable of withstanding a load determined by the application of Formula 4, uniformly distributed over any two-thirds of the area of the pen floor.

³² A rail, the centre of which is at a height of more than 1.40 metres above the pen floor, is not considered to be load bearing for the purposes of 27.1.

Formula 4

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

where: F = floor load, in newtons per square metre
d = draught of the ship corresponding to the anticipated lightest loaded water-line, in metres;
y = longitudinal distance from the midpoint of the pen to amidships, in metres; and
L = length between the perpendiculars of the ship in metres.

27.3.2 A floor support of a cattle pen that also forms a boundary of a pen on a lower deck, must comply with 27.1, 27.2 and 27.3.1.

27.4 In respect of a livestock pen structure above the uppermost continuous deck, the requirements of 27.1 and 27.3 may be dispensed with if the owner of the ship obtains the approval of the Chief Marine Surveyor to calculations showing that the rails and stanchions of the pens and the pen floor and floor supports of those pens in that structure are capable of withstanding appropriate design forces using the criteria specified by the survey authority or other classification society responsible for approving the design of the structure.

27.5 The maximum stresses permissible for materials used in the construction of the boundaries and floors of a pen must not exceed the values specified in Table 6 when under the loads determined in accordance with 27.1, 27.3.1 or 27.4, as appropriate.

Table 6

<i>Material</i>	<i>Maximum permissible tensile stress</i>	<i>Maximum permissible shear stress</i>
Steel	0.75 x minimum yield stress	50 per cent of maximum permissible tensile stress
Aluminium	0.75 x 0.2 per cent proof stress	50 per cent of maximum permissible tensile stress
Other	As specified by the Chief Marine Surveyor	As specified by the Chief Marine Surveyor

27.6 If cattle are to be carried in stalls, the stalls must be constructed in accordance with 30.1.

28 Cattle—arrangement of pens & stalls

28.1.1 A passageway and means of access must be provided to facilitate the care and removal of animals.

28.1.2 Cattle stalls must be so arranged that access is provided to the rear of each stall.

28.2 The means of closing a cattle access to a pen or stall may be a gate or portable rails:

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

28.3 If cattle are to be moved between decks, a ramp must be provided that must:

- (a) have a minimum clear width of 750 millimetres;
- (b) have sides that:
 - are free from protrusions;
 - extend to a height of not less than 1.40 metres perpendicular to the ramp floor; and
 - are panelled or sheathed to a height of not less than 1.20 metres perpendicular to the ramp floor;
- (c) be fitted with foot battens:
 - of a minimum height of 50 millimetres and a minimum breadth of 25 millimetres with edges well rounded; and
 - spaced at regular intervals of not more than 300 millimetres, each end batten being not more than 200 millimetres from the end of the ramp;
- (d) have a gradient not exceeding 1 in 2; and
- (e) have a personnel ramp adjacent to each cattle ramp as follows:
 - having a minimum clear width of 500 mm;
 - having a 1 metre high guard rail on the side remote from the cattle ramp;
 - being provided with access at each deck that avoids as far as practicable personnel needing to cross the cattle race;
 - being provided with foot battens or non-skid surface.

28.4 If pens or stalls are on an exposed deck, the uppermost pens or stalls must be fitted with a roof of a height that provides at least the minimum clear height required by 26 for each pen or stall and that is waterproof and extends not less than 450 millimetres beyond the deck area occupied by the pens or stalls.

28.5 Pens and stalls at the forward end of a livestock structure on or above the uppermost continuous deck and the feeding and watering arrangements provided for

those pens and stalls must be effectively screened from sea spray. Suitable arrangements must be made to prevent the ingress of seawater to any part of the pens or stalls in any sea condition.³³

29 Horses—number that may be carried

Each horse carried must be in a separate stall except that, if accepted by a veterinary officer prior to loading, horses may be carried in pens,. The minimum space required for each horse carried in a pen is the space specified for a stall in Table 7.

30 Horses—design of stalls, pens & passageways

30.1 The construction of stalls for horses and of adjacent passageways must comply with the details specified in Table 7, although dimensions marked * may, with the approval of a surveyor, be varied by up to 75 millimetres either way.

30.2.1 The construction of pens for the carriage of horses must be in accordance with 26.

30.2.2 The clear height within a pen or stall for horses must not be less than:

- (a) for horses of 14 hands height or less—2.19 metres; and
- (b) for horses of height greater than 14 hands—2.40 metres.

Table 7

<i>Detail of design</i>	<i>Species</i>	<i>Dimension</i>
Maximum clear length within stall	(i) Horses	2.50 metres*
	(ii) Mules or asses	2.30 metres*
Minimum clear length within stall		2.30 metres*
Minimum clear passage:		
(a) between 2 rows of stalls and bounded by the front rails	(i) Horses	1.70 metres*
	(ii) Mules or asses	1.50 metres*
(b) between 2 rows of stalls and bounded by front and back rails		1.20 metres*
(c) in any other case		1.00 metre*
Minimum clear breadth within stall:		
(a) if the stall is aligned athwartships		0.70 metres
(b) if the stall is aligned fore and aft		0.90 metres

³³ Spaces enclosed or partially enclosed to meet this requirement should be provided with a mechanical ventilation system in accordance with 3.2.1 of Appendix 4 or equivalent.

<i>Detail of design</i>	<i>Species</i>	<i>Dimension</i>
Height of uppermost front, back and side rail from floor to top edge		1.15 metres*
Height of lowest front, back and side rail from floor to top edge		0.75 metres*

30.3 The closing arrangement referred to in 16.2 must be a sliding gate capable of being quickly closed to control the movement of horses from shore to ship and vice versa. Within the ship, sliding or swinging gates must be provided where necessary to control the movement of horses to and from pens.

31 Horses—strength of stall & pen fittings

31.1 The rails and stanchions of a horse stall must be constructed of approved materials giving a strength not less than that of heavy gauge tubular steel pipe of 50 millimetres nominal bore.³⁴

31.2 A pen for the carriage of horses must be constructed in accordance with 27.

32 Horses—arrangement of stalls & pens

32.1 A passageway must be provided at the front of each horse stall and each stall or pen must be so arranged that access is provided to the rear of each horse.

32.2 The means of closing a horse access to a pen or stall, may be a gate or portable rails:

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

32.3 The floor of a stall or pen must be of adequate strength, so constructed as to facilitate drainage and cleaning and:

- (a) if constructed of wood:
 - in the case of a stall, must be boards close fitting at the front of the stall and spaced about 25 millimetres apart at the rear, effectively secured against lifting; and

³⁴ Pipe complying with Australian Standard 1074 or an equivalent standard will be accepted for the purposes of 31.1.

- foot battens of cross section not less than 50 millimetres by 50 millimetres with edges well rounded must be provided at the front and rear of the stall or pen;
- (b) if constructed of concrete, the concrete must be well finished off to provide a non-slip surface and, if necessary, suitable standings³⁵ must be provided; and
- (c) if constructed of metal mesh, the mesh must be made of rods having a diameter of approximately 9 millimetres placed to provide apertures of not more than 50 millimetres and suitable standings³⁵ must be provided.

32.4 If horses are to be moved between decks, a ramp must be provided that must:

- (a) have a minimum clear width of 750 millimetres;
- (b) have panelled or sheathed sides that are free from protrusions and that extend to a height of not less than two metres perpendicular to the ramp floor;
- (c) be fitted with foot battens that are:
 - of a minimum height of 50 millimetres and a minimum breadth of 25 millimetres with edges well rounded; and
 - spaced at regular intervals of not more than 300 millimetres, each end batten being not more than 200 millimetres from the end of the ramp; and
 - have a gradient not exceeding 1 in 2.

32.5 If stalls or pens are on an exposed deck, the uppermost stalls or pens must be fitted with a roof of a height that provides at least the minimum clear height specified by 30 for each stall or pen and that is waterproof and extends not less than 450 millimetres beyond any part of a stall or pen referred to in 32.6.

32.6.1 A stall or pen on an exposed deck must:

- (a) in the case of an outermost stall or pen, be fitted with protective sheathing on its outboard side; and
- (b) in the case of a stall or pen the forward end of which would otherwise be exposed, be fitted with protective sheathing on its forward end.

32.6.2 Sheathing must effectively screen the stall or pen and its feeding and watering arrangements from sea spray, but must not exclude natural ventilation.³⁶

32.7 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, does not exceed 150 millimetres.

32.8.1 Each horse must be fitted with a collar made of leather or other suitable material and, in each stall, two cross ties and suitable fastenings must be provided to enable a horse to be restrained from biting, rearing or attempting to jump from the stall.

³⁵ Standings are floor cushioning materials such as rubber strips or fibre matting.

³⁶ Sheathing may be portable if it is capable of being fitted from outside a stall or pen.

32.8.2 If chain cross ties are provided for the purposes of 32.8.1, the Master must ensure that a suitable set of bolt cutters is carried and is kept readily available.

This is a penal provision.

33 Goats

33.1 Subject to 33.2 and 33.3, the carriage of goats must be in accordance with 21, 22, 23 and 24.^{36a}

33.2 If necessary for secure enclosures, further pen rails spaced at vertical intervals of not more than 300 millimetres must be provided to a height of 1.50 metres above the pen floor.

33.3 Space between the rails of a goat pen must be closed off with an effective means for the containment³⁷ of goats in the pen and food and water receptacles must be located inside the pen.

34 Pigs

34.1 The maximum number of pigs that may be carried on a ship or a part of a ship is the number obtained by dividing the pen area available in square metres, excluding any area for spare pens required by 36, by the minimum permissible floor area per pig determined under Table 8.

34.2 Other requirements for the carriage of pigs are in accordance with 22, 23 and 24.

Table 8

<i>Average mass of pigs (kilograms)</i>	<i>Minimum permissible floor area per pig (square metres)</i>
10 or less	0.10
20	0.28
45	0.37
70	0.60

^{36a} Stocking densities for goats are subject to the *Australian Meat and Industry Act 1999* and the *Export Control Act 1982*.

³⁷ Wire mesh is considered to be an effective means of containment. If goats are carried on the upper tier of a two tiered pen, wire mesh need not be used. Inspection by a surveyor of the means of containment is not required if the ship would not otherwise be subject to pre-loading inspection and the master confirms that the means of containment has been fitted to pens allocated to goats in a manner that has previously proved to be effective and has previously been accepted by a surveyor. Requests for acceptance of such arrangements should be made on the notice lodged in accordance with 7.2, including details of the voyage for which the arrangements were previously accepted. A log-book entry should also be made to record acceptance of arrangements on this basis.

<i>Average mass of pigs (kilograms)</i>	<i>Minimum permissible floor area per pig (square metres)</i>
100	0.85
140	0.95
180	1.10
270 or more	1.50

35 Other species of livestock

35.1 If livestock other than sheep, cattle, horses, goats or pigs is to be carried, a stall or pen must be provided that:

- (a) is capable of safely containing the livestock for the period of the voyage;
- (b) is constructed having regard to the size and other characteristics and needs of the livestock to be carried; and
- (c) is furnished with arrangements for the proper feeding, watering and tending of the livestock,

and other appropriate measures must be taken in conformity with the provisions of this Part to ensure the safety and welfare of the livestock and of persons in the vicinity of the livestock.

35.2 The arrangements provided under 35.1 must be approved by a surveyor prior to loading of the livestock.

36 Provision of hospital pens & stalls

36.1 If sheep, goats or pigs are carried, hospital pens must be provided capable of carrying 0.25 per cent of the number of livestock on board and, if the livestock is carried on more than one deck, the hospital pens must be distributed on each deck in proportion to livestock carried on that deck, as far as is practicable.

36.2 If cattle are carried, hospital pens must be provided, as far as practicable on each deck, equal to at least 1 per cent of the pen area available on that deck for the carriage of cattle. However, where the pen area for the carriage of cattle on a deck is less than 500 square metres, the hospital pen may be sited on an adjacent deck above or below, provided that the hospital pen is readily accessible to cattle transferred from one deck to the other, and the area of the hospital pen is not less than 1 per cent of the pen area available for the carriage of cattle on the decks it serves.

36.3 Subject to the approval of the Chief Marine Surveyor, the length and breadth of a

hospital pen may be less than that specified by Table 3 or Table 5 provided that no side of a pen is less than 1.50 metres in length.

36.4.1 If horses are carried, a hospital stall must be provided in respect of each 20 horses or part thereof.

36.4.2 A hospital stall provided in accordance with 36.4.1 must be so located as to be readily accessible for the transfer of a horse.

36.5 If livestock other than sheep, cattle, horses, goats or pigs are carried, appropriate hospital pens or stalls must be provided.

36.6 Hospital pens or stalls provided in accordance with 36 must be constructed to the standard required for the species of livestock for which they are provided and must bear clear identification as spare pens or stalls.

36.7 Animals that are carried individually penned or stalled may be disregarded when calculating the number or area of hospital pens.

37 Carriage of livestock in portable equipment³⁸

37.1 For the purposes of this Part, portable equipment is taken to include boxes, platforms and containers.

37.2 Portable equipment must not be used for the carriage of livestock unless it is approved.³⁹

37.3 The number of livestock that may be carried in portable equipment is to be determined in accordance with the relevant provisions of 21, 25, 29, 33, 34 or 35.

37.4.1 Portable equipment containing livestock must:

- (a) be stowed in a position that enables the livestock to be suitably protected from the weather and not subject to the machinery exhausts;
- (b) be stowed in a position that ensures suitable access to the equipment⁴⁰ and livestock;
- (c) be secured to prevent movement;

³⁸ In addition to the requirements of this Part, Marine Orders Parts 32 and 44 may have application in relation to portable equipment.

³⁹ Approval may be subject to conditions as to the use of the equipment such as the species of livestock which may be carried and the types of voyage on which the equipment may be used.

⁴⁰ Suitable access to the equipment should be not less than 1.2 metres along the length of the equipment and in addition there should be at least 1.0 metre end clearance, when the equipment is end loaded.

- (d) be adequately lit and ventilated;
- (e) have adequate provision for cleaning and drainage; and
- (f) have adequate provision for feeding and watering.

37.4.2 The arrangements provided under 37.4.1 are to be approved by a surveyor.

37.5 Portable equipment containing horses must be positioned so that the horses will stand facing athwartships.

38 Carriage of livestock on a short voyage

38.1 Provisions 10, 11, 14, 16, 20 and 36 do not apply to livestock carried on a short voyage.

38.2.1 Provisions 21, 25, 29, 33, 34 and 35 do not apply to livestock carried on a short voyage except to the extent that they are relevant in determining the maximum number of livestock permitted to be carried in a pen.

38.2.2 The maximum number of livestock permitted to be carried in a pen as specified in 21, 25, 29, 33, 34 and 35 may be varied by a State inspector of stock.

38.3 Provisions relating to the carriage of livestock in pens or in portable equipment, other than 37.4.1 and 38.4, do not apply to the carriage of livestock on a short voyage in a road vehicle complying with Appendix 5.⁴¹

38.4 If livestock is contained in portable equipment, it is to be constructed or arranged so as to minimise:

- (a) the possibility of livestock projecting their heads and limbs out of the equipment; and
- (b) spillage of excrement to the deck of the ship and, when the livestock is carried in more than one tier, to lower tiers.

38.5.1 Sufficient water, distribution systems and receptacles are to be carried to enable livestock to be watered in the event of an unexpected delay to the ship.

38.5.2 Prior to loading, the shipper, or the driver of a road vehicle, must advise the master when livestock was last watered.

⁴¹ Refer to *Animal Welfare Standard No.8, Transport of livestock across Bass Strait*, published by the Tasmanian Department of Primary Industries, Water and the Environment, with regard to stocking densities.

38.5.3 The master must ensure that stock is watered at least once in each period of 24 hours while on board.⁴²

This is a penal provision.

38.6.1 Livestock must be provided with adequate flow through ventilation in close proximity above and or below the containment unit.

38.6.2 Openings in portable equipment, specifically provided for ventilation, are to be so placed as to prevent direct draughts on the livestock.

38.6.3 Road transport vehicles which have inadequate flow through ventilation capability when stationary are not to be used for sea transport.

38.6.4 The master must ensure that when livestock is carried on enclosed decks in Ro-Ro ships the ventilation system is run continuously.

38.6.5 A horse float⁴³ must have openings to the front and rear, each measuring not less than 0.4 of a square metre.

38.6.6 Portable equipment units for the carriage of horses must have an opening in both front and rear or in both sides, each opening being not less than 0.4 of a square metre.

38.7 The master of the ship must ensure that road vehicles and horse floats are properly stowed and secured in accordance with 37.4.1.⁴⁴

This is a penal provision.

39 Disposal of dead livestock

39.1 The master of a ship must ensure that the carcass of any dead livestock is disposed of in accordance with the requirements of Annex V of *MARPOL 73/78*.

This is a penal provision.

39.2 The master of a ship must ensure that no carcass of any dead livestock is disposed of at sea within 100 nautical miles of nearest land unless the carcass has been passed through a comminuter or grinder or has been slit to the extent that the thoracic and abdominal cavities are opened.

This is a penal provision.

⁴² Watering of livestock should be carried out at more frequent intervals if circumstances warrant such action. Fodder is not required.

⁴³ Mares with small foals at foot are not to be transported in floats, unless the foals are denied access to doors if secured open for ventilation purposes.

⁴⁴ The master should take account of inclement weather before proceeding to sea with livestock on board.

40 Livestock mortality

In 40:

mortality means, in respect of any species, the percentage determined by dividing the number of deaths of that species occurring while on the ship (including during loading and unloading) by the total number of that species loaded and multiplying the resultant figure by 100;

reportable level means, in respect of any species, the percentage shown in Table 9, or three animals, whichever is greater;

Table 9

Sheep and goats	2 per cent
Cattle, voyages \geq 10 days	1 per cent
Cattle, voyage < 10 days	0.5 per cent

40.1 If at any time during the voyage (including any time after arrival of the ship at the destination port during which livestock remains on board) the mortality of any one species is equal to or greater than the reportable level, the master must immediately furnish a report to the Chief Marine Surveyor by the most expedient means of communication available, notifying:

- (a) the mortality;
- (b) factors that may have caused deaths in the livestock;^{44a}
- (c) the current location of the ship and, if appropriate, its destination and estimated time of arrival; and
- (d) the date of the expected next arrival of the ship in Australia.

This is a penal provision.

40.2 If the Chief Marine Surveyor becomes aware, either through a report under 40.1 or otherwise, that the mortality of any one species is equal to or greater than the reportable mortality, the Chief Marine Surveyor may direct a surveyor to carry out a preliminary inquiry into the cause or causes of the deaths and as soon as practicable make a report to the Chief Marine Surveyor.

40.3 The Chief Marine Surveyor may require the owner, operator or master of the ship to

^{44a} Factors described should be those relevant to this Part, and should include observations made by ship's personnel. However, matters of veterinary opinion should only be included if the information has been provided to the master by a professional veterinarian.

provide such information as that officer reasonably considers relevant, including information to monitor the situation on board a ship still engaged on its voyage.

40.4 The owner, operator or master, as appropriate, of the ship must comply with a requirement of the Chief Marine Surveyor under 40.3.

This is a penal provision.

40.5 A preliminary inquiry under 40.2 commences immediately the Chief Marine Surveyor directs a surveyor to carry out such an inquiry, whether or not the ship is still engaged on its voyage.

40.6 A surveyor carrying out a preliminary inquiry may require the owner, operator or master of the ship to provide such information as the surveyor reasonably considers relevant to the inquiry, including information to monitor the situation on board a ship still engaged on its voyage.

40.7 The owner, operator or master, as appropriate, of the ship must comply with a requirement of a surveyor under 40.6.

This is a penal provision.

40.8 A preliminary inquiry carried out under 40.2 may include verification of the continued accuracy of relevant data shown on the ship's Record of Equipment and Arrangements.

40.9 The Chief Marine Surveyor may prohibit or impose conditions on the loading of livestock on a ship in respect of which a preliminary inquiry is being, or has been, carried out under 40.2.

40.10 The master of the ship must comply with a prohibition or condition imposed under 40.9.

This is a penal provision.

40.11 After the report of a preliminary inquiry has been completed, the Chief Marine Surveyor must, as soon as practicable, determine whether circumstances exist that warrant action being taken under 10.6 for the suspension of the ship's Australian Certificate for the Carriage of Livestock.

40.12 If satisfied that circumstances do not exist that warrant action being taken under 10.6 for the suspension of the Australian Certificate for the Carriage of Livestock, the Chief Marine Surveyor is to lift any prohibition or remove any conditions on loading of livestock.

41 Additional requirements

41.1 If the Chief Marine Surveyor considers that the safety of persons or the proper carriage of livestock is insufficiently provided for in spite of the ship, its equipment and arrangements complying with this Part, the Chief Marine Surveyor may give a direction to the operator or master of the ship, or both, specifying such additional precautions or conditions of carriage as that officer considers necessary.

41.2 Any person to whom a direction is given under 41.1 must comply with that direction.

This is a penal provision.

42 Transitional

An action taken of the kind described in the first column of Table 10 taken under the provision of Issue 4 specified in the second column is deemed to be an equivalent action taken under the provision of this Issue specified in the third column.

Table 10

<i>Action</i>	<i>Provision of Issue 4</i>	<i>Provision of Issue 5</i>
Modification of provision, including any conditions imposed	3.1	5.1
Allowance of an equivalent fitting, material, appliance or apparatus, including any conditions imposed	3.2	5.2
Issue of Australian Certificate for the Carriage of Livestock	11.3.1 11.3.2	10.3.1
Endorsement of Australian Certificate for the Carriage of Livestock	11.4	10.4
Order by a surveyor relating to the loading of livestock	7.2.4	7.3.1

[Continued on Page 39]

<i>Action</i>	<i>Provision of Issue 4</i>	<i>Provision of Issue 5</i>
Investigation into mortality	46.2	40.2
Imposition of additional requirements, including any conditions imposed	47.1	41.1

THIS IS TO CERTIFY that, at the first annual survey, the ship was found to comply with the relevant requirements of Marine Orders Part 43.

Signed

Official stamp

Place

Date

THIS IS TO CERTIFY that, at the second annual survey, the ship was found to comply with the relevant requirements of Marine Orders Part 43.

Signed

Official stamp

Place

Date

THIS IS TO CERTIFY that, at the third annual survey, the ship was found to comply with the relevant requirements of Marine Orders Part 43.

Signed

Official stamp

Place

Date

THIS IS TO CERTIFY that, at the fourth annual survey, the ship was found to comply with the relevant requirements of Marine Orders Part 43.

Signed

Official stamp

Place

Date

Record of Equipment and Arrangements

1 General Description of ship

Name of ship

IMO Number

Port of registry

Carrying arrangements for

(kind of livestock)

.....
.....
.....
.....

Position of livestock spaces

on exposed
deck

.....

in enclosed
spaces

.....

Livestock carried

Species

.....

Pen area available for the carriage of livestock

(sum of total available pen areas on all decks as calculated in section 2)

.....
Note: Where appropriate indicate:

- (a) space available for sheep only
- (b) space available for cattle only
- (c) space available for each species of livestock for mixed shipment.

Scale of minimum floor area for each of the species of livestock carried:

2 Pen construction and areas

Details appear on drawing(s) No.

Deck covering

Tier construction

General description of pens

Livestock space or deck**
.....

Tiers..... Fixed or portable.....

Total volume of space..... Number of air changes.....

Species of livestock.....

<i>Pen number</i>	<i>Allowable floor area*</i>	<i>Pen number</i>	<i>Allowable floor area*</i>	<i>Pen number</i>	<i>Allowable floor area*</i>

Total allowable floor area

Less area of pens allocated as hospital pens

Total available pen area on this deck

* Total floor area of pen **less** deductions for intrusions into the space and excluded areas

** These details are to be provided for each deck on which livestock is carried

3 Ventilation

Details appear on drawing(s) No.

--

Fans

<i>Position</i>	<i>Motor type & size</i>	<i>Air quantity delivered m³</i>	<i>Reversible or single direction</i>

Description of initial testing procedure to show compliance with Provision 13

.....

.....

Spare components

.....

Failure alarms (description and location)

.....

4 Ship's generating capacity

Main sources of power:

Sources of power sufficient to supply power continuously for all livestock services while livestock is on board without interfering with the normal operation of the ship.

<i>Number</i>	<i>Type</i>	<i>kW or kVA</i>	<i>Consumption per day (full load)</i>

Secondary sources of power:

Sources of power sufficient to supply power continuously for all livestock services while livestock is on board if the primary source of power is out of action for any reason.

<i>Number</i>	<i>Type</i>	<i>kW or kVA</i>	<i>Consumption per day (full load)</i>

Total capacity of fuel tanks available for generators (excluding secondary source of power)		.....
Capacities of fuel tanks available for generators providing secondary sources of power		.....
Is fuel for main sources of power compatible with fuel for secondary sources of power?		.....
Can secondary sources of power be supplied with fuel from all fuel tanks for secondary sources?		.....
Can secondary sources of power be supplied with fuel from any or all fuel tanks for main sources?		.....
Normal maximum load, auxiliary and domestic services, including cargo non-livestock services	(a) at sea:	.....
	(b) in port:	.....
	(c) ventilation:	.....
Normal load, livestock services, continuous running	(d) lighting:	.....
	(e) fodder:	.....
	(f) water:	.....

Generating capacity cross-connection arrangements

<i>SOLAS generators</i>	<i>Can these supply livestock services?</i>	<i>Non-SOLAS generators</i>	<i>Can these supply non-livestock services?</i>
Main 1	Yes/No	Livestock 1	Yes/No
Main 2	Yes/No	Livestock 2	Yes/No
Main 3	Yes/No		
Main 4	Yes/No		
Emergency	Yes/No		

Spares for generators

.....
.....

Spares for secondary source of power

.....
.....

5 Drainage

Details appear on drawing(s) No.

- General description
-
-
- Position and capacity of drain wells
- Types of pumps
- Situation of pumps.....
- Type of alarm system
- Sewerage retention facilities.....

6 Fire-fighting appliances (livestock spaces only)

Details appear on drawing(s) No.

- Type of hydrants and hoses
- Type of fire extinguishers
- Type of fixed fire-fighting installation:**
 - silos
 - enclosed spaces

7 Fodder

Details appear on drawing(s) No.

Fodder

- type silo capacity
- other stowage.....
- Distribution arrangements from stowage to pens
- Feeding arrangements at pens
- Alternative arrangements in event of mechanical failure
-

8 Water

Details appear on drawing(s) No.

Tank capacities

.....

.....

Total

Fresh water generation

type

production per day

Fresh water pumps

type

capacity

Description of automatic system

.....

.....

Description of additional portable or fixed pump

type

capacity

9 Summary of equipment

<i>Compartment or zone</i>	<i>Number of extinguishers</i>	<i>Date of test</i>	<i>Fire hydrants</i>	<i>Fire hoses</i>	<i>Fresh water hydrants</i>	<i>Fresh water hoses</i>

10 Disposal of carcasses

Insert a statement indicating the means of disposal of carcasses, together with details of comminuters/grinders and lifts usable for hoisting out carcasses from lower decks:

.....
.....
.....
.....

11 Lighting

Lighting in passageways

type

level of illumination

Emergency lighting

type

level of illumination

Lighting in pens

type

level of illumination

Note: 'Level of illumination' means illumination in the horizontal plane measured at a height of one metre above the walking surface. Minimum and maximum levels are to be included.

12 List of supporting information and drawings

<i>Title</i>	<i>Plan No.</i>	<i>Date</i>

MODIFICATION OF PROVISIONS

This Record shall be permanently attached to
the Australian Certificate for the Carriage of Livestock

Name of ship

IMO Number

The following modifications have been allowed to provisions of Marine Orders Part 43 in
accordance with 5.1 of Marine Orders Part 43:

Issued at Canberra A.C.T.

Signed

Date

Official stamp

Form 2

Interim Document

Pending Issue of an Australian Certificate for the Carriage of Livestock

Issued under the provisions of Marine Orders Part 43

BY THE AUSTRALIAN MARITIME SAFETY AUTHORITY

Name of ship

IMO Number

Port of registry

Gross tonnage

Date on which keel was laid

Distinctive number or letters

Name and address of operator

THIS IS TO CERTIFY THAT

- The ship identified above has been surveyed in accordance with 10.3 of Marine Orders Part 43 for the ISSUE / REISSUE* of an Australian Certificate for the Carriage of Livestock.
- In accordance with Marine Orders Part 43, the Chief Marine Surveyor has authorised the Surveyor signing this document to issue this interim document, pending the issue by the Chief Marine Surveyor of the Australian Certificate for the Carriage of Livestock.
- This interim document is valid for one month from the date of issue, and for that period has the effect of a valid Australian Certificate for the Carriage of Livestock for the ship identified above.

Issued at

Official stamp

Signed

Date

*Strike out that which does not apply

Form 3



**MASTER'S REPORT
CARRIAGE OF LIVESTOCK**

Provision 20 of Marine Orders, Part 43

NOTE: FAILURE TO CORRECTLY COMPLETE THIS FORM, OR A DELAY IN ITS TRANSMISSION TO AMSA, MAY RESULT IN A DELAY AT THE COMMENCEMENT OF THE NEXT VOYAGE.

SHIP AND VOYAGE DETAILS

SHIP DETAILS

Name of ship	
Ship's flag	
IMO number	Voyage number
Name and address of shipowner/manager	
Name and address of livestock exporter/shipper	

GENERAL REPORT OF VOYAGE

Weather conditions
Breakdowns
Duration of voyage (days)

PERSON IN CHARGE OF LIVESTOCK

Name
Qualifications

LOADING AND DISCHARGE DETAILS				
Loading				
No. loaded/Port	Date(s) and time(s) of			
	Commencement	Completion		
Discharge				
No. discharged/Port	Date(s) and time(s) of			
	Commencement	Completion		
Amount of feed and water on board at departure				
Feed		Water		
Daily amount of water produced on board				
LIVESTOCK LOADED		Number loaded	Total mortality	% mortality
Sheep	Wethers			
	Rams			
	Lambs			
	Hoggets			
Total sheep				
Cattle	Bulls			
	Steers			
	Cows			
	Heifers			
Total cattle				
Horses				
Other (specify)				

MASTER'S SIGNATURE

Appendix 2

Australian Certificate for the Carriage of Livestock

Information to be provided by applicants

The following information must be provided by applicants for an Australian Certificate for the Carriage of Livestock:

All applicants

- Name of ship
- Port of registry
- IMO number
- Official number
- Classification Society
- ISM Issuing authority
- ISM operator
- Name and address of operator of the ship or, if the operator is not resident in Australia, the Australian agency which will be responsible for payment of AMSA fees and charges

Applicants for initial issue

- Whether ship is a conversion or a new construction
 - if conversion, date keel of ship originally laid
- Name and location of shipyard of construction or conversion
- Expected date of completion
- If information and plans required by Marine Orders Part 43 do not accompany application, date when they will be submitted

Applicants for endorsement or reissue

- Expiry date of current Australian Certificate for the Carriage of Livestock
- Place, date and time where ship will be available for survey

Appendix 3

Stability Criteria for Livestock Carriers

1 Effects of Shift and Wind

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

1.1 Shift of livestock criteria

1.1.1 The heeling lever due to the shift of livestock at 0° is to be given by:

$$\frac{\text{average mass of livestock carried x livestock shift constant}}{\text{floor area required per head of livestock x displacement}}$$

where:

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

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

livestock shift constant is:

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

For ships with uniform breadth of pens, the livestock ship constant becomes:
1/6 (breadth of pen x total floor area of pens).

For ships with varying breadths of pens, the largest breadth may be used and the livestock shift constant becomes:

$$1/6 (\text{maximum breadth of pen x total floor area of pens}).$$

1.1.2 The heeling lever due to the shift of livestock at 40° is to be given by:

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

1.1.3 The heeling lever curve is to be taken as a straight line joining the heeling lever at 0° and the heeling lever at 40°.

1.2 Shift of fodder criteria

1.2.1 The heeling lever due to the shift of fodder in pellet form carried in bulk at 0° is to

be given by:

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

where total shift moment means the sum of the shift moment of each compartment which is to be given by 0.044 lb^3 where:

l is the maximum length of the compartment; and

b is the maximum breadth of the compartment.

The use of volumetric shift moments for the fodder, where the surface is assumed to take up an angle of slope of 15° to the horizontal for full compartments and 25° to the horizontal for partly filled compartments, is an acceptable alternative method to obtain the total shift moment of fodder.

1.2.2 The heeling lever due to the shift of fodder in pellet form carried in bulk at 40° is to be given by:

$$0.8 \text{ (heeling lever due to the shift of fodder at } 0^\circ\text{)}.$$

1.2.3 The heeling lever curve is to be taken as a straight line joining the heeling lever at 0° and the heeling lever at 40° .

1.3 Effect of wind criteria

1.3.1 The heeling lever due to the effect of wind at 0° is to be given by:

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

where:

P (wind pressure) is 0.05 tonnes/m^2 ;

A is the lateral area of the ship above the waterline in square metres; and

H is the vertical distance between the centroid of the lateral area of the ship above the waterline and the centroid of the ship's underwater lateral area.⁴⁵

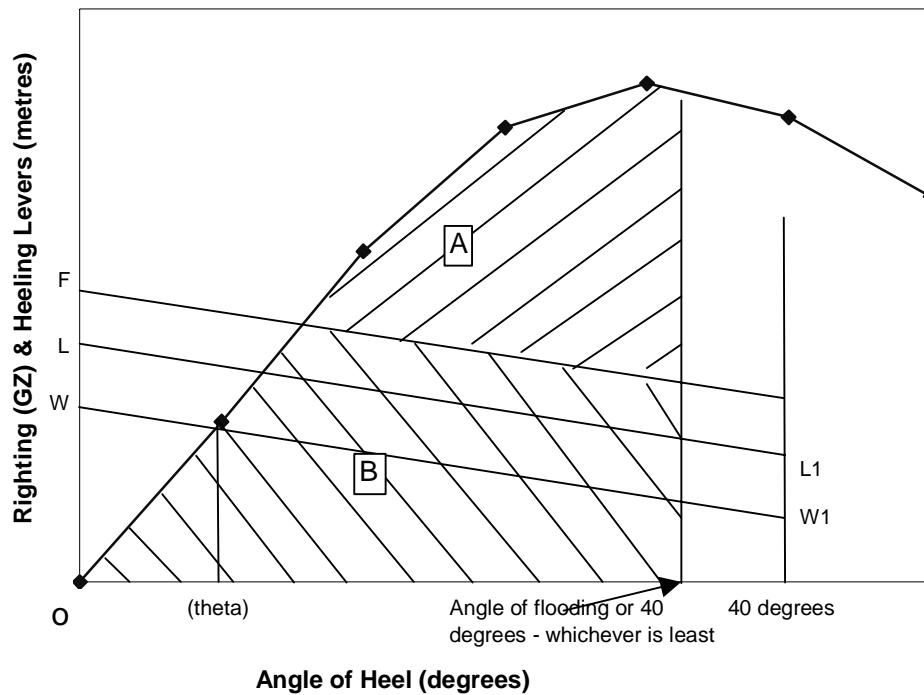
1.3.2 The heeling lever due to the effect of wind at 40° is to be given by:

$$0.8 \text{ (heeling lever due to the effect of wind at } 0^\circ\text{)}$$

⁴⁵ For many ships 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.

1.3.3 The heeling lever curve is to be taken as a straight line joining the heeling lever at 0° and the heeling lever at 40°.

1.4 Illustration of stability requirements



where:

OW is the heeling lever at 0° due to wind

WW₁ is the heeling lever curve due to wind;

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

LL₁ is the heeling lever curve due to the combined effects of the wind and the shift of livestock;

LF is the heeling lever at 0° due to the effect of shift of fodder;⁴⁶

FF₁ is the heeling lever curve due to the combined effects of wind and the shift of livestock and fodder;
and

θ is the angle of heel due to wind.

⁴⁶ If fodder is not pellet feed carried in bulk, the heeling lever due to shift of fodder will be zero.

2 Information to be provided on a Ship

2.1 Livestock shift constant

2.1.1 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.

2.1.2 This constant will vary for different configurations of pen utilisation, for example, where cattle are carried the constant will be different to the constant applicable where sheep are carried.

2.2 Heeling moment for fodder

The heeling moment for each compartment is to be determined separately unless the greatest heeling moment for all compartments added together is provided: that is, the total heeling moment for the worst condition of stability.

2.3 Wind effect

The values of A and H will vary with the draft of the ship. Values therefore are to be provided for the range of drafts that may occur in practice or alternatively the wind effect

$\frac{PAH}{displacement}$ may be given in tabular or graphical form.

3 Method of Calculation

3.1 The following example of calculations required to demonstrate compliance is given for information only. Other methods for demonstrating compliance may be used.

3.2 Information required

Livestock shift constant	= C	(from ship's information)
Average mass of livestock per animal	= m	(from shipper's declaration)
Floor area per animal	= f	(from appropriate table in Part 43)
Fodder heeling moment	= F	(from ship's information)
Stowage factor of fodder	= S	(from shipper's declaration)
Wind pressure	= P	(0.05 tonnes/m ²)
Lateral area of the ship above the waterline	= A	(from ship's information)
Vertical separation of centroids	= H	(from ship's information)
Displacement	= D	(from ship's information)
GM	= GM	(from ship's information)

3.3 Calculation

Livestock:

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

Fodder:

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

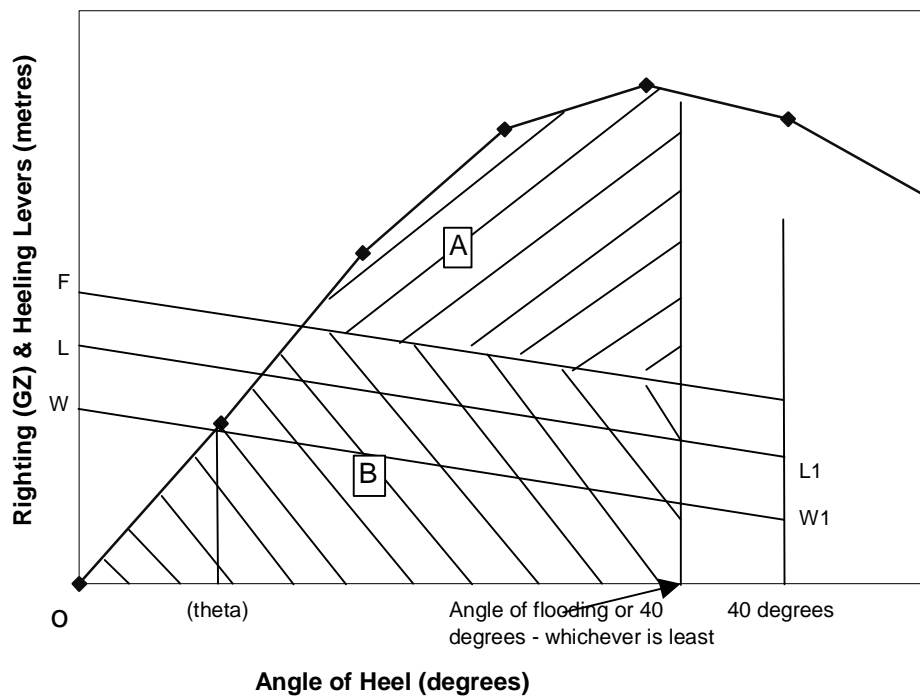
Wind:

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

Angle of heel due to wind:

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

3.4 Comparison with stability criteria



- (a) Check that area under righting lever curve is not less than 3.15 metre-degrees up to 30° angle of heel and not less than 5.16 metre-degrees up to 40° angle of heel or angle of flooding if this angle is less than 40°.
- (b) Check that area under righting lever curve between the angles of heel of 30° and 40° or between 30° and angle of flooding, if this angle is less than 40°, is not less than 1.72 metre-degrees.
- (c) Check that righting lever GZ is at least 0.20 metres at an angle of heel equal to or greater than 30°.
- (d) Check that maximum righting lever occurs at an angle of heel 25° or greater.
- (e) Check that initial metacentric height GM is not less than 0.15 metres.
- (f) Check that angle of heel due to wind effect is not more than 10°.
- (g) Check that area A is not less than [1.03 metre-degrees + 0.2 area (A+B)].

* * * * *

Appendix 4

Provision of livestock services

1 General

Provision 12 provides that a ship 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. Compliance with this Appendix will meet this requirement.

However, as an alternative, an operator may demonstrate adequate redundancy in systems and equipment by supplying to the Chief Marine Surveyor a risk analysis of the systems involved. In particular, ships constructed on or before 31 December 2001, or for which application is made for an Australian Certificate for the Carriage of Livestock before 31 December 2001, may until the end of 2006 meet the requirement by complying with provisions 13, 14 15, 16, 19 and 20 of Issue 4 of Marine Orders Part 43 (as applied by provisions 2.2.3, 2.2.4 and 2.2.5 of that Issue).

2 Sources of electrical power for livestock ships.

2.1 Main source

The ship's main source of power, as defined in Regulation 41 of Chapter II-1 of SOLAS should, in addition to being able to supply the services defined in Regulation 40.1.1 under the conditions specified in Regulation 41, be able to supply power to the livestock services under those same conditions.

2.2 Secondary source

The secondary source of power should meet the following:

- (a) it should be located in a space that is not contiguous with any space containing the main source of power or part thereof, and be independent of any services provided from or through any such space;
- (b) the prime mover should be capable of being started readily by an effective arrangement powered by an independent source of energy. The independent source

of energy should have sufficient capacity to be able to fully recharge the starting arrangement within 30 minutes;⁴⁷

- (c) it must be capable of supplying power to livestock services for a period of three days in case of a fire or other casualty in any space containing the main source of power or any part thereof.
- (d) it must at all times be maintained in a condition acceptable to the ship's classification society;
- (e) the secondary source of power, all associated ancillaries and electrical systems associated with livestock services should comply with Regulation 45 of Chapter II-1 of SOLAS and meet the requirements of the ship's classification society for electrical systems; and
- (f) instructions should be provided for the changeover between main and secondary sources of power and vice-versa. A copy of such instructions should be posted in the space containing the livestock source of power, and should be readable under the emergency lighting required by Regulation 43.2.2 of Chapter II-1 of SOLAS. The instructions should detail, among other things, starting method, switchboard changeover and electrical supply changeover to livestock services.

3 Ventilation

3.1.1 An enclosed space for the carriage of livestock should be provided with a mechanical ventilation system of sufficient capacity to change the air of that space in its entire volume as follows:

- (a) if the minimum clear height of the space is 2.30 metres or more, not less than once every three minutes;
- (b) if the minimum clear height of the space is 1.80 metres, not less than once every two minutes;
- (c) if the minimum clear height of the space is between 2.30 metres and 1.80 metres, at a rate proportional to those specified above.

3.1.2 For the purposes of 3.1.1, the volume of an enclosed space includes all that space contained between the ship's side plating, bulkheads, tank top or decks enclosing the space, less the volume of any tanks or trunks that are airtight within the space and no deduction is to be made in respect of space occupied by livestock, pens

⁴⁷ The emergency source of power required by SOLAS II-1/43.1.1 may be used to power the starting arrangement in accordance with SOLAS II-1/43.1.4 provided that the emergency source of power at all times complies with SOLAS II-1/43.2 and the ship's Classification Society approves the arrangement.

or other livestock fittings.

3.2.1 A space for the carriage of livestock that is not enclosed should be provided with a mechanical ventilation system if:

- (a) the space, being a structure having an arrangement of pens on more than one deck level, has a breadth greater than 20 metres; or
- (b) because of a partial enclosure of the space, the natural ventilation is restricted.

3.2.2 On ships constructed or converted on or after 27 May 2004, any mechanical ventilation system referred to in 3.2.1 should be capable of providing 100 per cent of the relevant capacity in 3.1.1. On all other ships, any mechanical ventilation system referred to in 3.2.1 should be capable of providing 75 per cent of the relevant capacity in 3.1.1.

3.2.3 In determining capacity for the purpose of 3.2.2, the volume of a space referred to in 3.2.1 includes all that space contained between the extremities of a pen structure including passageways on the outboard sides or ends of the structure, less the volume of any tanks or trunks that are airtight within the pen structure and no deduction is to be made in respect of space occupied by livestock, pens or other livestock fittings.

3.3 A mechanical ventilation system should distribute air so as to ensure that the whole of each livestock space is efficiently ventilated. On ships constructed or converted on or after 27 May 2004, the mechanical ventilation system should be capable of providing a minimum air velocity across any part of a pen from a source of supply of not less than 0.5 metres per second.^{47a}

3.4 Appropriate measures must be taken by the operator to ensure that air supplied to livestock spaces is as clean and fresh as practicable and that adequate separation measures are taken to ensure minimal recirculation of intake and exhaust air. Exhaust air outlets must be sited clear of the accommodation.⁴⁸

3.5 Ventilators serving livestock spaces must remain open in all weather conditions while livestock are on board.⁴⁹

^{47a} A lower air velocity may be accepted in some areas of the pen where a solid structure or the ship's side impedes the immediate flow. However, these areas should not exceed 4% of the area of any pen.

⁴⁸ The use of a vertical high velocity exhaust system may aid in the reduction of the recirculation of exhaust and intake air.

⁴⁹ The Load Line Convention requires ventilators serving spaces below the freeboard deck, or serving enclosed superstructure decks, which can be left open in all weather conditions to be at least 4.5 metres above the deck if situated on exposed superstructure decks within L/4 from the forward perpendicular, exposed freeboard decks and raised quarter decks, and at least 2.3 metres above if situated elsewhere.

3.6 If a mechanical ventilation system is fitted, adequate spare parts⁵⁰ should be carried on the ship to enable the replacement of defective fans.⁵¹

3.7 In order to achieve an adequate level of redundancy, it is suggested that fan group starter panels be located in at least two locations, with the operation of fans from either panel being able to effectively ventilate the required livestock spaces. Electrical supplies from both main and secondary sources of power should be supplied to each group starter panel, with both supplies being as widely separated as practicable and neither passing through any space containing any part of the other source of power. Interlocks at each group starter should prevent simultaneous supply by both sources of power.

4 Lighting

4.1 Livestock spaces, passageways between pens and access routes between or to those spaces should be adequately lit.

4.2 Guidance may be obtained from Australian Standard AS1680. Generally however, a minimum lighting level of 20 lux is acceptable for areas of general movement and duties such as feeding and watering livestock, while an illumination level of 110 lux is needed for close examination of livestock.

4.3 An emergency lighting system that is automatically activated on the failure of the main electrical installation should be provided in all parts of a ship where livestock is carried, passageways between pens and access routes between or from those parts, and should be capable of giving a level of illumination of not less than 8 lux in all passageways and access routes for a continuous period of not less than 15 minutes.⁵²

4.4 If fixed lighting is provided in a part of a ship above the uppermost continuous deck, that lighting must be capable of being controlled from the navigating bridge.

4.5 Light fittings must be waterproof and:

- (a) of sufficient strength to resist damage by livestock; or
- (b) placed beyond possible contact by livestock.

4.6 It is acceptable for ships that were permanently fitted for the carriage of livestock

⁵⁰ 'Adequate spare parts' should be interpreted as including for each type of fan: one set of bearings; one rotor or impeller; and one complete motor.

⁵¹ If a mechanical ventilation system provides an air change in excess of that specified in this Part, fans providing that excess may be accepted in place of the spares required by 14.6, provided the distribution of air will remain efficient.

⁵² The lamp casings on light fittings for the emergency lighting system should be painted red for ease of identification.

and had carried livestock from Australia before 1 July 1983 to be equipped with emergency hand lamps instead of an emergency lighting system referred to in 4.2:

5 Electrical Equipment for use in dust laden atmospheres

5.1 Areas where flammable dusts may be present (such as spaces used for the storage or handling of bulk fodder) must be classified in accordance with Australian Standard AS 61241.3 (IEC 61241-3:1997). Electrical equipment to be installed in spaces so categorised must be selected, installed, certified and maintained in compliance with Australian Standards AS 2381.1 and AS 61241.1.2 (IEC 61241-1-2:1999).

5.2 Lighting, or power points for portable lighting, in a space used for carriage of fodder in bulk, should be controlled by switches situated on the navigating bridge or at the fodder-handling machinery control station and indicator lights should be provided to show when power is supplied to the lighting or power points.

6 Drainage

6.1 Provision should be made for effectively draining fluids from each pen in which livestock is to be carried, under any expected conditions of trim by the head or by the stern, except that drainage is not required from the upper tier of sheep pens of ships constructed or converted before 27 May 2004 unless necessary to comply with 6.6 of this Appendix.

6.2 Drainage arrangements should be such that fluids drained from a pen are as far as practicable kept clear of other pens and associated working and access spaces.

6.3 A pump or eductor for a drainage tank or well should:

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

6.4 Essential drainage tanks, wells and the top of drainage pipes in a ship should be accessible from outside livestock pens for the purpose of inspection and cleaning.

6.5 A drainage channel and the top of a drainage pipe should be covered by a strainer plate if:

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

This may require a holding tank to prevent accumulation of effluent in the livestock spaces while in port.⁵³

6.6 For all new ships, and existing ships after 27 September 2008, a holding tank or treatment plant is to be provided, complying with Annex IV of MARPOL 73/78, to treat, store and discharge effluent in accordance with that Annex. The holding tank is to be of sufficient storage capacity:

- (a) to ensure that effluent is not discharged in contravention with Annex IV of MARPOL 73/78; and
- (b) to retain on board all effluent generated while the ship is in areas for which discharge is prohibited, such as in port and within 12 nautical miles of nearest land.^{53a}

6.7 For the purpose of 6.6:

- (a) an existing ship is a ship:
 - (i) built or converted before 27 September 2003; and
 - (ii) in respect of which an Australian Certificate for the Carriage of Livestock has been issued prior to 27 May 2004; and
 - (iii) the operator of which has not changed since 27 May 2004; and
- (b) a new ship is a ship that is not an existing ship.

6.8 All equipment fitted to meet the requirements of 6.6 must be capable of being operated by both the primary and the secondary sources of power.

7 Fodder & Water

7.1 The quantity of fodder and water to be provided on a ship should meet the following requirements:^{53b}

- (a) for cattle, buffalo, sheep and goats—the minimum requirements in the Australian Livestock Export Standards; and

⁵³ Effluent or effluent contaminated water must not be intentionally discharged from a ship while the ship is within the limits of an Australian port.

^{53a} For the purposes of plan assessment, the effluent produced will be assumed to be the total of fodder consumption and the water consumption based on the daily allowance for the maximum expected time for the ship to be operating in waters for which discharge is prohibited.

^{53b} The quantity of fodder and water to be provided on a ship should meet the minimum requirements in the Australian Livestock Export Standards for the maximum length of voyage to be undertaken by the ship.

(b) for other species—sufficient:

- for the expected period of the voyage; and
- to provide a reserve of a further 25 per cent or three days' requirements, whichever is the less.⁵⁴

7.2 In assessing the quantity of water to be provided for a particular voyage, allowance may be made for:

- (a) the anticipated quantity of potable water to be generated by the ship's equipment during the voyage, if evidence to the satisfaction of a surveyor is produced by the master attesting the capacity and efficiency of the fresh water generator; and
- (b) the taking on board of a quantity of potable water at an intermediate port nominated to a surveyor by the master prior to the loading of livestock, in which case the expected period of the voyage for the purposes of 7.1 must extend from the departure of the ship from the port of loading to its arrival at the intermediate port.

7.3 A storage and efficient distribution system should be provided to supply fresh drinking water to livestock at all times while livestock are on board. If it is an automatic system, it should be so constructed as to:

- (a) minimise, by control of the level of water, any spillage from a receptacle; and
- (b) prevent the return of water from a receptacle to the freshwater tank.

7.4 The master should ensure that each tank used for the storage of drinking water for livestock is maintained in good condition to ensure that the water is not contaminated.

7.5 In order to achieve a satisfactory level of redundancy, the following are required:

- (a) the water reserve referred to in 7.1 and the Australian Livestock Export Standards should be available from the ship's tanks, but may include the output from a fresh water generator, provided it can be powered by both the main and secondary sources of power and can continue to operate despite a fire or other casualty in the space containing the main source of power;
- (b) at least two pumps for distribution of water supplies should be provided. One may be located in the space occupied by the main source of power and supplied by that source of power. The other should be able to maintain supply despite a

⁵⁴ For the issue of an ACCL the ability of a ship to provide the water reserve from the ship's tanks will be assessed on the basis of a requirement of 36 litres per square metre of pen area per day for cattle and 6 litres per head per day for sheep.

fire or other casualty affecting the space occupied by the main source of power; and

- (c) if the fodder distribution system is dependant on electric power, the system must be capable of being powered by both the main and secondary sources of supply.

7.6 Fodder in pelletised or other concentrated form supplied to a ship for the purposes of 7.1 should be accompanied by a certificate from the pellet manufacturer stating the average temperature and moisture content of the pellets as delivered alongside the ship and certifying that the pellets were manufactured in accordance with the National Pellet Standards issued by the Livestock Exporters' Industry Advisory Council.

7.7.1 The Master should ensure that fodder is not placed on the floor of a pen, stall or similar fitting containing livestock.

7.7.2 Each pen, stall or similar fitting should be provided with receptacles for feeding and watering of livestock and, except where the fodder or water is provided by an automatic system, the receptacles must be capable of containing at least 33 per cent of the daily allowance of fodder^{54a} and water^{54b} for the number of animals contained in the pen, stall or fitting.

7.7.3 A feeding receptacle is not required for a pen containing cattle, provided:

- (a) the pen adjoins a passageway and the cattle can conveniently consume hay distributed on the floor of the passageway; and
- (b) urine, faeces and water used in washing any pen is prevented from fouling the passageway.

7.8.1 A receptacle provided in accordance with 7.7.2 should be:

- (a) suitable for the species of livestock;
- (b) readily accessible to the livestock;
- (c) capable of being serviced from outside the pen, stall or other fitting;
- (d) so installed as to not impede ventilation; and
- (e) so constructed and positioned, that fodder dust is not disturbed by the flow of ventilation.

^{54a} For the purposes of approval of the receptacle only, the daily allowance fodder is to be taken as 5.7kg per m² of pen space for cattle and 4.8kg per m² of pen area for sheep and goats (irrespective of age).

^{54b} For the purposes of approval of the receptacle only, the daily allowance for water to be calculated on the basis of a requirement of 36 litres per square metre of pen area per day for cattle and 6 litres per head per day for sheep.

In respect of adult sheep the top of a trough used as a water or fodder receptacle should be approximately 550 millimetres above the pen floor.

7.8.2 A pipe or rounded bar should be provided in a pen where the trough is not portable in order to minimise fouling of the trough. The pipe or bar should be at a suitable height to prevent or minimise fouling of the trough and at a horizontal distance of 75 millimetres (in a pen designed for sheep) or 150 millimetres (in a pen designed for cattle) or more from the edge of the trough.

7.9 Automatic feeding and watering systems should, if practicable, be set up and capable of supplying water and fodder in accordance with this Part before livestock are loaded. Irrespective of the systems used, water and fodder should be provided to livestock not later than 12 hours after loading has commenced.

7.10 Fodder other than hay stored in bulk in a ship on which conversion or construction for the carriage of livestock commenced after 1 July 1983, should be carried in not less than two separate spaces on the ship.

7.11 The Master should ensure that fodder in storage or in feeding receptacles is kept in a dry state, protected from the weather and sea.⁵⁵

7.12 Fodder may be stored in an enclosed livestock space if it does not interfere with the ventilation, lighting, drainage and passageway provisions of this Part. Fodder stowed on an open deck, whether on pallets, in containers or otherwise, should be secured to prevent movement prior to proceeding to sea.

* * * * *

⁵⁵ Pelletised food is, depending on moisture content, liable to spontaneous combustion. Guide-lines cannot be given as to the level of moisture that causes this reaction in individual types of pellets. Masters and others concerned are advised to ensure that the moisture content of pellets is within the product specification and to avoid loading pellets in wet weather conditions.

Appendix 5

Road vehicles carrying livestock on short voyages

- 1 In this appendix, **road vehicle** means all vehicles fitted for the carriage of livestock.
- 2 A tiered road vehicle must not be used unless approved as suitable for the carriage of livestock on a short voyage.
- 3 A road vehicle must comply with this Appendix, and in addition, with the regulations of the road transport authority of the State or Territory of the port from which the livestock is being shipped.
- 4 The livestock fittings of a road vehicle must be suited to the species of livestock being transported and constructed of materials of a type that can be effectively cleaned and be strong enough for its intended use.
- 5 Inside surfaces must be such that there are no protrusions or sharp edges, capable of injuring livestock. Hinges and latches must not project into the pathway of livestock.
- 6 The livestock fittings of a road vehicle must be escape-proof, and must be sub-divided, or be capable of being sub-divided, into pens appropriate to the species of animal to be transported. Pens so formed must not exceed 3.8 metres in length, unless permitted by a surveyor.
- 7 Deck heights must be sufficient for the type of livestock being carried. Where the road vehicle has one or more tiers there must be:
 - (a) sufficient distance between each floor and the roof to enable livestock to stand in their natural position;
 - (b) sufficient space above livestock to allow for the proper circulation of air; and
 - (c) satisfactory access to each such tier to inspect and facilitate the humane destruction of distressed livestock.

Clear height should be not less than 0.75m for sheep and 1.30m for cattle or such other minimum height as considered appropriate by an inspector of stock for the size and species of livestock being carried.

- 8 The design and spacing of side rails and openings must be such as to prevent injury to livestock. Where solid sides are used there must be adequate ventilation at each tier level. For adequate ventilation at least 20% of the total side area should be open.

9 The floor on the road vehicle must provide a satisfactory foothold that will not injure livestock.

10 In a tiered road vehicle the floors between each tier must be of solid section and so constructed as to minimise soiling of animals on the lower tier. Sections of tiers are to be secured at each longitudinal side so as to restrain each tier from moving transversely.

11 Gates must operate smoothly and retract fully from the pathway of livestock. Gates must not be susceptible to jamming due to impact by livestock or due to transit shock or vibration.

12 Securing points must be designed for adequately securing the road vehicle to the ship and each aperture must be capable of accepting only one lashing. The securing point must permit varying directions of the lashing to the ship's deck.

13 The minimum number of securing points is to be in accordance with the following table:

Table 1

<i>Gross mass of road vehicle (GVM) (tonnes)</i>	<i>Minimum number of securing points on each side of the road vehicle</i>
3.5 to 20.0	2
20.0 to 30.0	3
30.0 to 40.0	4

14 The minimum strength, in kilonewtons, without permanent deformation, of each securing point as fitted is to be obtained from the formula:

$$F = \frac{GVM \times 10 \times 1.2}{n}$$

where 'n' is the total number of securing points on each side of the road vehicle.

15 There must be an equal number of lashing points on each side of the road vehicle.

16 Each securing point on the road vehicle must be marked in a clearly visible colour.

17 Securing points must be so located as to ensure effective restraint of the road vehicle by the lashings.

18 Securing points must be capable of transferring the forces from the lashings to the chassis of the road vehicle and must never be fitted to bumpers or axles unless these are specially constructed and the forces are transmitted directly to the chassis.

19 Securing points must be so located that lashings can be readily and safely attached, particularly where sideguards are fitted to the road vehicle.

20 The internal free passage of each securing point's aperture must be not less than 80mm but the aperture need not be circular in shape.

* * * * *

Appendix 6

[Appendix not used]

[Continued on Page 74 of this amending Issue—pages 72 and 73 are not used]

Appendix 7

Australian Livestock Export Standards

This Appendix reproduces the relevant paragraphs of the Australian Livestock Export Standards (ALES) referred to in this Part, and are subject to amendment.⁵⁶

Cattle and Buffalo

6.8 Export by sea

6.8.6 Each Exporter must ensure that for cattle:

- (a) prior to the commencement of loading, the net available pen area (excluding the area of the hospital pens) on the ship is obtained from the ship's ACCL record of equipment;
- (b) prior to the commencement of loading, an estimate is made of the number of cattle that may be loaded on the ship. This estimate should be made by dividing the available net pen area by the minimum pen area per head shown in Tables 1, 2 and 3, using a best estimate of cattle weights;
- (c) when the ship has been loaded to approximately 95 percent of the estimated capacity, loading ceases until the weight of loaded cattle has been calculated and the number of animals required to fill the ship has been determined;
- (d) the pen area available to each class of cattle on the ship is at least that calculated by multiplying the number of that class of cattle by the minimum pen area per head shown in Tables 1, 2 and 3; and
- (e) provision is made for handling any cattle that are delivered to the wharf but are surplus to requirements.

6.8.7 Each Exporter must ensure that for cattle exported from an Australian port located south of the 26th parallel, during the period 1 May to 31 October:

- (a) slaughter cattle with an individual liveweight of more than 500 kg are not exported; and
- (b) breeding cattle with an individual liveweight of more than 500 kg are not exported unless written consent is given by the Secretary of AFFA.

⁵⁶ LiveCorp should be consulted about any changes that may have been made.

- 6.8.8 Each Exporter must ensure that for cattle exported from an Australian port located south of the 26th parallel, during the period 1 November to 30 April:
- (a) slaughter cattle with an individual liveweight of more than 550 kg are not exported;
 - (b) breeding cattle with an individual liveweight of more than 550 kg are not exported unless written consent is given by the Secretary of AFFA; and
 - (c) cattle with an individual liveweight of more than 500 kg are penned separately from other classes of cattle.
- 6.8.9 Each Exporter must ensure that cattle with an individual liveweight of less than 200 kg are penned on the ship separately from other heavier cattle.

Table 1 The minimum pen area per head for cattle exported by sea—default table

Liveweight (kg)*	Minimum pen area (m ² /head)		Liveweight (kg)*	Minimum pen area (m ² /head)	
200 or less	0.770		305	1.127	
205	0.787		310	1.144	
210	0.804		315	1.161	
215	0.821		320	1.178	
220	0.838		325	1.195	
225	0.855		330	1.212	
230	0.872		335	1.229	
235	0.889		340	1.246	
240	0.906		345	1.263	
245	0.923		350	1.280	
250	0.940		355	1.297	
255	0.957		360	1.314	
260	0.974		365	1.331	
265	0.991		370	1.348	
270	1.008		375	1.365	
275	1.025		380	1.382	
280	1.042		385	1.399	
285	1.059		390	1.416	
290	1.076		395	1.433	
295	1.093		400	1.450	
300	1.110				
Liveweight (kg)*	Minimum pen area (m ² /head)		Liveweight (kg)*	Minimum pen area (m ² /head)	
	Voyages of 10 days or more#	Voyages of less than 10 days#		Voyages of 10 days or more#	Voyages of less than 10 days#
405	1.467	1.459	425	1.535	1.519
410	1.484	1.468	430	1.552	1.533
415	1.501	1.487	435	1.569	1.547
420	1.518	1.505	440	1.586	1.560

Liveweight (kg)*	Minimum pen area (m ² /head)		Liveweight (kg)*	Minimum pen area (m ² /head)	
	Voyages of 10 days or more#	Voyages of less than 10 days#		Voyages of 10 days or more#	Voyages of less than 10 days#
445	1.603	1.574	530	1.892	1.808
450	1.620	1.588	535	1.909	1.822
455	1.637	1.602	540	1.926	1.835
460	1.654	1.615	545	1.943	1.849
465	1.671	1.629	550	1.960	1.863
470	1.688	1.643	555	1.977	1.877
475	1.705	1.657	560	1.994	1.890
480	1.722	1.670	565	2.011	1.904
485	1.739	1.684	570	2.028	1.918
490	1.756	1.698	575	2.045	1.932
495	1.773	1.712	580	2.062	1.945
500	1.790	1.725	585	2.079	1.959
505	1.807	1.739	590	2.096	1.973
510	1.824	1.753	595	2.113	1.987
515	1.841	1.767	600	2.130	2.000
520	1.858	1.780	more than 600	footnote #(a)	footnote #(b)
525	1.875	1.794			

* For cattle weighing between 200 kg and 600 kg, for weights between those shown in the table, the minimum pen area per head should be calculated by linear interpolation.

Time from completion of loading in Australia until anticipated arrival at the first port of discharge overseas.

(a) For cattle weighing more than 600 kg, on voyages of 10 days or more, the minimum pen area per head is 2.13 m² plus 0.017 m² for each 5 kg above 600 kg.

(b) For cattle weighing more than 600 kg, on voyages of less than 10 days, the minimum pen area per head is 2.00 m² plus 0.014 m² for each 5 kg above 600 kg.

Table 2 The minimum pen area per head for cattle exported by sea from a port south of the 26th parallel, from 1 May to 31 October⁵⁷

Liveweight (kg)*	Minimum pen area (m ² /head)	Liveweight (kg)*	Minimum pen area (m ² /head)
200 or less	0.847	245	1.016
205	0.866	250	1.034
210	0.884	255	1.053
215	0.903	260	1.071
220	0.922	265	1.090
225	0.941	270	1.109
230	0.959	275	1.128
235	0.978	280	1.146
240	0.997	285	1.165

⁵⁷ For shipments which originate or load from a port south of the 26th parallel and the route does not cross the 15th parallel south, stocking densities as calculated in clause 6.8.6 will be calculated from Table 3 regardless of the date of the voyage.

Liveweight (kg)*	Minimum pen area (m ² /head)	Liveweight (kg)*	Minimum pen area (m ² /head)
290	1.184	400	1.668
295	1.203	405	1.688
300	1.221	410	1.707
305	1.240	415	1.727
310	1.258	420	1.746
315	1.277	425	1.766
320	1.296	430	1.785
325	1.315	435	1.805
330	1.333	440	1.824
335	1.352	445	1.844
340	1.371	450	1.863
345	1.390	455	1.883
350	1.408	460	1.902
355	1.427	465	1.922
360	1.445	470	1.941
365	1.464	475	1.961
370	1.483	480	1.980
375	1.502	485	2.000
380	1.520	490	2.019
385	1.539	495	2.039
390	1.558	500	2.060
395	1.613	more than 500	** see footnote

* For cattle weighing between 200 kg and 500 kg, the weight used to calculate the minimum pen area per head should be rounded to the nearest 5 kg

** For cattle weighing more than 500 kg, the minimum pen area per head is 2.06 m² plus 0.02 m² for each 5 kg above 500 kg.

Table 3 The minimum pen area per head for cattle exported by sea from a port south of the 26th parallel, from 1 November to 30 April⁵⁸

Liveweight (kg)*	Minimum pen area (m ² /head)	Liveweight (kg)*	Minimum pen area (m ² /head)
200 or less	0.770	235	0.889
205	0.787	240	0.906
210	0.804	245	0.923
215	0.821	250	0.940
220	0.838	255	0.957
225	0.855	260	0.974
230	0.872	265	0.991

⁵⁸ For shipments which originate or load from a port south of the 26th parallel and the route does not cross the 15th parallel south, stocking densities as calculated in clause 6.8.6 will be calculated from Table 3 regardless of the date of the voyage.

Liveweight (kg)*	Minimum pen area (m ² /head)	Liveweight (kg)*	Minimum pen area (m ² /head)
270	1.008	415	1.501
275	1.025	420	1.518
280	1.042	425	1.535
285	1.059	430	1.552
290	1.076	435	1.569
295	1.093	440	1.586
300	1.110	445	1.603
305	1.127	450	1.620
310	1.144	455	1.637
315	1.161	460	1.654
320	1.178	465	1.671
325	1.195	470	1.688
330	1.212	475	1.705
335	1.229	480	1.722
340	1.246	485	1.775
345	1.263	490	1.827
350	1.280	495	1.880
355	1.297	500	1.932
360	1.314	505	1.984
365	1.331	510	2.035
370	1.348	515	2.086
375	1.365	520	2.137
380	1.382	525	2.157
385	1.399	530	2.176
390	1.416	535	2.196
395	1.433	540	2.215
400	1.450	545	2.235
405	1.467	550	2.255
410	1.484	more than 550	** see footnote

* For cattle weighing between 200 kg and 550 kg, the weight used to calculate the minimum pen area per head should be rounded to the nearest 5 kg

** For cattle weighing more than 550 kg, the minimum pen area per head is 2.255 m² plus 0.02 m² for each 5 kg above 550 kg.

6.8.10 Each Exporter must ensure that:

- (a) all cattle and buffalo are provided with feed and water within twelve (12) hours of being loaded on the ship;
- (b) whilst on the ship, all cattle and buffalo are provided with sufficient suitable feed to meet maintenance energy requirements; and
- (c) whilst on the ship, pregnant cows are provided with sufficient, suitable feed

to meet the nutritional requirements of the pregnancy.

- 6.8.11 Each Exporter must ensure that the shipboard ration does not contain more than 30 per cent by weight of wheat, barley or corn, unless the cattle have been adapted to the ration over a period of at least two (2) weeks prior to export.
- 6.8.12 Each Exporter must ensure that there is sufficient water on the ship to meet the anticipated needs of the cattle and buffalo during the voyage, plus an additional three (3) days of water to allow for delays.
- 6.8.13 Each Exporter must ensure that there is sufficient feed on the ship to meet the anticipated needs of the cattle and buffalo during the voyage, plus an additional twenty (20) per cent or three (3) days feed, whichever is the less, to allow for delays.
- 6.8.14 Each Exporter must ensure when calculating feed and water requirements:
- (a) allowance must be made for at least two (2) per cent of liveweight of feed per head per day;
 - (b) allowance must be made for at least twelve (12) per cent of liveweight of water per head per day. This water allowance may be reduced to at least ten (10) percent of liveweight per head per day if water consumption on the ship for each of the previous three (3) voyages averaged less than ten (10) per cent of liveweight per head per day.
- Note 1: Allowance may be made for fresh water produced on the ship while at sea.
- Note 2: In exceptional circumstances, the AQIS Authorised Veterinary Officer may give written exemption for small discrepancies in fodder and water allowances.
- 6.8.15 Each Exporter must ensure that for cattle exported from an Australian port located south of the 26th parallel, at least one (1) per cent of the required feed consists of chaff and/or hay.

[6.8.16 Not reproduced]

- 6.8.17 Each Exporter must ensure that a suitable supply of veterinary drugs and equipment is taken on the ship to allow for treatment of injuries and diseases likely to occur during the voyage.⁵⁹

⁵⁹ Minimum quantities are listed in Appendix 2 to ALES.

6.8.18 Each Exporter must ensure that for cattle and buffalo exported on voyages of ten (10) days or more, for every 1,000 square metres of cattle pen space, at least seven (7) tonnes or twenty-five (25) cubic metres pro-rata of sawdust, rice hulls or similar material is loaded on each shipment, to be used exclusively for bedding cattle pens. This does not apply to cattle and buffalo loaded from Brisbane or a port north of the 26th parallel and exported to South-East Asia or Japan.

[6.8.19 and 6.8.20 Not reproduced]

6.10 Humane destruction

6.10.1 Each Exporter must ensure that, when it is necessary to humanely destroy cattle or buffalo, for example following serious illness or injury:

- (a) the animal is handled as quietly as possible before being destroyed, to ensure that it is not unnecessarily distressed;
- (b) the number of people involved is the minimum number required to safely and humanely destroy the animal; and
- (c) the method of destruction causes a sudden and painless death.

6.10.2 Each Exporter must ensure that humane destruction is carried out with a genuine concern for animal welfare and, where possible, is done using:

- (a) a captive bolt pistol with a penetrating bolt;
- (b) a firearm; or
- (c) an overdose of anaesthetic administered by a Veterinarian.

6.10.3 Each Exporter must ensure that a captive bolt pistol is not used to destroy cattle or buffalo unless the blank cartridge is recommended by the manufacturer for use on that species.

6.10.4 Each Exporter must ensure that, where a captive bolt pistol or firearm is used to destroy cattle:

- (a) it is aimed at the point of intersection of lines from the base of each ear to the medial canthus of the opposite eye, and directed parallel with the spine; and
- (b) the shooter does not fire while the animal is moving its head, but waits patiently for the animal to stop moving before firing.

Sheep and goats

7.9 Export by sea

[7.9.1 to 7.9.4 Not reproduced]

7.9.5 Each Exporter must ensure that the pen area available to each class of sheep and goat on the ship is at least that calculated by multiplying the number of that class of sheep and goat by the minimum pen area per head shown in Table 5.

Table 5 The minimum pen area per head for sheep and goats exported by sea

Liveweight (kg)*	Minimum pen area (m ² /head) Nov - April	Minimum pen area (m ² /head) May - Oct	Liveweight (kg)*	Minimum pen area (m ² /head) Nov - April	Minimum pen area (m ² /head) May - Oct
28	.261	.261	51	.320	.322
29	.263	.263	52	.324	.329
30	.265	.265	53	.329	.337
31	.268	.268	54	.333	.344
32	.270	.270	55	.338	.351
33	.273	.273	56	.342	.357
34	.275	.275	57	.347	.363
35	.278	.278	58	.351	.369
36	.280	.280	59	.356	.375
37	.283	.283	60	.360	.381
38	.285	.285	61	.367	.389
39	.288	.288	62	.374	.398
40	.290	.290	63	.380	.406
41	.293	.293	64	.387	.415
42	.295	.295	65	.394	.423
43	.298	.298	66	.401	.432
44	.300	.300	67	.408	.441
45	.303	.303	68	.415	.450
46	.305	.305	69	.422	.459
47	.308	.308	70	.429	.468
48	.310	.310	75	.465	.515
49	.313	.313	80	.502	.563
50	.315	.315	90	.575	.658

For weights between those shown in the table, the minimum pen area per head should be calculated by linear interpolation

7.9.6 Each Exporter must ensure that the minimum pen area per head shown in Table 5 is increased by 10 per cent for sheep with more than 25 mm wool.

7.9.7 Each Exporter must ensure that:

- (a) horned rams are penned on the ship separately from other classes of sheep; and
- (b) the minimum pen area per head shown in Table 5 is increased by ten (10) per cent for horned rams.

7.9.8 Each Exporter must ensure that the minimum pen area per head shown in Table 5 is increased by ten (10) per cent for goat bucks.

7.9.9 Each Exporter must ensure that:

- (a) feed and water are provided to all sheep and goats within twelve (12) hours of being loaded on a ship; and
- (b) whilst on the ship, all sheep and goats are provided with sufficient, suitable feed to meet at least maintenance energy requirements.

7.9.10 Each Exporter must ensure that:

- (a) the shipboard ration does not contain more than thirty (30) per cent by weight of wheat, barley or corn, unless the sheep or goats have been adapted to the ration over a period of at least two (2) weeks prior to export; and
- (b) where pellets are used as the shipboard ration, they conform to the nutritional specifications in Table 6.

Table 6. Pellet specifications

	Specification
Moisture content	<12%
Ash*	<13%
Crude protein*	>9%
Urea*	<1.2%
Acid detergent fibre*	18-35%
Metabolizable energy	>8.0 MJ/kg DM

* As a percentage of dry matter

7.9.11 Each Exporter must ensure that, at the time of departure, there is sufficient feed and water on the ship to meet the anticipated needs of the sheep and goats during the voyage, plus an additional twenty-five (25) per cent or three (3) days' feed and water, whichever is less, to allow for delays.

7.9.12 Each Exporter must ensure that when calculating feed and water requirements:

- (a) allowance is made for at least:

- (i) three (3) per cent of liveweight of feed per head per day for young sheep and goats (up to and including four permanent incisor teeth); and
- (ii) two (2) per cent of liveweight of feed per head per day for sheep and goats with more than four permanent incisor teeth); and
- (b) allowance must be made for at least four (4) litres of water per head per day, except for days when the ambient temperature is expected to exceed 35°C, when allowance must be made for at least six (6) litres of water per head per day.

Note: Allowance may be made for fresh water produced on the ship while at sea.

[7.9.13 Not reproduced]

7.9.14 Each Exporter must ensure that a suitable supply of veterinary drugs and equipment is taken on the ship to allow for treatment of injuries and diseases likely to occur during the voyage.⁶⁰

[7.9.15 and 7.9.16 Not reproduced]

7.11 Humane destruction

7.11.1 Each Exporter must ensure that, when it is necessary to humanely destroy a sheep or goat, for example following serious illness or injury:

- (a) the animal is handled as quietly as possible before being destroyed, to ensure that it is not unnecessarily distressed;
- (b) the number of people involved is the minimum number required to safely and humanely destroy the animal; and
- (c) the method of destruction causes a sudden and painless death.

7.11.2 Each Exporter must ensure that humane destruction is carried out with a genuine concern for animal welfare and, where possible, is done using:

- (a) a captive bolt pistol with a penetrating bolt; or
- (b) a firearm; or
- (c) bleeding, by cutting the carotid arteries; or
- (d) an overdose of anaesthetic administered by a Veterinarian.

⁶⁰ Minimum quantities are listed in Appendix 3 to ALES.

7.11.3 Each Exporter must ensure that, where a captive bolt pistol or firearm is used to humanely destroy sheep or goats:

- (a) the captive bolt pistol or firearm is placed just behind the poll and aimed in the direction of the animal's muzzle; and
- (b) the shooter does not fire while the animal is moving its head, but waits patiently for the animal to stop moving before firing.

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