



MINISTRY of TRANSPORT
TE MANATŪ WAKA

WELLINGTON NEW ZEALAND

PURSUANT to Section 36 of the Maritime Transport Act 1994

I, MARK JAMES GOSCHE, Minister of Transport,

HEREBY MAKE the following maritime rules.

SIGNED AT Wellington

This 18th day of December 2000

by MARK JAMES GOSCHE

Minister of Transport

Maritime Rules

PART 31A, AMENDMENT 1

CREWING AND WATCHKEEPING

UNLIMITED, OFFSHORE, AND COASTAL
(NON-FISHING VESSELS)

Maritime Rules

Part 31A, Amendent 1

Crewing and Watchkeeping

Unlimited, Offshore, and Coastal (Non-Fishing Vessels)

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Part Objective

Part 31A, Amendment 1 replaces Part 31A – Minimum Personnel and Watchkeeping (Fitness for Duty) Foreign Going and Coastal. The provisions of the existing Part 31A are incorporated into Amendment 1.

In addition, this Part implements –

- the requirements of Chapter V, Regulation 13 of the SOLAS Convention, which requires every SOLAS ship to hold a safe manning document and to comply with requirements of that document and Regulation 19 on the use of the automatic pilot. These requirements are also extended to ships operating on the New Zealand coast to which the SOLAS Convention is applied;
- the principles of IMO Assembly Resolution A.890(21) Principles of Safe Manning. All ships will be required to carry out a safety assessment as a basis for their application to the Director for a minimum safe crewing (manning) document. Information and guidance on carrying out safety assessments is given in the Advisory Circular;
- the STCW-95 Convention requirements for basic safety training, tanker endorsements, ro-ro passenger ship training, the minimum hours of rest for watch-keeping officers and ratings, and watchkeeping principles, guidelines and responsibilities;
- the High Speed Craft Code requirements for high speed navigation courses and vessel type-rating; and
- the requirements for revalidation of STCW-95 certificates.

Part 31A, Amendment 1 also introduces a requirement for a ship's owner, its master, and all crew to be aware of the effects and signs and symptoms of fatigue.

Authority for making Part 31A, Amendment 1 is found in section 36(1)(b), (n), (o), (p) and (u) of the Maritime Transport Act 1994.

Extent of Consultation

On 20 May 2000, the Maritime Safety Authority published in each of the daily newspapers in the four main centres of New Zealand a notice inviting comments on the proposed Part 31A, Amendment 1. A notice was also published in the *New Zealand Gazette* on 18 May 2000. Copies of the draft Part 31A, Amendment 1 and the invitation to comment were then sent to interested parties. Comments on the Part were requested to be made by 20 July 2000.

Sixteen submissions were received on Part 31A, Amendment 1. All submissions were considered and, where appropriate, the proposed rules were amended to take account of the comments made.

Commencement

Part 31A, Amendment 1 as amended was referred to and signed by the Minister of Transport.

Part 31A, Amendment 1 will come into force on 1 February 2001.

Section 1 – General

31A.1 Entry into Force

- (1) Subject to rule 31A.1(2), Part 31A comes into force on 1 February 2001.
- (2) The requirements in rules 31A.8 and 31A.9 for a Minimum Safe Crewing Document come into force on 1 February 2002.

31A.2 Definitions

In Part 31A –

“Act” means the Maritime Transport Act 1994:

“Approved” means approved in writing by the Director for the relevant purpose:

“Coastal area” means the area within the coastal limits set out in Appendix 2 of Part 20:

“Crew” means the persons employed or engaged in any capacity on board a ship, including the master, but not including a pilot or any person temporarily employed on the ship while it is in port:

“Director” means the Director of Maritime Safety as defined in the Maritime Transport Act 1994:

“Enclosed area” means the area within –

- (a) the enclosed water limits set out in Appendix 1 of Part 20; and
- (b) all New Zealand inland waters:

“Fishing vessel” means a ship that is required to be registered under section 57 of the Fisheries Act 1983 or section 103 of the Fisheries Act 1996:

“Foreign ship” means any ship that is not a New Zealand ship:

“High Speed Craft” means a craft to which Section 2 of Part 40A applies:

"High Speed Code" means the International Code of Safety for High-Speed Craft, adopted by IMO resolution MSC.36(63):

"Inshore area" means the area within –

- (a) the inshore limits set out in Appendix 1 of Part 20; and
- (b) any defined section of the coastal area not beyond the territorial sea of New Zealand which has been assigned to that ship as an inshore limit by a surveyor in accordance with Part 20:

"Length" means length, as defined in Part 40A:

"Length overall" means length overall, as defined in Part 40A:

"Minimum safe crewing document" means the minimum safe manning document required by Regulation 13 of Chapter V of SOLAS:

"New Zealand ship" means a ship that is registered under the Ship Registration Act 1992; and includes a ship that is not registered under that Act but is required or entitled to be registered under that Act:

"Non-passenger ship" means any ship that is not a passenger ship or a fishing vessel:

"Officer" includes the master:

"Offshore area" means within the offshore limits defined in Part 20:

"Passenger" means any person carried on a ship, other than –

- (a) the master and members of the crew, and any other person employed or engaged in any capacity on board the ship on the business of the ship; or
- (b) a person on board the ship either in pursuance of an obligation laid upon the master to carry shipwrecked, distressed, or other persons, or by reason of any circumstance that neither the master nor the owner nor the charterer (if any) could have prevented or forestalled; or
- (c) a child under the age of 1 year:

"Passenger ship" means any ship that carries more than 12 passengers:

"Pleasure craft" means a ship that is used exclusively for the owner's pleasure or as the owner's residence, and is not offered or used for hire or reward; but does not include a ship that is:

- (a) provided for transport or sport or recreation by or on behalf of any institution, hotel, motel, place of entertainment, or other establishment or business; or
- (b) used on any voyage for pleasure if it is normally used as a fishing vessel or for the carriage of passengers or cargo for hire or reward; or
- (c) operated or provided by any club, incorporated society, trust, or business:

"Restricted area" means the inshore and enclosed areas:

"Sailing vessel" means a ship that -

- (a) is designed to be navigated under wind power alone and for which any motor provided is an auxiliary means of propulsion; or
- (b) has a ratio of sail area to displacement^{2/3} of more than 9:

"Ship" means every description of boat or craft used in navigation, whether or not it has any means of propulsion; and includes -

- (a) a barge, lighter, or other like ship; and
- (b) a hovercraft or other thing deriving full or partial support in the atmosphere from the reaction of air against the surface of the water over which it operates; and
- (c) a submarine or other submersible:

"Tanker" means any chemical tanker, gas tanker, or oil tanker:

"Unlimited area" means outside the offshore limits defined in Part 20.

31A.3 Abbreviations

"AB" means AB certificate:

"ADH" means Advanced Deckhand:

"CFG" means Master of a Foreign Going ship (Master Mariner):

"C1DO" means Class 1 Deck Officer:

"C2DO" means Class 2 Deck Officer:

"DWR" means Deck Watch Rating:

"ECE" means Endorsed Chief Engineer:

"ERWR" means Engine Room Watch Rating:

"GMDSS" means Global Maritime Distress and Safety System:

"IR" means Integrated Rating:

"MEC 1" means Marine Engineer Class 1:

"MEC 2" means Marine Engineer Class 2:

"MEC 3" means Marine Engineer Class 3:

"MEC 4" means Marine Engineer Class 4:

"MEC 5" means Marine Engineer Class 5:

"NZOM" means New Zealand Offshore Master:

"NZOW" means New Zealand Offshore Watchkeeper:

"SOLAS" means the International Convention on Safety of Life at Sea 1974:

"STCW-78" means the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978:

"STCW-95" means the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended in 1995:

"UMS" means Unattended Machinery Space:

"1MFG" means First Mate of a Foreign Going ship:

"2MFG" means Second Mate of a Foreign Going ship.

31A.4 Application

- (1) Except as provided in rules 31A.4(2) and (3), Part 31A applies to –
 - (a) any New Zealand passenger or non-passenger ship in the unlimited area; and
 - (b) any New Zealand passenger or non-passenger ship of 45 metres or more in length outside the restricted area; and

- (c) any New Zealand passenger or non-passenger ship that operates within restricted limits if –
 - (i) the Director considers the ship has equivalent crewing requirements to the type of ship referred to in rule 31A.4(1)(b); and
 - (ii) the Director notifies the owner of the ship to that effect in writing.
- (2) Rules 31A.11, 31A.24 and 31A.25 apply to any foreign passenger ship or non-passenger ship of 500 gross tonnage or more that is registered in a state party to STCW-95 and that is within the coastal area.
- (3) Part 31A does not apply to –
 - (a) pleasure craft; or
 - (b) any vessel under tow.

31A.5 Equivalent Certificates

- (1) Where Part 31A requires a person to be carried on board a ship who holds a specific certificate of competency –
 - (a) the Director will accept another certificate of competency issued in New Zealand that is specified in Table 1 as being equivalent to that certificate, subject to any applicable conditions specified in Table 1; and
 - (b) the Director may accept as equivalent to that certificate another certificate of competency not referred to in Table 1, if the Director is satisfied that the requirements to obtain the certificate are not less than those required to obtain the certificate required by this Part.
- (2) Where Part 31A requires a person who holds a STCW certificate of competency to be carried on board a ship, that certificate or any equivalent certificate accepted by the Director under rule 31A.5(1) must –
 - (a) prior to 1 February 2002, have been issued or validated in accordance with STCW-78 or STCW-95; and
 - (b) on or after 1 February 2002, have been issued or validated in accordance with STCW-95.

Table 1

Certificate required	Equivalent certificates that are acceptable	Conditions under which equivalents are acceptable
C1DO	CFG	
	Master Home Trade	Limited to ships under 5000 gross tonnage and within the offshore area.
1MFG	C1DO or equivalent	
2CDO	1MFG or equivalent	
2MFG	2CDO or equivalent	
	Mate Home Trade	Limited to ships under 5000 gross tonnage and within the offshore area
NZOM	2MFG or equivalent	
	Master Deep Sea Fishing Vessel	
	Watchkeeper of a foreign-going ship	Not accepted after 31/1/2002
NZOW	NZOM or equivalent	
	New Zealand coastal master	
DWR	NZOW or equivalent	
	AB	
	IR	
ADH	DWR or equivalent	
	Inshore launchmaster	
	Commercial launchmaster	
	ADH with fishing endorsement	
	Qualified fishing deckhand	
MEC 1	Marine Engineer Class 1	Not accepted after 31/1/2002
	First Class Engineer pre-1986	
MEC 2 ECE	MEC 1 or equivalent	
	Class 2 ECE	Not accepted after 31/1/2002
	First Class Coastal Motor Engineer	Limited to non-passenger ships, of less than 3000 kW, and within the offshore area
MEC 2	MEC 1 or equivalent	
	Marine Engineer Class 2	Not accepted after 31/1/2002
	Second Class certificates issued pre-1986	
MEC 3	MEC 2 or equivalent	
	Marine Engineer Watchkeeper	Not accepted after 31/1/2002

MEC 4	Any equivalent to MEC 3	
	Second Class Engineer	
	First Class Coastal Motor Engineer	
	First Class Diesel Trawler Engineer	
ERWR	MEC 3	
	MEC 4 or equivalent	
	MEC 5	
	IR	

31A.6 Revalidations

- (1) The Director may validate a STCW certificate of competency for up to 5 years when issuing such a certificate, or revalidate such a certificate for up to 5 years, if the applicant produces evidence that he or she –
- (a) complies with all medical requirements applicable to the certificate; and
 - (b) has –
 - (i) in the last five years, completed at least 12 months sea service –
 - (aa) for deck officers, in charge of a navigational watch:
 - (bb) for holders of MEC 1, as engineer on ships over 2000 kW;
 - (cc) for holders of MEC 2 and 3, as engineer on ships over 750 kW; or
 - (ii) within the last 12 months, completed at least three months sea service –
 - (aa) as specified in rule 31A.6(1)(b)(i); or
 - (bb) in a lesser capacity than the certificate held and has passed a safety oral examination; or
 - (cc) in a supernumerary capacity; or
 - (iii) within the last five years, completed at least two and a half years non sea-going service in a position that the Director considers is equivalent to the recent experience prescribed in rule 31A.6(1)(b)(i) or (ii) and is appropriate to the certificate; or
 - (iv) within the last three months, satisfactorily attended and completed a refresher course that the Director considers is equivalent to the recent experience prescribed in rule 31A.6(1)(b)(i) or (ii); or

- (v) within the last 5 years, completed any service or training that the Director considers is equivalent to that prescribed in rule 31A.6(1)(b)(i), (ii), (iii) or (iv).
- (2) The Director may revalidate a GMDSS radio operator certificate issued under Part 32, for up to 5 years, if the applicant provides evidence of having –
- (a) in the last five years, completed at least six months sea service on GMDSS ships; or
 - (b) in the last 12 months, completed at least three months sea service on GMDSS ships; or
 - (c) in the last three months, satisfactorily attended and completed a GMDSS refresher course that the Director considers is equivalent to the recent experience prescribed in rule 31A.6(2)(a) or (b).
- (3) The Director may revalidate a tanker endorsement, or a tanker certificate, issued under Part 32 or the Shipping (Manning and Watchkeeping) Regulations 1986, for up to 5 years, if the applicant provides evidence of having –
- (a) in the last five years, completed at least six months sea service on tankers of the type to which the certificate applies; or
 - (b) in the last three months, completed 14 days supervised ship-board training in a supernumerary capacity on tankers of the type to which the certificate applies; or
 - (c) in the last three months, satisfactorily attended and completed a tanker refresher course for the type of tanker to which the certificate applies that the Director considers is equivalent to the recent experience prescribed in rule 31A.6(3)(a) or (b).
- (4) The Director may revalidate ro-ro passenger ship training for up to 5 years, if the applicant provides evidence of having –
- (a) in the last five years, completed at least six months sea service on ro-ro passenger ships; or
 - (b) in the last three months, completed 14 days supervised ship-board training, in a supernumerary capacity on ro-ro passenger ships; or
 - (c) in the last three months, satisfactorily attended and completed a ro-ro passenger ship refresher course that the Director considers is equivalent to the recent experience prescribed in rule 31A.6(4)(a) or (b).

Section 2 – Minimum Safe Crewing

31A.7 General Requirements

- (1) The owner and the master of a ship must not operate that ship unless there are on board at least the minimum number of crew holding the qualifications –
 - (a) for watchkeeping required by rules 31A.12 to 18 inclusive; and
 - (b) to operate the ship safely as required by rule 31A.10; and
 - (c) necessary for compliance with the Minimum Safe Crewing Document required by rule 31A.8.
- (2) The owner and the master of a ship must monitor, on an on-going basis, the effectiveness of the crewing carried to meet rule 31A.7(1).

31A.8 Minimum Safe Crewing Document

- (1) The owner and the master of a ship must not operate that ship unless the master is in possession of a current Minimum Safe Crewing Document issued for that ship by the Director.
- (2) The owner and the master of a ship must not operate that ship unless the watchkeepers' certificates of competency required by the Minimum Safe Crewing Document, except for those watchkeepers holding MEC 4 or NZOW, have been validated or revalidated in accordance with rule 31A.6(1).
- (3) No person may act in any watchkeeping capacity listed in the Minimum Safe Crewing Document unless he or she holds the watchkeeping certificate specified in rules 31A.13 or 31A.14 and, except in the case of MEC 4 or NZOW, the certificate has been validated or revalidated in accordance with rule 31A.6(1).

31A.9 Document Requirements

- (1) The owner of a ship must prepare and submit to the Director a proposal for the minimum safe crewing level for the ship in accordance with rule 31A.9(2) at the following times –

- (a) on application for the Minimum Safe Crewing Document:
 - (b) before the document's validation or revalidation has expired:
 - (c) if the ship undergoes a change in trading area, construction, machinery, equipment, operation or maintenance which may affect the minimum safe crewing level:
 - (d) if monitoring the minimum safe crewing level in accordance with rule 31A.9(2)(f) indicates that a change is necessary.
- (2) In preparing the proposal for the minimum safe crewing level, the owner must apply the requirements in rule 31A.10 and –
- (a) make an assessment of the tasks, duties and responsibilities of the crew necessary to operate the ship safely, protect the marine environment, and deal with emergency situations; and
 - (b) make an assessment of the number and grades or capacities of the crew necessary to operate the ship safely, protect the marine environment, and deal with emergency situations; and
 - (c) propose a minimum safe crewing level based on the assessment of the numbers and grades or capacities of the ship's crew, together with an explanation of how the proposed ship's crew will deal with emergency situations, including, where necessary, the evacuation of passengers; and
 - (d) ensure that the minimum safe crewing level will be adequate at all times and in all respects, taking into account requirements for cargo operations in port or at sea, and including meeting the requirements of peak workload situations; and
 - (e) ensure that the proposed minimum safe crewing level complies with any applicable requirements in rules 31A.12 to 18 inclusive; and
 - (f) specify how the effectiveness of the proposed minimum safe crewing level will be monitored; and
 - (g) specify the consultation on the minimum safe crewing level that has taken place, and what the results of that consultation were.
- (3) Subject to such conditions as the Director considers necessary to ensure compliance with the criteria of this Part for minimum safe crewing, the Director may approve a proposal for a minimum safe crewing level for a ship if the Director is satisfied that the proposal complies with the requirements in rule 31A.9(2) and applies the requirements in rule 31A.10.

- (4) An applicant is entitled to a Minimum Safe Crewing Document in respect of a ship if –
 - (a) the applicant makes an application, including the proposal required by rule 31A.9(1), for a Minimum Safe Crewing Document in accordance with section 35 of the Maritime Transport Act 1994; and
 - (b) the Director is satisfied that the applicable requirements specified in this Part and in section 41 of the Maritime Transport Act 1994 have been complied with in respect of that application.
- (5) A Minimum Safe Crewing Document must specify the number of crew to be carried on that ship and the qualifications that they must hold in the different operating conditions for which the document is issued.
- (6) A Minimum Safe Crewing Document is valid –
 - (a) for up to 5 years; or
 - (b) until the ship undergoes a change in trading area, construction, machinery, equipment, operation or maintenance of the ship, which may affect the minimum safe crewing level; or
 - (c) until the monitoring of the minimum safe crewing level under rule 31A.9(2)(f) indicates that a change is necessary,whichever is the lesser period of time.
- (7) The owner and the master of a ship must ensure that the Minimum Safe Crewing Document is displayed on the ship at all times.

31A.10 Minimum Safe Crewing Assessment

- (1) The minimum crew required by rule 31A.7(1) must include sufficient qualified crew to –
 - (a) maintain safe navigational, engineering and radio watches in accordance with the requirements of this Part and to maintain general surveillance of the ship; and
 - (b) moor and unmoor the ship safely; and
 - (c) manage the safety functions of the ship when employed in a stationary or near-stationary mode at sea; and

- (d) perform operations, as appropriate, for the prevention of damage to the marine environment; and
 - (e) maintain the safety arrangements and the cleanliness of all accessible spaces to minimise the risk of fire; and
 - (f) provide for medical care on board the ship; and
 - (g) ensure safe carriage of passengers and cargo during transit; and
 - (h) conduct all stages of the ship's operation safely; and
 - (i) inspect and maintain, as appropriate, the structural integrity of the ship; and
 - (j) operate all watertight closing arrangements and maintain them in effective condition and also deploy a competent damage control party; and
 - (k) operate all on board fire-fighting and emergency equipment and life-saving appliances, carry out such maintenance of this equipment as is required to be done at sea, muster and disembark all persons on board, and assist passengers in an emergency; and
 - (l) operate the main propulsion and auxiliary machinery and maintain it in a safe condition to enable the ship to overcome the foreseeable perils of the voyage; and
 - (m) supply provisions for and prepare nutritious meals on board the ship.
- (2) In applying the requirements of rule 31A.10(1), the owner and the master must take into account the requirements in the Act and any maritime rules covering –
- (a) watchkeeping; and
 - (b) fitness for duty; and
 - (c) safety management; and
 - (d) certification and licensing of seafarers; and
 - (e) training of seafarers; and
 - (f) occupational health, including hygiene; and
 - (g) crew accommodation.
- (3) In applying the requirements of rule 31A.10(1), the owner and the master of a ship must take into account the following:

- (a) on-going training needs for all crew including the operation and use of fire-fighting and emergency equipment, life-saving appliances and watertight closing arrangements:
 - (b) specialised training requirements for particular types of ships:
 - (c) provision of proper food and drinking water:
 - (d) the need to undertake emergency duties and responsibilities:
 - (e) the need to provide training opportunities for entrant seafarers to allow them to gain the training and experience needed.
- (4) In applying the requirements of 31A.10(1)(f), the owner and the master of a ship must ensure that sufficient crew hold first aid or medical training certificates to meet the needs of any reasonably foreseeable medical emergency on board.

31A.11 Foreign Ships

- (1) The owner and the master of a foreign ship must ensure that –
- (a) the ship carries a safe crewing document issued by or on behalf of the flag state in accordance with Chapter V of SOLAS and the *Principles of Safe Manning* adopted by the International Maritime Organisation by Assembly Resolution A.890(21); and
 - (b) the number of crew and the certificates of the crew serving on board the ship comply with the requirements of the safe crewing document; and
 - (c) valid certificates required by the safe crewing document to be held by the crew have been issued or validated –
 - (i) prior to 1 February 2002, in accordance with STCW-78 or STCW-95; and
 - (ii) on or after 1 February 2002, in accordance with STCW-95; and
 - (d) the crew on the ship are capable of maintaining the watchkeeping standards required by STCW-95.
- (2) The owner and the master of a foreign ship must ensure that the ship's safe crewing document is readily available on board the ship for examination at all times.

Section 3 – Ship Types

31A.12 General Requirements

- (1) In addition to the requirements in rules 31A.13 and 31A.14 for watchkeepers, the owner and the master of a ship must ensure that the total crew carried on board includes sufficient qualified crew to operate that ship safely.
- (2) Any seafarer who has designated safety or pollution prevention duties must hold:
 - (a) a certificate issued in accordance with STCW-78 or STCW-95; or
 - (b) an AB certificate; or
 - (c) a basic safety training certificate that the Director is satisfied meets the requirements of section A-VI/1 paragraph 2 of the STCW-95 Code.
- (3) If a ship carries any watchkeeper additional to the watchkeepers required by rule 31A.13 or rule 31A.14, the owner and the master of the ship must ensure that any additional watchkeeper holds at least the minimum applicable watchkeeping qualification for that class of ship.
- (4) Where the tables in rules 31A.13 and 31A.14 require engineer qualifications, those qualifications must be for steam or motor as appropriate.
- (5) Where Table 4 permits a seafarer to perform the duties of the engineer, the ship must be fitted with means to allow the main engine to be controlled and monitored from the deck watchkeeping position.

31A.13 Unlimited Area

- (1) Except as specified by rule 31A.13(2), ships operating in the unlimited area must carry at least:
 - (a) the navigational watchkeepers specified in Table 2; and
 - (b) the engine room watchkeepers specified in Table 3; and
 - (c) if over 1000 gross tonnage, a cook holding the following certificates –
 - (i) a National Certificate in Hospitality (Cookery) (Level 3) or equivalent certificate; and
 - (ii) a first aid certificate; and

- (iii) a proficiency in survival craft and rescue boats (other than fast rescue boats) certificate; and
 - (iv) a competence in fire fighting and fire-prevention certificate.
- (2) The Director may permit non-passenger ships of less than 500 gross tonnage operating in the unlimited area to carry at least the minimum crew specified in Table 4, including persons holding the qualifications specified in that Table.

Table 2

Class of Ship	Navigational Watchkeeping Qualifications Required	Conditions
Passenger Ships	Master – CFG 1 st Mate – 1MFG Watchkeepers – 2 x 2MFG Ratings - 3 x DWR	All extra watchkeeping officers must hold 2MFG
Tankers of 500 gross tonnage or more		In addition to DWR watchkeepers, an appropriate number of experienced, qualified ABs are required on board.
Non-passenger Ships	Master – CFG 1 st Mate – 1MFG Watchkeeper – 2MFG Ratings - 2 x DWR	

Table 3

Class of Ship	Engine room Watchkeeping Qualifications Required	Conditions
Passenger ships of 3,000 kW or more	Chief Engineer – MEC 1 2nd Engineer – MEC 2 3rd Engineer – MEC 3 4th Engineer – MEC 3 Rating - ERWR	ERWR to be full time in engine room
Tankers of 3000 kW or more	Chief Engineer – MEC 1 2nd Engineer – MEC 2 3rd Engineer – MEC 3 Rating - ERWR	
Passenger ships of 750 kW or more and less than 3000 kW		
Passenger ships of less than 750 kW, and of 500 gross tonnage or more	Chief Engineer – MEC 2/ECE 2nd Engineer – MEC 3	
Tankers of 750 kW or more and less than 3000 kW, and of 500 gross tonnage or more	Chief Engineer – MEC 1 2nd Engineer – MEC 2 Rating - ERWR	
Non-passenger ships of 3000 kW or more		
Tankers of 750 kW or more and less than 3000 kW, and of less than 500 gross tonnage	Chief Engineer – MEC 2/ECE 2 Engineer – MEC 2	
Non-passenger ships of 750 kW or more and less than 3000 kW		
Tankers and non-passenger ships of less than 750 kW, and of 500 gross tonnage or more	Engineer – MEC 2/ECE	
Tankers and non-passenger ships of less than 750 kW, and of less than 500 gross tonnage	Engineer – MEC 2	

Table 4

Class of ship	Watchkeeping Qualifications Required	Conditions
Non-passenger ship of 15 metres or more in length, and carrying more than 6 passengers	Master NZOM with unit standards 6912 and 6913 1 st Mate – NZOW with unit standard 6912 Watchkeeper – NZOW Engineer – MEC 4 Rating - ADH	Master requires STCW 95 endorsement after 31 January 2002 Engineer may be other seafarer Total minimum crew 4
Non-passenger ship of 15 metres or more in length, and carrying 6 or less passengers	Master NZOW with command endorsement and unit standards 6912 and 6913 Mate – NZOW with unit standard 6912 Engineer – MEC 4	Total minimum crew 2 Engineer may be other seafarer and may be MEC 5 until 1 February 2004 if acceptable to the Director

31A.14 Other Ships

A ship not operating in the unlimited area must carry at least:

- (a) the navigational watchkeepers specified in Table 5; and
- (b) the engine room watchkeepers specified in Table 6.

Table 5

Class of ship	Navigational Watchkeeping Qualifications Required	Conditions
Passenger ships and tankers of 3000 gross tonnage or more	Master – C1DO 1 st Mate – C2DO Watchkeepers – 2 x 2MFG Ratings - 3 x DWR	2MFG need not be carried on ships operating under the HSC Code on passages under 2.5 hours. In addition to DWR watchkeepers, an appropriate number of experienced qualified ABs are required on board.
Passenger ships and tankers of 500 gross tonnage or more and less than 3000 gross tonnage	Master – C1DO 1 st Mate – C2DO Watchkeeper – 2MFG Ratings – 3 x DWR	
Non-passenger ships of 500 gross tonnage or more		
Passenger ships and tankers of less than 500 gross tonnage	Master – NZOM STCW 95 1 st Mate – NZOW Watchkeeper – NZOW Ratings – 2 x ADH	Master may be NZCM with Home Trade endorsement on ships up to 200 gross tonnage within 100 miles of the coast

Watchkeeper need not be carried on passages under 2.5 hours	Master may be NZCM with Home Trade endorsement on ships up to 200 gross tonnage within 100 miles of the coast
	Master - NZOM STCW 95 Mate - NZOW Ratings - 2 x ADH

Table 6

Class of ship	Engineering Watchkeeping Qualifications Required	Conditions
Passenger ships of 3,000 kW or more	Chief Engineer - MEC 1 2nd Engineer - MEC 2 3rd Engineer - MEC 3 Rating - ERWR	MEC 3s need not be carried on ships operating under the HSC Code on passages under 2.5 hours.
Tankers of 3,000 kW or more	Chief Engineer - MEC 1 2nd Engineer - MEC 2 3rd Engineer - MEC 3 Rating - ERWR	
Passenger ships of 750 kW or more and less than 3000 kW, and of 500 or more gross tonnage	Chief Engineer - MEC 2/ECE 2nd Engineer - MEC 3	
Passenger ships of 750 kW or more and less than 3000 kW, and of 500 or more gross tonnage	Chief Engineer - MEC 2 2nd Engineer - MEC 3	
Tanker of 750 kW or more and less than 3000 kW, and of 500 gross tonnage or more	Chief Engineer - MEC 1 2nd Engineer - MEC 2 Rating - ERWR	
Non-passenger ships of 750 kW or more and less than 3000 kW, and of 500 gross tonnage	Chief Engineer - MEC 2 2nd Engineer - MEC 3	
Passenger ship of less than 750 kW	Chief Engineer - MEC 2 2nd Engineer - MEC 3	
Tanker of 750 kW or more and less than 3000 kW, and of 500 gross tonnage or more	Chief Engineer - MEC 1 2nd Engineer - MEC 2 Rating - ERWR	
Non-passenger ship of 3000 kW or more	Chief Engineer - MEC 2 2nd Engineer - MEC 3	
Non-passenger ship of 750 kW or more and of less than 500 gross tonnage	Engineer - MEC 2	

<p>Non-passenger ship of less than 750 kW</p>	<p>Engineer – MEC 3: Or MEC 5 if endorsed by the Director that the holder has been in charge of the engines of a motor ship for 2 years</p>	
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31A.15 Tankers

- (1) On a tanker the master, the first mate, the chief engineer, the second engineer, and any other person in a position with immediate supervisory responsibility for the loading, discharging, care in transit, or handling of cargo must hold a valid class 1 tanker endorsement issued under Part 32 that is applicable to the type of tanker.
- (2) All crew who perform duties specifically related to cargo operations or cargo equipment on board a tanker must hold a valid class 2 tanker endorsement issued under Part 32 that is applicable to that type of tanker.

31A.16 Ro-ro Passenger Ships

- (1) All officers, and any crew assigned specific duties and responsibilities on a ro-ro passenger ship, must hold a type rating certificate issued by the owner for that ship that certifies completion of familiarisation training that the Director is satisfied meets the requirements of section A-V/2, paragraph 2 of STCW-95.
- (2) On a ro-ro passenger ship, all officers, and any crew designated to assist passengers in emergency situations, must have successfully completed training in crowd management that the Director is satisfied meets the requirements of section A-V/2, paragraph 3 of STCW-95 and is current.
- (3) All crew on a ro-ro passenger ship providing direct service to passengers must have successfully completed training in communication and the use of lifesaving appliances that the Director is satisfied meets the requirements of section A-V/2, paragraph 3 of STCW-95.
- (4) On a ro-ro passenger ship, the master, the first mate, the chief engineer, the second engineer and any crew assigned immediate responsibility for embarking and disembarking passengers, loading, discharging or securing cargo or closing hull openings on board must have successfully completed training in passenger safety,

cargo safety, and hull integrity that the Director is satisfied meets the requirements of section A-V/2, paragraph 4 of STCW-95 and is current.

- (5) On a ro-ro passenger ship, all officers, and any crew assigned responsibility for the safety of passengers in emergency situations, must have successfully completed training in crisis management and human behaviour that the Director is satisfied meets the requirements of section A-V/2, paragraph 5 of STCW-95 and is current.
- (6) On a ro-ro passenger ship that does not operate on voyages in the unlimited area, one of any officers and seafarers undergoing training and supervision need not have completed the training required by rule 31A.10(4) and (5).
- (7) The training required by rules 31A.16(2), (4) and (5) is current for a period of 5 years from the date of completion and on expiry of that period must be revalidated in accordance with rule 31A.6(4).
- (8) All training required by rule 31A.16 must be provided in accordance with Part 35.

31A.17 High Speed Craft

- (1) The owner and the master of a high speed craft must ensure that all bridge navigation watchkeepers have passed a high speed craft navigation course –
 - (a) the syllabus of which has been approved by the Director; and
 - (b) that has been provided in accordance with Part 35 or to a standard that the Director considers is equivalent to that required by Part 35.
- (2) The owner and the master of a high speed craft must ensure that all crew hold a type rating certificate issued under rule 31A.17(3) in respect of the ship type and the routes to be operated on that is appropriate to their duties.
- (3) The owner may issue a type rating certificate, valid for up to 2 years, to an applicant who has satisfactorily completed a type rating training programme approved by the Director.
- (4) The Director may approve a type rating training programme if –
 - (a) the programme nominates a Type Rating Instructor who is
 - (i) responsible for the training programme; and
 - (ii) experienced in the operation of the ship and the intended route; and
 - (iii) acceptable to the Director for that purpose; and
 - (b) the programme includes –

- (i) a tour of the ship lead by the nominated Type Rating Instructor, paying particular attention to the systems appropriate to the intended duties of the trainee; and
- (ii) on board training in all emergency duties intended to be allocated to the trainee; and
- (iii) on board training in the ship's equipment appropriate to the intended duties of the trainee; and
- (iv) a period of time for the trainee on the vessel while under the instruction of the Type Rating Instructor; and
- (v) a period of time for the trainee on the vessel while under the supervision of the Type Rating Instructor; and
- (vi) an assessment of the trainee by the Type Rating Instructor.

31A.18 Sailing Vessels

- (1) The master of a sailing vessel must hold a sailing vessel endorsement issued under Part 32.
- (2) For a sailing vessel that proceeds outside the coastal limit, one other navigational watchkeeping officer must hold a sailing vessel endorsement issued under Part 32.

Section 4 – Watchkeeping

31A.19 Duty of all Crew

A member of the crew of a ship must –

- (a) at all times take into account the potentially serious effects of operational or accidental pollution of the marine environment; and
- (b) take all possible precautions to prevent such pollution.

31A.20 Duty of Master

- (1) The master of a ship must ensure that the voyage is planned observing the following requirements:
 - (a) the intended voyage must be planned in advance, taking into consideration all pertinent information, and any course laid down must be checked before the passage commences:
 - (b) the master must consult with the chief engineer so that the chief engineer can determine in advance for the intended voyage the requirements for fuel, water, lubricants, chemicals, expendable and other spare parts, tools, supplies and any other requirements:
 - (c) prior to each voyage, the master of every ship must ensure that the intended route from the port of departure to the first port of call is planned using adequate and appropriate charts and other nautical publications, that contain accurate, complete and up-to-date information regarding those navigational limitations and hazards which are of a permanent or predictable nature and which are relevant to the safe navigation of the ship on the intended voyage.
 - (d) prior to each passage, the master must verify the planned route taking into consideration all pertinent information:
 - (e) the verified planned route must be displayed clearly on appropriate charts and must be available continuously to the officer in charge of the watch:
 - (f) if a decision is made during a voyage to change the next port of call of the planned route, or if it is necessary for the ship to deviate substantially from the planned route for other reasons, an amended route must be planned before deviating substantially from the route originally planned.

- (2) The master of a ship must –
 - (a) ensure that the watchkeeping arrangements for the ship are at all times adequate for maintaining safe navigational, engineering, and radio watches; and
 - (b) when deciding the composition of the watch on the bridge –
 - (i) ensure that the bridge is at no time left unattended; and
 - (ii) ensure that there is at all times an officer of the navigational watch; and
 - (iii) take account of the requirements set out in Appendix 1; and
 - (c) give such directions as may be necessary to ensure that each bridge watchkeeping officer is aware of his or her responsibilities.
- (3) In deciding the arrangements for the radio watch, the master of a ship must –
 - (a) ensure that the radio watch is maintained in accordance with the requirements of Part 43; and
 - (b) ensure that the primary duties for radio watchkeeping are not adversely affected by attending to radio traffic not relevant to the safe movement of the ship and safety of navigation; and
 - (c) take into account the radio equipment fitted on board and its operational status.
- (4) On any ship safely moored or safely at anchor under normal circumstances in port, the master must –
 - (a) arrange for an appropriate and effective watch to be maintained for the purpose of safety; and
 - (b) in organising the watches, take into account the requirements and operational guidelines for officers set out in Appendix 3; and
 - (c) in the case of a ship carrying hazardous cargo in bulk, ensure that a safe deck watch and safe engineering watch are maintained by the ready availability on board of a duly qualified officer or officers, and ratings; and
 - (d) when organising the watchkeeping arrangements in the case of a ship carrying hazardous cargo other than in bulk, take account of the nature, quantity, packaging, and stowage of the hazardous cargo and of any special conditions on board and ashore; and

- (e) for ships of less than 3,000 kW propulsion power, determine in consultation with the chief engineer whether there shall be an officer in charge of the engineering watch.
- (5) At an unsheltered anchorage, the master must consult with the chief engineer as to whether or not to maintain the same engineering watch as when under way.

31A.21 Duty of Officer in Charge of a Navigational Watch

An officer in charge of a navigational watch on a ship must –

- (a) verify each course to be followed before using it; and
- (b) carry out his or her navigational watchkeeping duties in accordance with the directions of the master; and
- (c) in carrying out watchkeeping duties –
 - (i) when the ship is at sea, have regard to the requirements and operational guidelines for navigational watchkeeping set out in Appendix 1; and
 - (ii) when the ship is moored or at anchor in normal circumstances in port, have regard to the requirements and operational guidelines for watchkeeping in port set out in Appendix 3.

31A.22 Duty of Chief Engineer

- (1) In consultation with the master of the ship, the chief engineer must –
- (a) determine in advance the requirements for the intended voyage for fuel, water, lubricants, chemicals, expendable and other spare parts, tools, supplies and any other engineering requirements; and
 - (b) ensure that the engineering watchkeeping arrangements for the ship are adequate for maintaining a safe watch at sea; and
 - (c) ensure that engineering watchkeeping arrangements are adequate to maintain a safe engineering watch while in port; and
 - (d) when the ship is at an unsheltered anchorage, decide whether to maintain the same engineering watch as is kept while underway.

- (2) The chief engineer of a ship must, when deciding the composition of the engineering watchkeeping arrangements for when the ship is at sea, have regard to the requirements set out in Appendix 2.
- (3) The chief engineer of a ship must, when deciding the composition of the engineering watchkeeping arrangements for when the ship is moored or at anchor in normal circumstances in port, –
 - (a) have regard to the requirements in Appendix 3; and
 - (b) ensure compliance with the following requirements –
 - (i) on all ships of 3,000 kW propulsion power and over, there must always be an officer in charge of the engineering watch; and
 - (ii) on ships of less than 3,000 kW propulsion power, the chief engineer must advise the master on whether an officer in charge of the engineering watch is required; and
 - (iii) on any ship, an officer in charge of an engineering watch must not be assigned or undertake any task or duty which would interfere with the officer's watchkeeping duties.

31A.23 Duty of Engineer Officer

An officer in charge of an engineering watch on a ship must –

- (a) carry out his or her engineering watchkeeping duties in accordance with the directions of the chief engineer; and
- (b) in carrying out the engineering watchkeeping duties –
 - (i) when the ship is not moored or at anchor in normal circumstances in port, have regard to the requirements and operational guidelines set out in Appendix 2; and
 - (ii) when the ship is moored or at anchor in normal circumstances in port, have regard to the requirements and operational guidelines set out in Appendix 3.

31A.24 Hours of Rest

- (1) Except as provided in rule 31A.24(3) and (4), the owner and the master of a ship must ensure that each person who is assigned navigation or engineering watchkeeping duty is provided with a minimum of 10 hours of rest in any 24 hour period.
- (2) The owner and the master of a ship must ensure that the hours of rest required by rule 31A.24(1) are divided into no more than two periods, one of which is at least six hours in length.
- (3) The rest period requirements prescribed by rule 31A.24(1) and (2) need not be maintained in the case of emergency, or of other essential on board work that for safety or environmental reasons cannot be delayed, or that could not reasonably have been anticipated at the commencement of the voyage.
- (4) The 10 hours of rest required by rule 31A.24(1) may be reduced to not less than six consecutive hours, provided that –
 - (a) any such reduction does not extend beyond two days; and
 - (b) not less than 70 hours of rest are provided in each seven-day period.

31A.25 Watch schedules

- (1) Except as provided in rule 31A.25(4), the owner and the master of a ship must ensure that a watch schedule is –
 - (a) posted where it is easily accessible to the crew; and
 - (b) available for inspection at all reasonable times by the Director.
- (2) The master of a ship must ensure that any deviation from the planned watch schedule that occurs is recorded on the watch schedule that is required to be retained on board by rule 31A.25(3).
- (3) The owner and the master of a ship must ensure that watch schedules are retained on board and made available to the Director, on request, for a period of three years from the date of the schedule.
- (4) The owner and the master of a ship that does not operate in the unlimited area must –
 - (a) comply with the requirements of rule 31A.25(1); or

- (b) keep a daily record of actual watchkeeping hours of all watchkeeping crew. This record must be retained on board for a period of three years and made available to the Director on request.

31A.26 Fitness for Duty

- (1) The owner and master of a ship must establish and implement procedures in respect of the ship's crew, taking into account the requirement in 31A.27(1), to ensure that all crew are fit for duty when keeping a watch.
- (2) The crew of a ship must ensure, taking into account the requirement in 31A.27(2), that they are fit for duty at all times when keeping a watch.

31A.27 Fatigue

- (1) When the owner or the master establishes and implements procedures for ensuring a seafarer's fitness for duty, they must take into account that –
 - (a) the level of alertness of a person keeping a navigational or engine room watch may be affected by fatigue; and
 - (b) that whenever alertness is affected by fatigue, performance can be impaired.
- (2) When considering his or her fitness for duty, a seafarer must take into account –
 - (a) the signs, symptoms, and effects of fatigue¹; and
 - (b) that fatigue affects alertness; and
 - (c) that the performance of any person whose alertness is affected by fatigue can be impaired.

31A.28 Revocations

- (1) Part 31A - Minimum Personnel and Watchkeeping (Fitness For Duty) Foreign Going And Coastal is revoked.
- (2) Rules 32.31, 32.45, 32.48 and 32.49 are revoked.

¹ Guidance on the effects and the signs and symptoms of fatigue is provided in the Advisory Circular to Part 31A.

Appendix 1 – Navigational Watchkeeping at Sea

- (1) The master of every ship must ensure that watchkeeping arrangements are adequate for maintaining a safe navigational watch. Under the master's general direction, the officers of the navigational watch are responsible for navigating the ship safely during their periods of duty, when they will be particularly concerned with avoiding collision and stranding.
- (2) The officer in charge of the navigational watch is the master's representative and is primarily responsible at all times for the safe navigation of the ship and for complying with Part 22.
- (3) A proper look-out must be maintained at all times in accordance with rule 22.5 and must serve the purpose of –
 - (a) maintaining a continuous state of vigilance by sight and hearing, as well as by all other available means, with regard to any significant change in the operating environment; and
 - (b) fully appraising the situation and the risk of collision, stranding and other dangers to navigation; and
 - (c) detecting ships or aircraft in distress, shipwrecked persons, wrecks, debris and other hazards to safe navigation.
- (4) The look-out must be able to give full attention to the keeping of a proper look-out and no other duties must be undertaken or assigned that could interfere with that task. The duties of the look-out and helmsperson are separate and the helmsperson must not be considered to be the look-out while steering, except in small ships where an unobstructed all-round view is provided at the steering position and there is no impairment of night vision or other impediment to the keeping of a proper look-out. The officer in charge of the navigational watch may be the sole look-out in daylight, provided that on each such occasion –
 - (a) the officer in charge of the watch has carefully assessed the situation taking into account all relevant factors, including, but not limited to the state of weather; visibility; traffic density; proximity of dangers to navigation; and the attention necessary when navigating in or near traffic separation schemes; and
 - (b) the officer of the navigation watch has established without doubt that it is safe to be the sole look-out; and

- (c) assistance is immediately available to be summoned to the bridge when any change in the situation so requires.
- (5) In determining that the composition of the navigational watch is adequate to ensure that a proper look-out can be maintained continuously, the master must take into account all relevant factors, including those described in rules 31A.19 to rules 31A.23, as well as the following factors –
- (a) visibility, state of weather and sea; and
 - (b) traffic density, and other activities occurring in the area in which the ship is navigating; and
 - (c) the attention necessary when navigating in or near traffic separation schemes or other routing measures; and
 - (d) the additional workload for the master and crew caused by the nature of the ship's functions, immediate operating requirements and anticipated manoeuvres; and
 - (e) the fitness for duty, including the factors outlined in Section 4 of this Part, of any seafarers on call who are assigned as members of the watch; and
 - (f) knowledge of and confidence in the professional competence of the ship's crew; and
 - (g) the experience of each officer of the navigational watch, and the familiarity of that officer with the ship's equipment, procedures, and manoeuvring capability; and
 - (h) activities taking place on board the ship at any particular time, including radio-communication activities, and the availability of assistance to be summoned immediately to the bridge when necessary; and
 - (i) the operational status of bridge instrumentation and controls, including alarm systems; and
 - (j) rudder and propeller control and ship manoeuvring characteristics; and
 - (k) the size of the ship and the field of vision available from the conning position; and
 - (l) the configuration of the bridge, to the extent that such configuration might inhibit a member of the watch from detecting by sight or hearing any external development; and

- (m) any other relevant standard, procedure or guidance relating to watchkeeping arrangements and fitness for duty which has been adopted by the International Maritime Organisation and has been notified by the Director in the *Gazette*.
- (6) When deciding the composition of the watch on the bridge, which may include appropriately qualified ratings, the following factors, among others, must be taken into account –
- (a) weather conditions, visibility and whether there is daylight or darkness; and
 - (b) proximity of navigational hazards that may make it necessary for the officer in charge of the watch to carry out additional navigational duties; and
 - (c) the use and operational condition of navigational aids such as radar or electronic position-indicating devices and any other equipment affecting the safe navigation of the ship; and
 - (d) whether the ship is fitted with automatic steering; and
 - (e) whether there are radio duties to be performed; and
 - (f) procedures for the use, and limitations of, UMS controls, alarms and indicators provided on the bridge; and
 - (g) any unusual demands on the navigational watch that may arise as a result of special operational circumstances.
- (7) Taking over the watch
- (a) The officer in charge of the navigational watch must not hand over the watch to the relieving officer if there is reason to believe that the latter is not fit for duty and therefore is not capable of carrying out the watchkeeping duties effectively, in which case the master must be notified.
 - (b) The relieving officer must ensure that the members of the relieving watch are fully capable of performing their duties, particularly as regards their adjustment to night vision. Relieving officers must not take over the watch until their vision is fully adjusted to the light conditions.
 - (c) Prior to taking over the watch, relieving officers must satisfy themselves as to the ship's estimated or true position and confirm its intended track, course and speed, and UMS controls, if fitted, and must note any dangers to navigation expected to be encountered during their watch.
 - (d) Relieving officers must personally satisfy themselves regarding the –

- (i) standing orders and other special instructions of the master relating to navigation of the ship; and
 - (ii) position, course, speed and draught of the ship; and
 - (iii) prevailing and predicted tides, currents, weather, visibility and the effect of these factors upon course and speed; and
 - (iv) procedures for the use of main engines to manoeuvre when the main engines are on bridge control; and
 - (v) navigational situation, including but not limited to –
 - (aa) the operational condition of all navigational and safety equipment being used or likely to be used during the watch; and
 - (bb) the errors of gyro and magnetic compasses; and
 - (cc) the presence and movement of ships in sight or known to be in the vicinity; and
 - (dd) the conditions and hazards likely to be encountered during the watch; and
 - (ee) the possible effects of heel, trim, water density and squat on under-keel clearance.
 - (e) If at any time the officer in charge of the navigational watch is to be relieved when a manoeuvre or other action to avoid any hazard is taking place, the relief of that officer must be deferred until such action has been completed.
- (8) Performing the navigational watch
- (a) The officer in charge of the navigational watch must –
 - (i) keep the watch on the bridge; and
 - (ii) in no circumstances leave the bridge until properly relieved; and
 - (iii) continue to be responsible for the safe navigation of the ship, despite the presence of the master on the bridge, until informed specifically that the master has assumed that responsibility and this is mutually understood; and
 - (iv) notify the master if in doubt as to what action to take in the interests of safety.

- (b) The officer in charge of the navigational watch must, during the watch, check the course steered, position and speed at sufficiently frequent intervals, using any available navigational aids necessary, to ensure that the ship follows the planned course.
- (c) The officer in charge of the navigational watch must have full knowledge of the location and operation of all safety and navigational equipment on board the ship and must be aware of and take account of the operating limitations of such equipment.
- (d) The officer in charge of the navigational watch must not be assigned or undertake any duties which would interfere with the safe navigation of the ship.
- (e) Officers of the navigational watch must make the most effective use of all navigational equipment at their disposal.
- (f) The officer in charge of the navigational watch must not hesitate to use, when necessary, the helm, engines and sound signalling apparatus. However, timely notice of intended variations of engine speed must be given where possible or effective use made of UMS engine controls provided on the bridge in accordance with the applicable procedures.
- (g) Officers of the navigational watch must know the handling characteristics of their ship, including its stopping distances, and appreciate that other ships may have different handling characteristics.
- (h) A proper record must be kept during the watch of the movements and of activities relating to the navigation of the ship.
- (i) It is of special importance that the officer in charge of the navigational watch at all times ensures that a proper look-out is maintained. In a ship with a separate chartroom, the officer in charge of the navigational watch may visit the chartroom, when it is essential to do so, for a short period for the necessary performance of navigational duties, but must first ensure that it is safe to do so and that proper lookout is maintained.
- (j) Operational tests of on board navigational equipment must be carried out at sea as frequently as practicable and as circumstances permit, in particular before hazardous conditions affecting navigation are expected. Such tests must also be carried out prior to port arrival and departure.

² Note the provisions regarding the use of radar contained in Part 22.

- (k) The officer in charge of the navigational watch must make regular checks to ensure that –
 - (i) the person or the automatic pilot steering the ship is steering the correct course; and
 - (ii) if practicable, the standard compass error is determined at least once a watch and, when possible, after any major alteration of course;³ and
 - (iii) the standard and gyrocompasses are frequently compared and repeaters are synchronized with their master compass; and
 - (iv) the automatic pilot is tested manually at least once a watch; and
 - (v) the navigation and signal lights and other navigational equipment are functioning properly; and
 - (vi) the radio equipment is functioning properly in accordance with Part 43; and
 - (vii) the UMS controls, alarms and indicators are functioning properly.
- (l) The officer in charge of the navigational watch must bear in mind the necessity to comply at all times with the steering gear requirements in Part 23. The officer of the navigational watch must take into account –
 - (i) the need to station a person to steer the ship and to put the steering into manual control in good time to allow any potentially hazardous situation to be dealt with safely; and
 - (ii) that with a ship under automatic steering it is highly dangerous to allow a situation to develop to the point where the officer in charge of the navigational watch is without assistance and has to break the continuity of the look-out in order to take emergency action.
- (m) Officers of the navigational watch must be thoroughly familiar with the use of all electronic navigational aids carried, including their capabilities and limitations, and must use each of these aids when appropriate and must bear in mind that the echo-sounder is a valuable navigational aid.
- (n) The officer in charge of the navigational watch must use the radar whenever restricted visibility is encountered or expected, and at all times in congested waters, having due regard to its limitations.

³ Attention is drawn to the requirements of (a) of the Appendix to Part 45.

- (o) The officer in charge of the navigational watch must ensure that range scales employed are changed at sufficiently frequent intervals that echoes are detected as early as possible. It must be borne in mind that small or poor echoes may escape detection.
- (p) Whenever radar is in use, the officer in charge of the navigational watch must select an appropriate range scale and observe the display carefully, and must ensure that plotting or systematic analysis is commenced in ample time for the safe navigation of the ship.
- (q) The officer in charge of the navigational watch must notify the master immediately –
 - (i) if restricted visibility is encountered or expected; and
 - (ii) if the traffic conditions or the movements of other ships are causing concern; and
 - (iii) if difficulty is experienced in maintaining course; and
 - (iv) on failure to sight land or a navigation mark, or to obtain soundings by the expected time; and
 - (v) if, unexpectedly, land or a navigation mark is sighted or a change in soundings occurs; and
 - (vi) on breakdown of the engines, propulsion machinery remote control, steering gear or any essential navigational equipment, alarm or indicator; and
 - (vii) if the radio equipment malfunctions; and
 - (viii) if in heavy weather, he or she considers weather damage is possible; and
 - (ix) if the ship meets any hazard to navigation, such as ice or a derelict; and
 - (x) in any other emergency or if in any doubt regarding any matter concerning the safety of the ship, its crew or the protection of the marine environment.
- (r) Despite the requirement to notify the master immediately in the foregoing circumstances, the officer in charge of the navigational watch must in addition not hesitate to take immediate action for the safety of the ship, where circumstances so require.

- (s) The officer in charge of the navigational watch must give watchkeeping crew all the instructions and information that are necessary to ensure the keeping of a safe watch, including a proper look-out.
 - (t) In areas of high traffic density, in conditions of restricted visibility and in all other hazardous navigational situations where the automatic pilot is used, it must be possible for the officer of the navigational watch to have available without delay the services of a qualified helmsperson who must be ready at all times to take over steering control.
 - (u) The officer in charge of the navigational watch must ensure that the change over from automatic to manual steering and vice versa is made by or under the supervision of an officer whom the officer in charge of the navigational watch has made responsible for that task.
 - (v) The master must ensure that the manual steering is tested after prolonged use of the automatic pilot, and before entering areas where navigation demands special caution.
 - (w) The master must ensure that where navigation demands special caution, ships, where capable, have more than one steering gear power unit in operation.
- (9) Watchkeeping under different conditions and in different areas

Clear weather

- (a) The officer in charge of the navigational watch must take frequent and accurate compass bearings of approaching ships as a means of early detection of risk of collision and bear in mind that such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large ship or a tow or when approaching a ship at close range. The officer in charge of the navigational watch must also take early and positive action in compliance with the applicable rules within Part 22 – and subsequently check that such action is having the desired effect.
- (b) In clear weather, whenever possible, the officer in charge of the navigational watch must carry out radar practice.

Restricted visibility

- (c) When restricted visibility is encountered or expected, the first responsibility of the officer in charge of the navigational watch is to comply with the relevant rules of Part 22 – with particular regard to the sounding of fog signals, proceeding at a safe speed and having the engines ready for immediate

manoeuvre. In addition, the officer in charge of the navigational watch must immediately –

- (i) inform the master of the restricted visibility; and
- (ii) post a proper look-out; and
- (iii) exhibit navigation lights; and
- (iv) operate and use the radar.

In hours of darkness

- (d) When arranging look-out duty, the master and the officer in charge of the navigational watch must have due regard to the bridge equipment and navigational aids available for use, their limitations, procedures and safeguards implemented.

Coastal and congested waters

- (e) The largest scale chart on board, suitable for the area in which the ship is navigating and corrected with the latest available information, must be used. Fixes must be taken at frequent intervals, and must be carried out by more than one method whenever circumstances allow.
- (f) The officer in charge of the navigational watch must positively identify all relevant navigation marks.

Navigation with pilot on board

- (g) Despite the duties and obligations of pilots, their presence on board does not relieve the master or officer in charge of the navigational watch from their duties and obligations for the safety of the ship. The master and the pilot must exchange information regarding navigation procedures, local conditions and the ship's characteristics. The master and/or the officer in charge of the navigational watch must co-operate closely with the pilot and maintain an accurate check on the ship's position and movement.
- (h) If in any doubt as to the pilot's actions or intentions, the officer in charge of the navigational watch must seek clarification from the pilot and, if doubt still exists, must notify the master immediately and take whatever action is necessary for the safety of the ship before the master arrives.

Ship at anchor

- (i) If the master considers it necessary, a continuous navigational watch must be maintained at anchor. In all circumstances while the ship is at anchor, the officer in charge of the navigational watch must –
 - (i) determine and plot the ship's position on the appropriate chart as soon as practicable; and
 - (ii) when circumstances permit, check at sufficiently frequent intervals whether the ship is remaining securely at anchor by taking bearings of fixed navigation marks or readily identifiable shore objects; and
 - (iii) ensure that a proper look-out is maintained; and
 - (iv) ensure that inspection rounds of the ship are made periodically; and
 - (v) observe meteorological and tidal conditions and the state of the sea; and
 - (vi) if the ship drags anchor, notify the master and undertake all necessary measures; and
 - (vii) ensure that the state of readiness of the main engines and other machinery is in accordance with the master's instructions; and
 - (viii) if visibility deteriorates, notify the master; and
 - (ix) ensure that the ship exhibits the appropriate lights and shapes and that appropriate sound signals are made in accordance with Part 22 and any other applicable regulatory requirements; and
 - (x) take measures to protect the environment from pollution by the ship and comply with applicable pollution regulatory requirements.

Appendix 2 Engineering Watchkeeping at Sea

(1) Definitions

- (a) The term **engineering watch** means either a person or a group of crew comprising the watch, or a period during which –
 - (i) an officer is responsible for the machinery spaces; but
 - (ii) the physical presence in the machinery spaces of that officer may or may not be required.
- (b) The **officer in charge of the engineering watch** is the chief engineer officer's representative, who is primarily responsible at all times for the safe and efficient operation and upkeep of machinery affecting the safety of the ship and is responsible for any inspection, operation and testing of all machinery and equipment under the responsibility of the engineering watch.

(2) Watch arrangements

- (a) The composition of the engineering watch must, at all times, be adequate to ensure the safe operation of all machinery affecting the operation of the ship, in either automated or manual mode, and be appropriate to the prevailing circumstances and conditions.
- (b) When deciding the composition of the engineering watch, which may include appropriately qualified ratings, the following criteria must be taken into account –
 - (i) the type of ship and the type and condition of the machinery; and
 - (ii) the need for adequate supervision, at all times, of machinery affecting the safe operation of the ship; and
 - (iii) any special modes of operation dictated by conditions such as weather, ice, contaminated water, shallow water, emergency conditions, damage containment or pollution abatement; and
 - (iv) the qualifications and experience of the engineering watch; and
 - (v) the safety of life, ship, cargo and port, and protection of the environment; and

- (vi) the observance of international, national and local regulatory requirements; and
 - (vii) maintaining the normal operations of the ship.
- (3) Taking over the watch
- (a) The officer in charge of the engineering watch must not hand over the watch to the relieving officer if there is reason to believe that the latter is not fit for duty and therefore is not capable of carrying out the watchkeeping duties effectively, in which case the chief engineer officer must be notified.
 - (b) The relieving officer of the engineering watch must ensure that the members of the relieving engineering watch are fully capable of performing their duties effectively.
 - (c) Prior to taking over the engineering watch, relieving officers must make themselves aware of at least the following –
 - (i) the standing orders and special instructions of the chief engineer officer relating to the operation of the ship's systems and machinery; and
 - (ii) the nature of all work being performed on machinery and systems, the crew involved and potential hazards; and
 - (iii) the level and, where applicable, the condition of water or residues in bilges, ballast tanks, slop tanks, reserve tanks, fresh water tanks, sewage tanks and any special requirements for use or disposal of the contents thereof; and
 - (iv) the condition and level of fuel in the reserve tanks, settling tank, day tank and other fuel storage facilities; and
 - (v) any special requirements relating to sanitary system disposals; and
 - (vi) the condition and mode of operation of the various main and auxiliary systems, including the electrical power distribution system; and
 - (vii) where applicable, the condition of monitoring and control console equipment, and any equipment that is being operated manually; and
 - (viii) where applicable, the condition and mode of operation of automatic boiler controls such as flame safeguard control systems, hunt control systems, combustion control systems, fuel-supply control systems and other equipment related to the operation of steam boilers; and

- (ix) any potentially adverse conditions resulting from bad weather, ice, or contaminated or shallow water; and
 - (x) any special modes of operation dictated by equipment failure or adverse ship conditions; and
 - (xi) the reports of engine room ratings relating to their assigned duties; and
 - (xii) the availability of fire-fighting appliances; and
 - (xiii) the state of completion of the engine room logbook.
- (4) Performing the engineering watch
- (a) The officer in charge of the engineering watch must ensure that the established watchkeeping arrangements are maintained and that, under direction, engine room ratings, if forming part of the engineering watch, assist in the safe and efficient operation of the propulsion machinery and auxiliary equipment.
 - (b) The officer in charge of the engineering watch must continue to be responsible for machinery-space operations, despite the presence of the chief engineer officer in the machinery spaces, until specifically informed that the chief engineer officer has assumed that responsibility and this is mutually understood.
 - (c) All members of the engineering watch must be familiar with their assigned watchkeeping duties. In addition, every member must, with respect to the ship he or she is serving in, have knowledge of –
 - (i) the use of internal communication systems appropriate to their on board duties; and
 - (ii) the escape routes from machinery spaces; and
 - (iii) the engine room alarm systems and be able to distinguish between the various alarms, with special reference to the fire-extinguishing media alarm; and
 - (iv) the number, location and types of fire-fighting equipment and damage control gear in the machinery spaces, together with their use and the various safety precautions to be observed.
 - (d) Any machinery not functioning properly, expected to malfunction or requiring special service must be noted by the officer in charge of the engineering watch along with any action already taken. Plans must be made by the officer in charge of the engineering watch for any further action if required.

- (e) When the machinery spaces are in the attended condition, the officer in charge of the engineering watch must at all times be readily capable of operating the propulsion equipment in response to needs for changes in direction or speed.
- (f) When the machinery spaces are in the periodic unattended condition, the designated duty officer in charge of the engineering watch must be immediately available and on call to attend the machinery spaces.
- (g) The officer in charge of the engineering watch must ensure that all bridge orders are promptly executed. Changes in direction or speed of the main propulsion units must be recorded by the officer in charge of the engineering watch where practicable, taking into account the size or characteristics of the particular ship. The officer in charge of the engineering watch must ensure that the main propulsion unit controls, when in the manual mode of operation, are continuously attended under stand-by or manoeuvring conditions.
- (h) The officer in charge of the engineering watch must ensure that due attention is paid to the ongoing maintenance and support of all machinery, including mechanical, electrical, electronic, hydraulic and pneumatic systems, their control apparatus and associated safety equipment, all accommodation service systems equipment and the recording of stores and spare gear usage.
- (i) The chief engineer officer must ensure that the officer in charge of the engineering watch is informed of all preventive maintenance, damage control, or repair operations to be performed during the engineering watch. The officer in charge of the engineering watch must be responsible for the isolation, bypassing and adjustment of all machinery under the responsibility of the engineering watch that is to be worked on, and must record all work carried out.
- (j) When the engine room is put in a stand-by condition, the officer in charge of the engineering watch must ensure that all machinery and equipment which may be used during manoeuvring is in a state of immediate readiness and that an adequate reserve of power is available for steering gear and other requirements.
- (k) The chief engineer officer must ensure that officers in charge of an engineering watch are not assigned nor undertake any duties which would interfere with their supervisory duties in respect of the main propulsion system and ancillary equipment. He or she must keep the main propulsion plant and auxiliary systems under constant supervision until properly relieved, and must periodically inspect the machinery in their charge. He or she must also ensure that adequate rounds of the machinery and steering-gear spaces are made for the purpose of observing and reporting equipment malfunctions or

breakdowns, performing or directing routine adjustments, required upkeep and any other necessary tasks.

- (l) Officers in charge of an engineering watch must direct any other member of the engineering watch to inform them of potentially hazardous conditions which may adversely affect the machinery or jeopardize the safety of life or the safety of the ship.
- (m) The officer in charge of the engineering watch must ensure that the machinery space watch is supervised, and must arrange for substitute crew in the event of the incapacity of any engineering watch crew. The engineering watch must not leave the machinery spaces unsupervised in a manner that would prevent the manual operation of the engine room plant or throttles.
- (n) The officer in charge of the engineering watch must take the action necessary to contain the effects of damage resulting from equipment breakdown, fire, flooding, rupture, collision, stranding, or other cause.
- (o) Before going off duty, the officer in charge of the engineering watch must ensure that all events related to the main and auxiliary machinery which have occurred during the engineering watch are suitably recorded.
- (p) The officer in charge of the engineering watch must co-operate with any engineer in charge of maintenance work during all preventive maintenance, damage control or repairs. This must include but is not necessarily limited to –
 - (i) isolating and bypassing machinery to be worked on; and
 - (ii) adjusting the remaining plant to function adequately and safely during the maintenance period; and
 - (iii) recording, in the engine room logbook or other suitable document, the equipment worked on and the crew involved, and any safety steps that have been taken and by whom, for the benefit of relieving officers and for record purposes; and
 - (iv) testing and putting into service, when necessary, the repaired machinery or equipment.
- (q) The officer in charge of the engineering watch must ensure that any engineering ratings who perform maintenance duties are available to assist in the manual operation of machinery in the event of automatic equipment failure.
- (r) The officer in charge of the engineering watch must bear in mind that changes in speed resulting from machinery malfunction, or any loss of steering, may

imperil the safety of the ship and life at sea. The officer in charge of the engineering watch must notify the bridge immediately –

- (i) in the event of fire; and
- (ii) in the event of any impending action in machinery spaces that may cause reduction in the ship's speed, imminent steering failure, stoppage of the ship's propulsion system or any alteration in the generation of electric power or similar threat to safety.

This notification, where possible, must be accomplished before changes are made, in order to afford the bridge the maximum available time to take whatever action is possible to avoid a potential marine casualty.

- (s) The officer in charge of the engineering watch must notify the chief engineer officer without delay –
 - (i) when engine damage or a malfunction occurs which may be such as to endanger the safe operation of the ship; and
 - (ii) when any malfunction occurs which the officer in charge believes may cause damage or breakdown of propulsion machinery, auxiliary machinery or monitoring and governing systems; and
 - (iii) in any emergency or if in any doubt as to what decision or measures to take.
- (t) Despite the requirement to notify the chief engineer officer in clause (s), the officer in charge of the engineering watch must not hesitate to take immediate action for the safety of the ship, its machinery and crew where circumstances require.
- (u) The officer in charge of the engineering watch must –
 - (i) give the watchkeeping crew all appropriate instructions and information necessary to ensure the keeping of a safe engineering watch; and
 - (ii) ensure that routine machinery upkeep, performed as incidental tasks as a part of keeping a safe watch, is set up as an integral part of the watch routine; and
 - (iii) ensure that detailed repair maintenance involving repairs to electrical, mechanical, hydraulic, pneumatic or applicable electronic equipment throughout the ship is performed with the knowledge of the officer in charge of the engineering watch and chief engineer officer; and

(iv) ensure that these repairs are recorded in the engine room log book.

(5) Engineering watchkeeping under different conditions and in different areas

Restricted visibility

- (a) The officer in charge of the engineering watch must ensure that permanent power is available for sound signals and that at all times bridge orders relating to changes in speed or direction of operation are immediately implemented and, in addition, that auxiliary machinery used for manoeuvring is readily available.

Coastal and congested waters

- (b) The officer in charge of the engineering watch must ensure that all machinery involved with the manoeuvring of the ship can immediately be placed in the manual mode of operation when notified that the ship is in congested waters. The officer in charge of the engineering watch must also ensure that an adequate reserve of power is available for steering and other manoeuvring requirements. Emergency steering and other auxiliary equipment must be ready for immediate operation.

Ship at anchor

- (c) When a ship is at anchor in an open roadstead, or any other virtually "at-sea" condition, the engineer officer in charge of the engineering watch must ensure that –
- (i) an efficient engineering watch is kept; and
 - (ii) periodic inspection is made of all operating and stand-by machinery; and
 - (iii) main and auxiliary machinery is maintained in a state of readiness in accordance with orders from the bridge; and
 - (iv) measures are taken to protect the environment from pollution by the ship, and that applicable pollution prevention regulations are complied with; and
 - (v) all damage-control and fire-fighting systems are in a state of readiness.

Appendix 3 – Watchkeeping in Port

- (1) Watch arrangements
 - (a) The master must ensure that arrangements for keeping a deck watch when the ship is in port are at all times adequate to –
 - (i) ensure the safety of life, of the ship, the port and the environment, and the safe operation of all machinery related to cargo operation; and
 - (ii) observe international, national and local rules; and
 - (iii) maintain order and the normal routine of the ship.
 - (b) The master must decide the composition and duration of the deck watch depending on the conditions of mooring, the type of the ship and the character of duties.
 - (c) If the master considers it necessary, a qualified officer must be in charge of the deck watch.
 - (d) The officer in charge of the deck watch must ensure that the necessary equipment is so arranged as to provide for efficient watchkeeping.
- (2) Taking over the watch
 - (a) Officers in charge of the deck or engineering watch must not hand over the watch to their relieving officer if they have any reason to believe that the latter is not capable of carrying out watchkeeping duties effectively, in which case the master or chief engineer must be notified accordingly. Relieving officers of the deck or engineering watch must ensure that all members of their watch are fully capable of performing their duties effectively.
 - (b) If, at the moment of handing over the deck or engineering watch, an important operation is being performed, that operation must be concluded by the officer being relieved, except when ordered otherwise by the master or chief engineer officer.

Taking over the deck watch

- (c) Prior to taking over the deck watch, the relieving officer must be informed of the following by the officer in charge of the deck watch –

- (i) the depth of the water at the berth, the ship's draught, the level and time of high and low waters; the securing of the moorings, the arrangement of anchors and the scope of the anchor chain, and other mooring features important to the safety of the ship; the state of main engines and their availability for emergency use; and
 - (ii) all work to be performed on board the ship; including the nature, amount and disposition of cargo loaded or remaining, and any residue on board after unloading the ship; and
 - (iii) the level of water in bilges and ballast tanks; and
 - (iv) the signals or lights being exhibited or sounded; and
 - (v) the number of seafarers required to be on board and the presence of any other persons on board; and
 - (vi) the state of fire-fighting appliances; and
 - (vii) any special port regulations; and
 - (viii) the master's standing and special orders; and
 - (ix) the lines of communication available between the ship and shore personnel, including port authorities, in the event of an emergency arising or assistance being required; and
 - (x) any other circumstances of importance to the safety of the ship, its crew, cargo or protection of the environment from pollution; and
 - (xi) the procedures for notifying the appropriate authority of any environmental pollution resulting from ship activities.
- (d) Relieving officers, before assuming charge of the deck watch, must verify that –
- (i) the securing of moorings and anchor chain is adequate; and
 - (ii) the appropriate signals or lights are properly exhibited or sounded; and
 - (iii) safety measures and fire protection regulations are being maintained; and
 - (iv) they are aware of the nature of any hazardous or dangerous cargo being loaded or discharged and the appropriate action to be taken in the event of any spillage or fire; and
 - (v) no external conditions or circumstances imperil the ship and that it does not imperil others.

Taking over the engineering watch

- (e) Prior to taking over the engineering watch, the relieving officer must be informed by the officer in charge of the engineering watch as to –
 - (i) the standing orders of the day, any special orders relating to the ship operations, maintenance functions, repairs to the ship's machinery or control equipment; and
 - (ii) the nature of all work being performed on machinery and systems on board the ship, crew involved and potential hazards; and
 - (iii) the level and condition, where applicable, of water or residue in bilges, ballast tanks, slop tanks, sewage tanks, reserve tanks and special requirements for the use or disposal of the contents thereof; and
 - (iv) any special requirements relating to sanitary system disposals; and
 - (v) the condition and state of readiness of portable fire-extinguishing equipment and fixed fire-extinguishing installations and fire-detection systems; and
 - (vi) authorised repair crew on board engaged in engineering activities, their work locations and repair functions and other authorised persons on board and the required crew; and
 - (vii) any port regulatory requirements pertaining to ship effluents, fire-fighting requirements and ship readiness, particularly during potential bad weather conditions; and
 - (viii) the lines of communication available between the ship and shore personnel, including port authorities, in the event of an emergency arising or assistance being required; and
 - (ix) any other circumstance of importance to the safety of the ship, its crew, cargo or the protection of the environment from pollution; and
 - (x) the procedures for notifying the appropriate authority of environmental pollution resulting from engineering activities.
- (f) Relieving officers, before assuming charge of the engineering watch, must satisfy themselves that they are fully informed by the officer being relieved, as outlined above, and must –
 - (i) be familiar with existing and potential sources of power, heat and lighting and their distribution; and

- (ii) know the availability and condition of ship's fuel, lubricants and all water supplies; and
- (iii) be ready to prepare the ship and its machinery, as far as is possible, for stand-by or emergency conditions as required.

(3) Performing the watch

Performing the deck watch

- (a) The officer in charge of the deck watch must –
 - (i) make rounds to inspect the ship at appropriate intervals; and
 - (ii) pay particular attention to –
 - (aa) the condition and securing of the gangway, anchor chain and moorings, especially at the turn of the tide and in berths with a large rise and fall, and if necessary, take measures to ensure that they are in normal working condition; and
 - (bb) the draught, under-keel clearance and the general state of the ship, to avoid dangerous listing or trim during cargo handling or ballasting; and
 - (cc) the weather and sea state; and
 - (dd) the observance of all regulations concerning safety and fire protection; and
 - (ee) the water level in bilges and tanks; and
 - (ff) all persons on board and their location, especially those in remote or enclosed spaces; and
 - (gg) the exhibition and sounding, where appropriate, of lights and signals; and
 - (iii) in bad weather, or on receiving a storm warning, take the necessary measures to protect the ship, persons on board and cargo; and
 - (iv) take every precaution to prevent pollution of the environment by the ship; and
 - (v) in an emergency threatening the safety of the ship, raise the alarm, inform the master, take all possible measures to prevent any damage to the ship,

its cargo and persons on board, and, if necessary, request assistance from the shore authorities or neighbouring ships; and

- (vi) be aware of the ship's stability condition so that, in the event of fire, the shore fire-fighting authority may be advised of the approximate quantity of water that can be pumped on board without endangering the ship; and
- (vii) offer assistance to ships or persons in distress; and
- (viii) take necessary precautions to prevent accidents or damage when propellers are to be turned; and
- (ix) enter in the appropriate logbook all important events affecting the ship.

Performing the engineering watch

- (b) Officers in charge of the engineering watch must pay particular attention to –
 - (i) the observance of all orders, special operating procedures and regulatory requirements concerning hazardous conditions and their prevention in all areas in their charge; and
 - (ii) the instrumentation and control systems, monitoring of all power supplies, components and systems in operation; and
 - (iii) the techniques, methods and procedures necessary to prevent violation of the pollution regulations of the local authorities; and
 - (iv) the state of the bilges.
- (c) Officers in charge of the engineering watch must –
 - (i) in emergencies, raise the alarm when in their opinion the situation so demands, and take all possible measures to prevent damage to the ship, persons on board and cargo; and
 - (ii) be aware of the deck officer's needs relating to the equipment required in the loading or unloading of the cargo and the additional requirements of the ballast and other ship stability control systems; and
 - (iii) make frequent rounds of inspection to determine possible equipment malfunction or failure, and take immediate remedial action to ensure the safety of the ship, of cargo operations, of the port, and the environment; and

- (iv) ensure that the necessary precautions are taken, within their area of responsibility, to prevent accidents or damage to the various electrical, electronic, hydraulic, pneumatic and mechanical systems of the ship; and
 - (v) ensure that all important events affecting the operation, adjustment or repair of the ship's machinery are satisfactorily recorded.
- (4) Watch in port on ships carrying hazardous cargo
- (a) The master of every ship carrying cargo that is hazardous, whether explosive, flammable, toxic, health-threatening or environment-polluting, must ensure that safe watchkeeping arrangements are maintained. On ships carrying hazardous cargo in bulk, this will be achieved by the ready availability on board of a duly qualified officer or officers, and ratings where appropriate, even when the ship is safely moored or safely at anchor in port.
 - (b) On ships carrying hazardous cargo other than in bulk, the master must take full account of the nature, quantity, packing and stowage of the hazardous cargo and of any special conditions, including those conditions on board, afloat and ashore.