COMMISSION OF THE EUROPEAN COMMUNITIES

COM(93) 217 final

Brussels, 26 May 1993

Proposal for a

COUNCIL DIRECTIVE

on the minimum level of training for

maritime occupations

(presented by the Commission)

EXPLANATORY MEMORANDUM

I. INTRODUCTION

1. In its programme of measures to improve operating conditions for Community shipping, the Commission stressed the importance of training for seafarers and the mutual recognition of seafarers' certificates.[1]

   In its conclusions the extraordinary meeting of the (Environment and Transport) Council on 25 January underlined the importance of the human element in the safe operation of ships and the need for minimum standards for the training of the crews of Community ships.[2] These two factors are dealt with in more detail in the Communication on a Common Policy on Safe Seas adopted by the Commission in February.[3]

2. In December 1988 the Council adopted a Directive on a general system for the recognition of higher-education diplomas awarded on completion of professional education and training of at least three years' duration. This applies to all regulated professions for which higher education of at least three years' duration is required and which are not covered by a specific Directive.[4] This Directive covers masters and officers.

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1 A future for the Community shipping industry: measures to improve the operating conditions of Community shipping (COM(89)266 final, points 91 to 96; OJ C 263 of 16 October 1989).

2 Extraordinary meeting of the (Environment and Transport) Council in Brussels on 25 January. Doc. 4009/93 (Press 8).

3 A Common Policy on Safe Seas (COM(93) 66 of 24 February 1993).

4 Council Directive 89/48/EEC of 21 December 1988 (OJ L 19 of 24 January 1989).

In June 1992 the Council adopted a second Directive extending recognition to diploma and certificate holders not covered by the Council Directive of 21 December 1988 and to non-diploma holders with professional experience. This Directive also applies to the maritime transport sector[1] covering occupations not governed by the first Directive.

However, mutual recognition of diplomas under these general systems will not guarantee a minimum appropriate level of training for all seafarers serving on vessels flying the flag of a Member State. Yet this is vital for safeguarding human life and property at sea and for the protection of the marine environment.

II. TRAINING OF SEAFARERS

3. Since shipping is essentially an international activity, aspects concerning safety at sea, working conditions and seafarer training are largely governed by the regulations of international organizations such as the International Maritime Organization (IMO) and the International Labour Organization (ILO). A whole body of international law on training for different categories of seafarer and the issuing of competency certificates for such seafarers exists. This includes:

(a) International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), IMO 1978;

(b) ILO Officers' Competency Certificates Convention, 1936 (No 53);

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1 Council Directive 92/51/EEC of 18 June 1992 on a second general system for the recognition of professional education and training to supplement Directive 89/48/EEC (OJ L 209 of 24 July 1992).

(c) ILO Certification of Able Seamen Convention, 1946 (No 74);

(d) ILO Certification of Ship's Cooks Convention, 1946 (No 69);

(e) ILO Recommendation 137 concerning Vocational Training of Seafarers, 1970;

(f) ILO Health Protection and Medical Care (Seafarers) Convention 1987 (No 164);

(g) Document for guidance, 1985: An International Maritime Training Guide, ILO/IMO.

With regard to the STCW Convention, the Council adopted in December 1978 a Resolution[1] inviting Member States to ratify the Convention.

It should be noted that, even though these Conventions have been ratified by the Member States, they are not always applied in the same way in practice, and that such international conventions may be unilaterally denounced.

4. The extraordinary meeting of the Environment and Transport Council on 25 January which discussed shipping safety and the prevention of marine pollution underlined the need for international rules of relevance to shipping safety to be strictly applied in the Community. It would like to adopt minimum vocational training requirements at Community level and called on the Commission to propose, inter alia, specific measures to improve vocational training of seafarers since human error was still the main factor in accidents at sea. The Council also called for seafarers serving on vessels carrying passengers or hazardous or polluting cargoes to have an appropriate knowledge of languages in order to be able to take effective action in the event of an accident.

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(1) O.J. N° 33 of 8.2.1979

GROUNDS FOR A COUNCIL DIRECTIVE

5. In its Communication on a Common Policy for Safe Seas which has been sent to the Council, Parliament and the Economic and Social Committee, the Commission starkly concludes that some 60% of accidents at sea are due to human error although the lack of proper communication on board ships, often owing to language problems, is another major cause of accidents.

6. No solution to these problems has yet been found by either the international organizations or, at national level, the Member States. Because of the multinational mix of crews serving on vessels operating in Community waters it is even more essential that vocational training and linguistic proficiency requirements be introduced.

Such requirements must apply equally to seafarers from the Community as to those from non-Community countries. If shipping safety is to be improved, all crews serving on vessels operating in Community waters must satisfy the professional competence standards laid down under international law and, in particular, the IMO's STCW Convention.

7. In the Commission's view, the IMO has not tackled the crucial aspect of effective policing of international regulations on seafarer training.

The 1978 STCW Convention, which has so far been ratified by 93 countries, does not provide for any ways of enforcing compliance by the Contracting Parties with the minimum requirements on seafarer training.

Given the scale of the problem it is only at Community level that an effective response can be provided.

In effect such an action is justified to the extent that by using the instrument of the Community directive one could guarantee by means of the Community law the uniform application of the matter in a more efficient way.

Furthermore, the extraordinary meeting of the Council on 25 January requested the Commission to speedily table proposals on seafarer training to help improve shipping safety and prevent marine pollution in the Community.

ANALYSIS OF THE MEASURES PROPOSED

8. The Commission proposes for the Community a system of minimum training standards, based on international rules defined in the IMO's Convention on Standards of Training, Certification and Watchkeeping for Seafarers, and including language tuition, for seamen serving on passenger ships or ships carrying hazardous or polluting cargos. The proposed Directive defines the minimum level of training for masters, officers, ratings and lifeboatmen.

From 1995 all Member States will be required to issue a vocational competence certificate to seafarers under the terms of the proposed Directive which is based on the IMO's STCW Convention.

9. Since shipping is essentially an international activity the problem posed by the nationality mix of ships' crews needs to be addressed by this Directive.

The Commission considers steps must be taken to ensure that the level of training of crews made up of non-Community nationals serving on ships operating in the Community is commensurate with international vocational training standards. In its view, agreements should be concluded between the Community and the non-Community countries concerned to ensure appropriate training is given to non-Community seafarers; this will create a level playing field for all crews working in the Community.

10. In the case of vessels flying non-Community flags crewed by nationals of non-Community countries which have not concluded any agreement with the Community, the Commission suggests that they should be inspected as a matter of priority, in Community ports to check that the level of training and competence of their crews matches international standards. Appropriate measures will be taken by Member States. If it is found that a crew's level of training is below standard, the vessel on which it is serving may be detained.

III. CONCLUSIONS

The purpose of the proposed Directive is to:

(a) ensure appropriate training is given to masters, officers, ratings and persons designated to be responsible for survival craft (lifeboatmen) serving on vessels registered in the Community in the interests of safety of navigation and protection of the environment;

(b) promote appropriate linguistic proficiency among crews of passenger vessels or vessels carrying hazardous or polluting cargoes;

(c) take steps to ensure that non-Community crews working in the Community also have the appropriate qualification required under international law.

The proposed Directive lays down minimum training standards for maritime occupations according to category of vessel; these are based on the requirements defined in the IMO's 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers which has been adopted and ratified by all Member States with merchant fleets.

Its vocational training standards are no higher than those of the IMO except with regard to linguistic proficiency in the case of crews serving on passenger vessels or vessels carrying hazardous or polluting cargoes, on which no international regulations have yet been adopted.

Proposal for a Council Directive on the minimum level of training for maritime occupations

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 84(2) thereof,

Having regard to the proposal from the Commission,[1]

Having regard to the opinion of the European Parliament,[2]

Having regard to the opinion of the Economic and Social Committee,[3]

Whereas the standards for the award of vocational competency certificates to seafarers vary from one Member State to another; whereas such a diversity of national laws in the area of training covered by this Directive does not ensure the consistent level of training required in the interests of shipping safety;

Whereas Council Directives 89/48/EEC[4] and 92/51/EEC[5] on the general systems for the recognition of professional education and training apply to maritime occupations covered by this Directive; whereas they will help promote compliance with the obligations laid down in the Treaty abolishing obstacles to the free movement of persons and services between Member States;

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4 OJ No L 19, 24.1.1989.

5 OJ No L 209, 24.7.1992.

Whereas the mutual recognition of diplomas and certificates provided for under the general systems does not, however, always ensure a standardized level of training for all seafarers serving on board vessels flying the flag of a Member State and/or Euros; whereas this is, however, vital from the viewpoint of shipping safety;

Whereas it is therefore essential to define a minimum level of training for seafarers in the Community;

Whereas, in view of the particular nature of the transport of hazardous or polluting cargoes or passengers by sea and the hazards involved in such operations, the conditions under which such operations are effected should be improved in order to safeguard human life and protect the marine environment; whereas persons serving on board such ships should be required to have an adequate knowledge of languages;

Whereas action at Community level is required to attain this objective since individual measures undertaken or planned by Member States do not provide a satisfactory solution;

Whereas account should be taken of the existing body of international law on maritime training and qualifications, and in particular the 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW);[1]

Whereas measures should be taken to ensure that seafarers from third countries have a level of competence commensurate with that required by international conventions in this area,

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1 1978 International Conference on Training and Certification of Seafarers, IMO, London 1978.

HAS ADOPTED THIS DIRECTIVE:

Article 1

For the purpose of this Directive:

(a) 'master' means the person in command of a ship;

(b) 'officer' means the member of a ship's complement other than the master appointed to this post in accordance with national laws or regulations or, where they do not exist, in accordance with collective agreement or practice;

(c) "deck officer" means a qualified officer in the deck department;

(d) "chief mate" means the deck officer next in rank to the master and upon whom the command of the ship will fall in the event of the incapacity of the master;

(e) "engineer officer" means a qualified officer in the engine department;

(f) "chief engineer officer" means a senior engineer officer, responsible for the mechanical propulsion of the ship;

(g) "second engineer officer" means the engineer officer next in rank to the chief engineer officer upon whom the responsibility for the mechanical propulsion of the ship will fall in the event of the incapacity of the chief engineer officer;

(h) "assistant engineer officer" means a person under training to become an engineer officer and designated as such by national law or regulations.

(i) "radio officer" means a person holding a first class or second class radiotelegraph operator's certificate or a radiocommunication operator's general certificate for the maritime mobile service issued under the provisions of the Radio Regulations, who is employed in the radiotelegraph station of a ship which is required to have such a station by the International Convention for the Safety of Life at Sea;

(j) "radiotelephone officer" means a person holding an appropriate certificate issued under the provisions of the Radio Regulations;

(k) "rating" and person designated to be responsible for a survival craft ('lifeboatman') means any member of a ship's complement other than the master or officers;

(l) "sea-going ship" means any ship other than ships which navigate exclusively in inland waters or in waters within, or closely adjacent to, areas where port regulations apply;

(m) "hazardous cargo" means the goods defined in the International Maritime Dangerous Goods Code (IMDG), in Chapter 19 of the IGS Code and Chapter 17 of the IBC Code;

(n) "polluting cargoes" means:

- hydrocarbons as defined in Annex 1 to the MARPOL Convention;
- noxious liquid substances as defined in Annex II to the MARPOL Convention;
- harmful substances as defined in Annex III to the MARPOL Convention;

(o) "seafarers" means any persons serving on board a sea-going ship.

Article 2

This Directive shall apply to seafarers serving on board ships registered in a Member State of the Community and/or the Community Euros register with the exception of:

- warships, naval auxiliaries or other ships owned or operated by a Member State and engaged only on government non-commercial service;

- all fishing vessels;

- pleasure yachts not engaged in trade.

Article 3

Member States shall take the measures necessary to ensure that masters, officers, ratings and persons designated to be responsible for survival craft (lifeboatmen) who intend to serve on a ship flying a Member State's flag and/or a EUROS flag hold a vocational competence certificate awarded or recognized by the authority or body designated for this purpose by each Member State showing that they have successfully completed training relevant to the occupation they wish to exercise on board the vessel.

Article 4

Vocational competence certificate means any valid document, whatever its title, issued by or under the authority of the competent authority of a Member State or recognized by the authority, authorizing the holder to serve as stated in this document or as authorized by national regulations, where this document certifies a minimum level of training for each occupation pursuant to the provisions of this Directive.

Article 5

1. The training which the masters, officers, ratings and lifeboatmen require in order to obtain a vocational competence certificate shall be given in the form of one or more theoretical courses, and service at sea, accompanied by practical exercises, and approved by the competent authority or the body designated by each Member State.

2. This training must cover the minimum requirements defined in the IMO 1978 International Convention on Standards of Training, Certification and Watchkeeping of Seafarers (STCW) The minimum requirements are those described in the Annexes to this Directive, in particular :

- for masters and chief mates of ships of 200 gross register tons or more, the requirements laid down in Annex I, Regulations II/1 II/2, II/5, II/7 and II/8;

- for officers in charge of a navigational watch and masters of ships of less than 200 gross register tons, the requirements laid down in Annex I, Regulations II/1, II/3, II/5, II/7 and II/8;

- for officers in charge of a navigational watch on ships of 200 gross register tons or more, the requirements laid down in Annex I, Regulations II/1 II/4, II/5, II/7 and II/8;

- for chief engineer officers and second engineer officers of ships powered by main propulsion machinery of 3 000 kW propulsion power or more, the requirements laid down in Annex II, Regulations III/1, III/2 and III/5 ;

- for chief engineer officers and second engineer officers of ships powered by main propulsion machinery between 750 kW and 3 000 kW propulsion power, the requirements laid down in Annex II, Regulations III/1, III/3 and III/5;

- for engineer officers in charge of a watch in a conventionally manned engine room or designated duty engineer officers in a periodically unmanned engine room, the requirements laid down in Annex II, Regulations III/1, III/4 and III/5;

- for radio officers, the requirements laid down in Annex III, Regulations IV/1 and IV/2;

- for radiotelephone operators, the requirements laid down in Annex IV, Regulation IV/3;

- for masters, officers and ratings of oil tankers, chemical tankers and liquified gas tankers, the requirements laid down in Annex V, Regulations V/1, V/2 and V/3;

- for ratings forming part of a navigational watch, the requirements laid down in Annex II, Regulation II/6;

- for ratings forming part of an engine room watch, the requirements laid down in Annex III, Regulation III/6;

- for persons designated to be responsible for survival craft (lifeboatmen), the requirements laid down in Annex VI, Regulation VI/1.

2. Member States shall ensure that the provisions of Council Directive 92/29/EEC of 31 March 1992 on the minimum safety and health requirements for improved medical treatment on board vessels,[1] and in particular Article 5 thereof, are applied as part of the training provided for in paragraph 1.

3. Paragraph 1 shall apply without prejudice to more favourable Community provisions on safety and health at work, in particular Council Directive 89/391/EEC of 12 June 1989 and its implementing Directives.[2]

4. To obtain a vocational competence certificate, candidates must pass an examination approved by the competent authority of a Member State, which shall ensure that all examiners are independent.

Article 6

1. Member States designate the authority or the body which can give the training referred to in Article 5.

2. Member States designate the authority or the body which grant the certificates and attest the success to the examination mentioned in Article 5.

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1 OJ No L 113, 30.4.1992, p.19.

2 OJ N° L 183, 29.6.1989

Article 7

1. Member States shall ensure that, on board passenger ships or ships operating scheduled passenger and vehicle services starting and/or finishing a voyage in a Member State port, the master, officers, ratings and lifeboatmen are able to communicate with each other. All members of the crew nominated to assist passengers in emergency situation, shall be able to communicate in the language(s) appropriate to the majority of passengers carried on a particular route.

2. Member States shall ensure that, on board oil tankers, liquified gas tankers and chemical tankers, the master, officers and ratings receive appropriate training so that all members of the ship's crew can communicate in a common language.

Article 8

Member States may grant a vocational competence certificate to masters, officers, ratings and lifeboatmen who apply therefor for the first time within six months preceding the date on which this Directive is implemented, without having followed the course and having sat the examination provided for in Article 5, on condition that they provide proof that they have been serving on ships for at least twelve months during the five years preceding the date of entry into force of this Directive.

Article 9

1. Seafarers who are not nationals of a Member State and do not possess the vocational competence certificate provided for in Article 3 may be allowed to serve on ships flying a Member State's flag provided a mutually satisfactory agreement has been concluded between the Community and the third counties of which the seafarers concerned are nationals. A mutually satisfactory agreement means an agreement which guarantees the parties concerned observance and genuine and full implementation of the provisions of the IMO's STCW Convention incorporated in this Directive.

2. Member States shall take the measures necessary to ensure that ships flying a third country flag with crews from one or more third countries which have ratified the Convention and they have not concluded an agreement with the Community, are inspected, as a matter of priority, by the competent authority of the port state to ensure that the level of vocational training and competence of their crews meets the standards laid down in the IMO's STCW Convention.

3. Member States shall take appropriate steps, including the detention of a ship, if the port authorities discover in the course of an inspection that crews are unable to provide proof of professional proficiency for the duties assigned to them on board the ship.

Article 10

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive no later than 1 January 1995.

2. When Member States adopt these provisions, they shall contain a reference to this Directive or shall be accompanied by such reference at the time of their official publication. The relevant procedure shall be adopted by Member States.

3. Member States communicate to the Commission the texts of the provisions they adopt in the field governed by this Directive.

Article 11

This Directive is addressed to the Member States.

Done at Brussels,

For the Council
The President

ANNEXES

ANNEX I

MASTER - DECKDEPARTMENT

Regulation II/1

Basic Principles to be Observed in Keeping a Navigational Watch

1. Member States shall direct the attention of shipowners, ship operators, masters and watchkeeping personnel to the following principles which shall be observed to ensure that a safe navigational watch is maintained at all times.

2. The master of every ship is bound to ensure that watchkeeping arrangements are adequate for maintaining a safe navigational watch. Under the master's general direction, the officers of the watch are responsible for navigating the ship safely during their periods of duty when they will be particularly concerned with avoiding collision and stranding.

3. The basic principles, including but not limited to the following, shall be taken into account on all ships.

4. **Watch arrangements**

(a) The composition of the watch shall at all times be adequate and appropriate to the prevailing circumstances and conditions and shall take into account the need for maintaining a proper look-out.

(b) When deciding the composition of the watch on the bridge which may include appropriate deck ratings, the following factors, *inter alia*, shall be taken into account:

(i) at no time shall the bridge be left unattended;

(ii) weather conditions, visibility and whether there is daylight or darkness;

(iii) proximity of navigational hazards which may make it necessary for the officer in charge of the watch to carry out additional navigational duties;

(iv) 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;

(v) whether the ship is fitted with automatic steering;

(vi) any unusual demands on the navigational watch that may arise as a result of special operational circumstances.

5. **Fitness for duty**

The watch system shall be such that the efficiency of watchkeeping officers and watchkeeping ratings is not impaired by fatigue. Duties shall be so organized that the first watch at the commencement of a voyage and the subsequent relieving watches are sufficiently rested and otherwise fit for duty.

6. **Navigation**

(a) The intended voyage shall be planned in advance taking into consideration all pertinent information and any course laid down shall be checked before the voyage commences.

(b) During the watch the course steered, position and speed shall be checked at sufficiently frequent intervals, using any available navigational aids necessary, to ensure that the ship follows the planned course.

(c) The officer of the watch shall have full knowledge of the location and operation of all safety and navigational equipment on board the ship and shall be aware and take account of the operating limitations of such equipment.

(d) The officer in charge of a navigational watch shall not be assigned or undertake any duties which would interfere with the safe navigation of the ship.

7. **Navigational equipment**

(a) The officer of the watch shall make the most effective use of all navigational equipment at his disposal.

(b) When using radar, the officer of the watch shall bear in mind the necessity to comply at all times with the provisions on the use of radar contained in the applicable regulations for preventing collisions at sea.

(c) In cases of need the officer of the watch shall not hesitate to use the helm, engines and sound signalling apparatus.

8. **Navigational duties and responsibilities**

(a) The officer in charge of the watch shall:

(i) keep his watch on the bridge which he shall in no circumstances leave until properly relieved;

(ii) continue to be responsible for the safe navigation of the ship, despite the presence of the master on the bridge, until the master informs him specifically that he has assumed that responsibility and this is mutually understood;

(iii) notify the master when in any doubt as to what action to take in the interest of safety;

(iv) not hand over the watch to the relieving officer if he has reason to believe that the latter is obviously not capable of carrying out his duties effectively, in which case he shall notify the master accordingly.

(b) On taking over the watch the relieving officer shall satisfy himself as to the ship's estimated or true position and confirm its intended track, course and speed and shall note any dangers to navigation expected to be encountered during his watch.

(c) A proper record shall be kept of the movements and activities during the watch relating to the navigation of the ship.

9. Look-out

In addition to maintaining a proper look-out for the purpose of fully appraising the situation and the risk of collision, stranding and other dangers to navigation, the duties of the look-out shall include the detection of ships or aircraft in distress, shipwrecked persons, wrecks and debris. In maintaining a look-out the following shall be observed:

(a) the look-out must be able to give full attention to the keeping of a proper look-out and no other duties shall be undertaken or assigned which could interfere with that task;

(b) the duties of the look-out and helmsman are separate and the helmsman shall 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 watch may be the sole look-out in daylight provided that on each such occasion:

(i) the situation has been carefully assessed and it has been established without doubt that it is safe to do so;

(ii) full account has been taken of all relevant factors including, but not limited to:

- state of weather
- visibility
- traffic density
- proximity of danger to navigation
- the attention necessary when navigating in or near traffic separation schemes;

(iii) assistance is immediately available to be summoned to the bridge when any change in the situation so requires.

10. Navigation with pilot embarked

Despite the duties and obligations of a pilot, his presence on board does not relieve the master or officer in charge of the watch from their duties and obligations for the safety of the ship. The master and the pilot shall exchange information regarding navigation procedures, local conditions and the ship's characteristics. The master and officer of the watch shall co-operate closely with the pilot and maintain an accurate check of the ship's position and movement.

11. Protection of the marine environment

The master and officer in charge of the watch shall be aware of the serious effects of operational or accidental pollution of the marine environment and shall take all possible precautions to prevent such pollution, particularly within the framework of relevant international and port regulations.

Mandatory Minimum Requirements for Certification of Masters and Chief Mates of Ships of 200 Gross Register Tons or More

Master and chief mate of ships of 1 600 gross register tons or more

1. Every master and chief mate of a sea-going ship of 1 600 gross register tons or more shall hold an appropriate certificate.

2. Every candidate for certification shall:

(a) satisfy the Administration as to medical fitness, particularly regarding eyesight and hearing;

(b) meet the requirements for certification as an officer in charge of a navigational watch on ships of 200 gross register tons or more and have approved sea-going service in that capacity:

(i) for certification as chief mate, not less than 18 months; however, this period may be reduced to not less than 12 months if the Administration requires special training which it considers to be equivalent to at least six months' service as officer in charge of a navigational watch;

(ii) for certification as master, not less than 36 months; however, this period may be reduced to not less than 24 months if not less than 12 months of such sea-going service has been served as chief mate, or if the Administration requires special training which it considers to be equivalent to such service;

(c) have passed appropriate examination to the satisfaction of the Administration. Such examination shall include the material set out in the Appendix to this Regulation, except that the Administration may vary these examination requirements for masters and chief mates of ships of limited size engaged on near-coastal voyages, as it considers necessary, bearing in mind the effect on the safety of all ships which may be operating in the same waters.

Master and chief mate of ships of between 200 and 1 600 gross register tons

3. Every master and chief mate of a sea-going ship of between 200 and 1 600 gross register tons shall hold an appropriate certificate.

4. Every candidate for certification shall:

(a) satisfy the Administration as to medical fitness, particularly regarding eyesight and hearing;

(b) (i) for certification as chief mate, meet the requirements of an officer in charge of a navigational watch on ships of 200 gross register tons or more;

(ii) for certification as master, meet the requirements of an officer in charge of a navigational watch on ships of 200 gross register tons or more and have approved sea-going service in that capacity of not less than 36 months; however, this period may

be reduced to not less than 24 months if not less than 12 months of such sea-going service has been served as chief mate, or if the Administration requires special training which it considers to be equivalent to such service;

(c) have passed appropriate examination to the satisfaction of the Administration. Such examination shall include the material set out in the Appendix, except that the Administration may vary these examination requirements for masters and chief mates of ships engaged on near-coastal voyages, as it considers appropriate, to exclude such material as is not applicable to the waters or ships concerned, bearing in mind the effect on the safety of all ships which may be operating in the same waters.

General

5. The level of knowledge required under the different headings of the Appendix may be varied according to whether the certificate is being issued at master or chief mate level, and according to whether the certificate or certificates is applicable to ships of 1 600 gross register tons or more, or to ships of between 200 and 1 600 gross register tons.

APPENDIX TO REGULATION II/2

Minimum knowledge required for certification of masters and chief mates of ships of 200 gross register tons or more

1. The syllabus given below is compiled for examination of candidates for certification as master or chief mate of ships of 200 gross register tons or more. It is intended to expand and extend in depth the subjects contained in Regulation II/4 – "Mandatory Minimum Requirements for Certification of Officers in Charge of a Navigational Watch on Ships of 200 Gross Register Tons or More". Bearing in mind that a master has ultimate responsibility for the safety of the ship, its passengers, crew and cargo, and that a chief mate shall be in a position to assume that responsibility at any time, examination in these subjects shall be designed to test their ability to assimilate all available information that affects the safety of the ship.

2. *Navigation and position determination*

(a) Voyage planning and navigation for all conditions:

(i) by acceptable methods of plotting ocean tracks;

(ii) within restricted waters;

(iii) in ice;

(iv) in restricted visibility;

(v) in traffic separation schemes;

(vi) in areas of extensive tidal effects.

(b) Position determination:

(i) by celestial observations, including the use of sun, stars, moon and planets;

(ii) by terrestrial observations, including the ability to use bearings from landmarks and aids to navigation such as lighthouses, beacons and buoys in conjunction with appropriate charts, notices to mariners and other publications to assess the accuracy of the resulting position fix;

(iii) using all modern ship electronic navigational aids to the satisfaction of the Administration, with specific knowledge of their operating principles, limitations, sources of error, detection of misrepresentation of information and methods of correction to obtain accurate position fixing.

3. *Watchkeeping*

(a) Demonstrate thorough knowledge of content, application and intent of the International Regulations for Preventing Collisions at Sea, including those Annexes concerned with safe navigation.

(b) Demonstrate knowledge of Regulation II/1 – "Basic Principles to be Observed in Keeping a Navigational Watch".

4. *Radar equipment*

Demonstrate in conjunction with the use of radar simulator or, when not available, manoeuvring board, knowledge of the fundamentals of radar and ability in the operation and use of radar, and in the interpretation and analysis of information obtained from this equipment, including:

(a) factors affecting performance and accuracy;

(b) setting up and maintaining displays;

(c) detection of misrepresentation of information, false echoes, sea return, etc;

(d) range and bearing;

(e) identification of critical echoes;

(f) course and speed of other ships;

(g) time and distance of closest approach of crossing, meeting or overtaking ships;

(h) detecting course and speed changes of other ships;

(i) effect of changes in own ship's course or speed or both;

(j) application of the International Regulations for Preventing Collisions at Sea.

5. *Compasses – magnetic and gyro*

Ability to determine and correct the errors of the magnetic and gyro-compasses and knowledge of the means for correcting such errors.

6. *Meteorology and oceanography*

(a) Demonstrate the ability to understand and interpret a synoptic chart and to forecast area weather, taking into account local weather conditions.

(b) Knowledge of the characteristics of various weather systems, including tropical revolving storms and avoidance of storm centres and the dangerous quadrants.

(c) Knowledge of ocean current systems.

(d) Ability to use all appropriate navigational publications on tides and currents, including those in the English language.

(e) Ability to calculate tidal conditions.

7. *Ship manoeuvring and handling*

Manoeuvring and handling of a ship in all conditions, including the following:

(a) manoeuvres when approaching pilot vessels or stations with due regard to weather, tide, headreach and stopping distances;

(b) handling a ship in rivers, estuaries, etc., having regard to the effects of current, wind and restricted water on the response to the helm;

(c) manoeuvring in shallow water, including the reduction in keel clearance due to the effect of squat[1], rolling and pitching;

(d) interaction between passing ships and between own ship and nearby banks (canal effect);

(e) berthing and unberthing under various conditions of wind and tide with and without tugs;

(f) choice of anchorage; anchoring with one or two anchors in limited anchorages and factors involved in determining the length of anchor cable to be used;

(g) dragging; clearing fouled anchors;

(h) dry-docking, both with and without damage;

(i) management and handling of ships in heavy weather, including assisting a ship or aircraft in distress, towing operations, means of keeping an unmanageable ship out of a sea trough, lessening drift and use of oil;

(j) precautions in manoeuvring for launching boats or liferafts in bad weather;

(k) methods of taking on board survivors from lifeboats or liferafts;

(l) ability to determine the manoeuvring and engine characteristics of major types of ships with special reference to stopping distances and turning circles at various draughts and speeds;

(m) the importance of navigating at reduced speed to avoid damage caused by own ship's bow or stern wave;

(n) practical measures to be taken when navigating in ice or conditions of ice accumulation on board;

(o) the use of, and manoeuvring in, traffic separation schemes.

[1] Squat: the decrease in clearance beneath a ship which occurs when the ship moves through the water and is caused both by bodily sinkage and by change of trim. The effect is accentuated in shallow water and is reduced with a reduction in ship's speed.

8. *Ship stability*[2], *construction and damage control*

(a) Understanding fundamental principles of ship construction and the theories and factors affecting trim and stability and measures necessary to preserve safe trim and stability.

(b) Knowledge of the effect on trim and stability of a ship in the event of damage to and consequent flooding of a compartment and counter measures to be taken.

(c) Demonstrate use of stability, trim and stress tables, diagrams and stress calculating equipment, including knowledge of loading cargoes and ballasting in order to keep hull stresses within acceptable limits.

(d) General knowledge of the principal structural members of a ship and the proper names of the various parts.

(e) Knowledge of IMCO recommendations concerning ship stability.

9. *Ship power plants*

(a) Operating principles of marine power plants.

(b) Ships' auxiliary machinery.

(c) General knowledge of marine engineering terms.

10. *Cargo handling and stowage*

(a) The stowage and securing of cargoes on board ships, including cargo gear.

(b) Loading and discharging operations, with special regard to loading and discharging of heavy weights.

(c) International regulations and recommendations relating to the carriage of cargoes, in particular the International Maritime Dangerous Goods Code (IMDG).

(d) Carriage of dangerous goods; precautions to be taken during loading and discharging operations and the care of dangerous goods during a voyage.

(e) Working knowledge of contents and application of current relevant tanker safety guides.

(f) Working knowledge of commonly used cargo piping and pumping arrangements.

(g) Terms and definitions used to describe properties of common oil cargoes, such as crude oil, middle distillates, naphtha.

(h) Pollution regulations; ballasting, tank cleaning and gas freeing operations.

(i) Load-on-top procedures.

11. *Fire prevention and fire-fighting appliances*

(a) Organization of fire drills.

(b) Classes and chemistry of fire.

[2] Masters and chief mates serving on small ships shall be fully acquainted with the basic stability requirements of such ships.

(c) Fire-fighting systems.

(d) Attendance at an approved fire-fighting course.

(e) Knowledge of regulations concerning fire-fighting equipment.

12. *Emergency procedures*

(a) Precautions when beaching a ship.

(b) Action to be taken prior to, and after, grounding.

(c) Floating a grounded ship, with and without assistance.

(d) Action to be taken following a collision.

(e) Temporary plugging of leaks.

(f) Measures for the protection and safety of passengers and crew in emergencies.

(g) Limiting damage and salving the ship following a fire or explosion.

(h) Abandoning ship.

(i) Emergency steering, rigging and use of jury steering and the means of rigging a jury rudder, where practicable.

(j) Rescuing persons from a ship in distress or from a wreck.

(k) Man-overboard procedures.

13. *Medical care*

A thorough knowledge of the use of the contents of the following publications:

(a) International Medical Guide for Ships or equivalent national publications;

(b) Medical section of the International Code of Signals;

(c) Medical First Aid Guide For Use in Accidents Involving Dangerous Goods.

14. *Maritime law*

(a) A knowledge of international maritime law as embodied in international agreements and conventions as they affect the specific obligations and responsibilities of the master, particularly those concerning safety and the protection of the marine environment. Regard shall be paid especially to the following subjects:

(i) certificates and other documents required to be carried on board ships by international conventions, how they may be obtained and the period of their legal validity;

(ii) responsibilities under the relevant requirements of the International Convention on Load Lines;

(iii) responsibilities under the relevant requirements of the International Convention for the Safety of Life at Sea;

(iv) responsibilities under international conventions for the prevention of pollution from ships;

(v) maritime declarations of health; the requirements of the International Health Regulations;

(vi) responsibilities under the Convention on the International Regulations for Preventing Collisions at Sea;

(vii) responsibilities under other international instruments affecting the safety of the ship, passengers, crew and cargo.

(b) The extent of knowledge of national maritime legislation is left to the discretion of the Administration but shall include national arrangements for implementing international agreements and conventions.

15. *Personnel management and training responsibilities*

A knowledge of personnel management, organization and training aboard ships.

16. *Communications*

(a) Ability to transmit and receive messages by morse light and to use the International Code of Signals; where the Administration has examined candidates in these subjects at the lower levels of certification, they may have the option of not re-examining in these subjects for certification as master.

(b) Knowledge of procedures used in radiotelephone communications and ability to use radiotelephones, in particular with respect to distress, urgency, safety and navigational messages.

(c) A knowledge of the procedures for emergency distress signals by radiotelegraphy as prescribed in the Radio Regulations.

17. *Life-saving*

A thorough knowledge of life-saving appliance regulations (International Convention for the Safety of Life at Sea), organization of abandon ship drills, lifeboats, liferafts and other life-saving equipment.

18. *Search and rescue*

A thorough knowledge of the IMCO Merchant Ship Search and Rescue Manual (MERSAR).

19. *Methods for demonstration of proficiency*

(a) Navigation

Demonstrate the use of sextant, pelorus, azimuth mirror and ability to plot position, course, bearings.

(b) International Regulations for Preventing Collisions at Sea

(i) use of small models displaying proper signals or lights, or navigation light simulator;

(ii) manoeuvring board or radar simulator.

(c) Radar

(i) radar simulator; or

(ii) manoeuvring boards.

(d) Fire-fighting

Attendance at an approved fire-fighting course.

(e) Communications

Visual and vocal practical test.

(f) Life-saving

Launching and handling of lifeboats and other life-saving appliances, including the donning of life-jackets.

Regulation II/3

Mandatory Minimum Requirements for Certification of Officers in Charge of a Navigational Watch and of Masters of Ships of Less than 200 Gross Register Tons

1. **Ships not engaged on near-coastal voyages**

(a) Every master serving on a sea-going ship of less than 200 gross register tons not engaged on near-coastal voyages shall hold a certificate recognized by the Administration for service as master of ships of between 200 and 1 600 gross register tons.

(b) Every officer in charge of a navigational watch serving on a sea-going ship of less than 200 gross register tons not engaged on near-coastal voyages shall hold an appropriate certificate for ships of 200 gross register tons or more.

2. **Ships engaged on near-coastal voyages**

(a) *Master*

(i) Every master serving in a sea-going ship of less than 200 gross register tons engaged on near-coastal voyages shall hold an appropriate certificate.

(ii) Every candidate for certification shall:

(1) be not less than 20 years of age;

(2) have approved sea-going service of not less than 12 months as officer in charge of a navigational watch;

(3) satisfy the Administration that he possesses adequate knowledge appropriate to his duties on the ships concerned which shall include the subjects contained in the Appendix to this Regulation.

(b) *Officer in charge of a navigational watch*

(i) Every officer in charge of a navigational watch on a sea-going ship of less than 200 gross register tons engaged on near-coastal voyages

shall hold an appropriate certificate.

(ii) Every candidate for certification shall:

(1) be not less than 18 years of age;

(2) satisfy the Administration as to medical fitness, particularly regarding eyesight and hearing;

(3) satisfy the Administration that he has:

- successfully undergone special training, including an adequate period of appropriate sea-going service as required by the Administration; or
- completed approved sea-going service in the deck department of not less than three years;

(4) satisfy the Administration that he possesses adequate knowledge appropriate to his duties on the ships concerned, which shall include the subjects contained in the Appendix.

3. Training

Training to achieve the necessary knowledge and practical experience shall be based on Regulation II/1 – "Basic Principles to be Observed in Keeping a Navigational Watch" and relevant international regulations and recommendations.

4. Exemptions

The Administration, if it considers that a ship's size and the conditions of its voyage are such as to render the application of the full requirements of this Regulation and its Appendix unreassable or impracticable, may to that extent exempt the master and the officer in charge of a navigational watch on such a ship or class of ships from some of the requirements, bearing in mind the safety of all ships which may be operating in the same waters.

APPENDIX TO REGULATION II/3

Minimum knowledge required for certification of officers in charge of a navigational watch and of masters of ships of less than 200 gross register tons

1. (a) Knowledge of the following:

(i) coastal navigation and, to the extent required, celestial navigation;

(ii) International Regulations for Preventing Collisions at Sea;

(iii) International Maritime Dangerous Goods Code (IMDG);

(iv) magnetic compass;

(v) radiotelephony and visual signalling;

(vi) fire prevention and fire-fighting appliances;

(vii) life-saving;

(viii) emergency procedures;

(ix) ship manoeuvring;

(x) ship stability;

(xi) meteorology;

(xii) small ship power plants;

(xiii) first aid;

(xiv) search and rescue;

(xv) prevention of pollution of the marine environment.

(b) In addition to the requirements of sub-paragraph (a), sufficient knowledge to operate safely all navigational aids and equipment fitted aboard the ships concerned.

(c) The level of knowledge to be required in the subjects specified in sub-paragraphs (a) and (b) shall be sufficient for the officer of the watch to carry out his duties safely.

2. Every master serving on a sea-going ship of less than 200 gross register tons shall, in addition to the requirements of paragraph 1 above, satisfy the Administration that he possesses the knowledge to carry out all the duties of such a master safely.

Regulation II/4

Mandatory Minimum Requirements for Certification of Officers in Charge of a Navigational Watch on Ships of 200 Gross Register Tons or More

1. Every officer in charge of a navigational watch serving on a sea-going ship of 200 gross register tons or more shall hold an appropriate certificate.

2. Every candidate for certification shall:

(a) be not less than 18 years of age;

(b) satisfy the Administration as to medical fitness, particularly regarding eyesight and hearing;

(c) have approved sea-going service in the deck department of not less than three years which shall include at least six months of bridge watchkeeping duties under the supervision of a qualified officer; however, an Administration may allow the substitution of a period of special training for not more than two years of this approved sea-going service, provided the Administration is satisfied that such training is at least equivalent in value to the period of sea-going service it replaces;

(d) satisfy the Administration by passing an appropriate examination that he possesses adequate theoretical and practical knowledge appropriate to his duties.

3. **Certificates for service without restriction**

For issue of certificates for service without restriction as to area of operation, the examination shall test the adequacy of the candidate's theoretical and practical knowledge in the subjects shown in the Appendix to this Regulation.

4. **Restricted certificates**

For issue of restricted certificates for service on near-coastal voyages, the Administration may omit the following subjects from those shown in the Appendix, bearing in mind the effect on the safety of all ships which may be operating in the same waters:

(a) celestial navigation;

(b) electronic systems of position fixing and navigation for waters not covered by such systems.

5. **Level of knowledge**

(a) The level of knowledge to be required in the subjects shown in the Appendix shall be sufficient for the officer of the watch to carry out his watchkeeping duties safely. In determining the appropriate level of knowledge the Administration shall take into account the remarks under each subject in the Appendix.

(b) Training to achieve the necessary theoretical knowledge and practical experience shall be based on Regulation II/1 – "Basic Principles to be Observed in Keeping a Navigational Watch" and relevant international regulations and recommendations.

APPENDIX TO REGULATION II/4

Minimum knowledge required for certification of officers in charge of a navigational watch on ships of 200 gross register tons or more

1. *Celestial navigation*

Ability to use celestial bodies to determine the ship's position and compass errors.

2. *Terrestrial and coastal navigation*

(a) Ability to determine the ship's position by the use of:

(i) landmarks;

(ii) aids to navigation, including lighthouses, beacons and buoys;

(iii) dead reckoning, taking into account winds, tides, currents and speed by propeller revolutions per minute and by log.

(b) Thorough knowledge of and ability to use navigational charts and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ships' routeing information.

3. *Radar navigation*

Knowledge of the fundamentals of radar and ability in the operation and use of radar and ability to interpret and analyse information obtained by use of radar including the following:

(a) factors affecting performance and accuracy;

(b) setting up and maintaining displays;

(c) detection of misrepresentation of information, false echoes, sea return, etc.;

(d) range and bearing;

(e) identification of critical echoes;

(f) course and speed of other ships;

(g) time and distance of closest approach of crossing, meeting or overtaking ships;

(h) detecting course and speed changes of other ships;

(i) effect of changes in own ship's course or speed or both;

(j) application of the International Regulations for Preventing Collisions at Sea.

4. *Watchkeeping*

(a) Demonstrate thorough knowledge of content, application and intent of the International Regulations for Preventing Collisions at Sea, including those Annexes concerned with safe navigation.

(b) Demonstrate knowledge of content of Regulation II/1 – "Basic Principles to be Observed in Keeping a Navigational Watch".

5. *Electronic systems of position fixing and navigation*

Ability to determine the ship's position by the use of electronic navigational aids to the satisfaction of the Administration.

6. *Radio direction-finders and echo-sounders*

Ability to operate the equipment and apply the information correctly.

7. *Meteorology*

Knowledge of shipborne meteorological instruments and their application. Knowledge of the characteristics of various weather systems, reporting procedures and recording systems and the ability to apply the meteorological information available.

8. *Compasses – magnetic and gyro*

Knowledge of the principles of magnetic and gyro-compasses including errors and corrections. With regard to gyro-compasses, an understanding of the systems under the control of the master gyro and a knowledge of the operation and care of the main types of gyro-compasses.

9. *Automatic pilot*

Knowledge of automatic pilot systems and procedures.

10. *Radiotelephony and visual signalling*

(a) Ability to transmit and receive messages by morse light.

(b) Ability to use the International Code of Signals.

(c) Knowledge of procedures used in radiotelephone communications and ability to use radiotelephones, in particular with respect to distress, urgency, safety and navigational messages.

11. *Fire prevention and fire-fighting appliances*

(a) Ability to organize fire drills.

(b) Knowledge of classes and chemistry of fire.

(c) Knowledge of fire-fighting systems.

(d) Attendance at an approved fire-fighting course.

12. *Life-saving*

Ability to organize abandon ship drills and knowledge of the operation of lifeboats, liferafts, buoyant apparatus and similar life-saving appliances along with their equipment, including portable radio apparatus and emergency position-indicating radio beacons (EPIRBs). Knowledge of survival at sea techniques.

13. *Emergency procedures*

Knowledge of the items listed in the appropriate Appendix of the current edition of the ILO/IM O "Document for Guidance".

14. *Ship manoeuvring and handling*

Knowledge of:

(a) the effects of various deadweights, draughts, trim, speed and under keel clearance on turning circles and stopping distances;

(b) effects of wind and current on ship handling;

(c) manoeuvres for the rescue of man-overboard;

(d) squat, shallow water and similar effects;

(e) proper procedures for anchoring and mooring.

15. *Ship stability*

(a) Working knowledge and application of stability, trim and stress tables, diagrams and stress calculating equipment.

(b) Understanding of fundamental actions to be taken in the event of partial loss of intact buoyancy.

16. *English language*

Adequate knowledge of the English language enabling the officer to use charts and other nautical publications, to understand meteorological information and messages concerning ship's safety and operation and to express himself clearly in his communications with other ships or coast stations. Ability to understand and use the IM O Standard Marine Navigational Vocabulary.

17. *Ship construction*

General knowledge of the principal structural members of a ship and the proper names of the various parts.

18. *Cargo handling and stowage*

Knowledge of safe handling and stowage of cargoes and the effect of these factors on the safety of the ship.

19. *Medical aid*

Practical application of medical guides and advice by radio, including the ability to take effective action based on such knowledge in the case of accidents or illnesses that are likely to occur on board ship.

20. *Search and rescue*

Knowledge of the IM O Merchant Ship Search and Rescue Manual (MERSAR).

21. *Prevention of pollution of the marine environment*

Knowledge of the precautions to be observed to prevent pollution of the marine environment.

Regulation II/5

Mandatory Minimum Requirements to Ensure the Continued Proficiency and Updating of Knowledge for Masters and Deck Officers

1. Every master and every deck officer holding a certificate who is serving at sea or intends to return to sea after a period ashore shall, in order to continue to qualify for sea-going service, be required at regular intervals not exceeding five years to satisfy the Administration as to:

(a) medical fitness, particularly regarding eyesight and hearing; and

(b) professional competence:

(i) by approved sea-going service as master or deck officer of at least one year during the preceding five years; or

(ii) by virtue of having performed functions relating to the duties appropriate to the grade of certificate held which are considered to be at least equivalent to the sea-going service required in paragraph 1(b)(i); or

(iii) by one of the following:

- passing an approved test; or
- successfully completing an approved course or courses; or
- having completed approved sea-going service as a deck officer for a period of not less than three months in a supernumerary capacity immediately prior to taking up the rank to which he is entitled by virtue of his certificate.

2. The Administration shall, in consultation with those concerned, formulate or promote the formulation of a structure of refresher and updating courses, either voluntary or mandatory, as appropriate, for masters and deck officers who are serving at sea, especially for re-entrants to sea-going service. The Administration shall ensure that arrangements are made to enable all persons concerned to attend such courses as appropriate to their experience and duties. Such courses shall be approved by the Administration and include changes in marine technology and relevant international regulations and recommendations concerning the safety of life at sea and the protection of the marine environment.

3. Every master and deck officer shall, for continuing sea-going service on board ships for which special training requirements have been internationally agreed upon, successfully complete an approved relevant training.

4. The Administration shall ensure that the texts of recent changes in international regulations concerning the safety of life at sea and the protection of the marine environment are made available to ships under its jurisdiction.

Regulation II/6

Mandatory Minimum Requirements for Ratings Forming Part of a Navigational Watch

1. The minimum requirements for a rating forming part of a navigational watch on a sea-going ship of 200 gross register tons or more are set out in paragraph 2. These requirements are not those for certification of able seamen*, nor, except for ships of limited size, are they minimum requirements for a rating who is to be the sole rating of a navigational watch. Administrations may require additional training and qualifications for a rating who is to be the sole rating of a navigational watch.

* Reference is made to ILO Certification of Able Seamen Convention, 1946 or any successive convention.

2. Every rating forming part of a navigational watch on a sea-going ship of 200 gross register tons or more shall:

(a) be not less than 16 years of age;

(b) satisfy the Administration as to medical fitness, particularly regarding eyesight and hearing;

(c) satisfy the Administration that he has:

(i) completed approved sea-going service, including not less than six months' sea experience associated, in particular, with navigational watchkeeping duties; or

(ii) successfully undergone special training, either pre-sea or aboard ship, including an adequate period of sea-going service as required by the Administration which shall be not less than two months;

(d) have experience or training which includes:

(i) basic principles of fire-fighting, first aid, personal survival techniques, health hazards and personal safety;

(ii) ability to understand orders and make himself understood by the officer of the watch in matters relevant to his duties;

(iii) ability to steer and comply with helm orders, together with sufficient knowledge of magnetic and gyro compasses for performance of these duties;

(iv) ability to keep a proper look-out by sight and hearing and report the approximate bearing of a sound signal, light or other object in degrees or points;

(v) familiarity with the change-over from automatic pilot to hand steering and vice-versa;

(vi) knowledge of the use of appropriate internal communication and alarm systems;

(vii) knowledge of pyrotechnic distress signals;

(viii) knowledge of his emergency duties;

(ix) knowledge of shipboard terms and definitions appropriate to his duties.

3. The experience, service or training required by paragraphs 2(c) and (d) may be acquired through performance of duties associated with navigational watchkeeping, but only if such duties are carried out under the direct supervision of the master, officer in charge of the navigational watch or a qualified rating.

4. Administrations shall ensure that an authorized document is issued to every seafarer who by experience or training is qualified in accordance with this Regulation to serve as a rating forming part of a navigational watch, or that his existing document is duly endorsed.

Regulation II/7

Basic Principles to be Observed in Keeping a Watch in Port

1. On any ship safely moored or safely at anchor under normal circumstances in port, the master shall arrange for an appropriate and effective watch to be maintained for the purpose of safety.

2. In organizing the watches note shall be taken of the provisions of the "Recommendation on Principles and Operational Guidance for Deck Officers in Charge of a Watch in Port" and the "Recommendation on Principles and Operational Guidance for Engineer Officers in Charge of an Engineering Watch in Port" adopted by the International Conference on Training and Certification of Seafarers, 1978.

Regulation II/8

Mandatory Minimum Requirements for a Watch in Port on Ships Carrying Hazardous Cargo

1. The master of every ship carrying cargo in bulk that is hazardous – whether it is, or may be, explosive, flammable, toxic, health-threatening or environment polluting – shall ensure that a safe deck watch and a safe engineering watch are maintained 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.

2. The master of every ship carrying hazardous cargo other than in bulk – whether it is, or may be, explosive, flammable, toxic, health-threatening or environment polluting – shall in organizing safe watchkeeping arrangements take full account of the nature, quantity, packing and stowage of the hazardous cargo and of any special conditions on board, afloat and ashore.

3. In organizing the watches full account shall be taken of the "Recommendation on Principles and Operational Guidance for Deck Officers in Charge of a Watch in Port" and the "Recommendation on Principles and Operational Guidance for Engineer Officers in Charge of an Engineering Watch in Port" adopted by the International Conference on Training and Certification of Seafarers, 1978.

ANNEX II

ENGINE DEPARTMENT

Regulation III/1

Basic Principles to be Observed in Keeping an Engineering Watch

1. Member States shall direct the attention of shipowners, ship operators, masters, chief engineer officers and watchkeeping personnel to the following principles which shall be observed to ensure that a safe engineering watch is maintained at all times.

2. The term "watch" is used in this Regulation to mean either a group of personnel composing the watch or a period of responsibility for an engineer officer during which his physical presence in the machinery space may or may not be required.

3. The basic principles, including but not limited to the following, shall be taken into account on all ships.

4. General

(a) The chief engineer officer of every ship is bound, in consultation with the master, to ensure that watchkeeping arrangements are adequate to maintain a safe watch. When deciding the composition of the watch, which may include appropriate engine room ratings, the following criteria, *inter alia*, shall be taken into account:

(i) type of ship;

(ii) type and condition of the machinery;

(iii) special modes of operation dictated by conditions such as weather, ice, contaminated water, shallow water, emergency conditions, damage containment or pollution abatement;

(iv) qualifications and experience of the watch;

(v) safety of life, ship, cargo and port, and protection of the environment;

(vi) observance of international, national and local regulations;

(vii) maintaining the normal operations of the ship.

(b) Under the direction of the chief engineer officer, the engineer officer in charge of the watch shall be responsible for the inspection, operation and testing, as required, of all machinery and equipment under his responsibility. The engineer officer in charge of a watch is the chief engineer officer's representative and his primary responsibility, at all times, shall be the safe and efficient operation and up-keep of machinery affecting the safety of the ship.

(c) The chief engineer officer shall, in consultation with the master, determine

in advance the needs of the intended voyage, taking into consideration the requirements for fuel, water, lubricants, chemicals, expendable and other spare parts, tools, supplies and any other requirements.

5. Operation

(a) The engineer officer in charge of the watch shall ensure that the established watchkeeping arrangements are maintained. Under his general direction engine room ratings, if forming part of the watch, shall be required to assist in the safe and efficient operation of the propulsion machinery and the auxiliary equipment.

(b) At the commencement of the engineering watch, the current operational parameters and condition of all machinery shall be verified. Any machinery not functioning properly, expected to malfunction or requiring special service, shall be noted along with any action already taken. Plans shall be made for any further action if required.

(c) The engineer officer in charge of the watch shall ensure that the main propulsion plant and auxiliary systems are kept under constant surveillance, inspections are made of the machinery and steering gear spaces at suitable intervals and appropriate action is taken to remedy any malfunction discovered.

(d) When the machinery spaces are in the manned condition, the engineer officer in charge of the watch shall at all times be readily capable of operating the propulsion equipment in response to needs for changes in direction or speed. When the machinery spaces are in the periodic unmanned condition, the designated duty engineer officer in charge of the watch shall be immediately available and on call to attend the machinery spaces.

(e) All bridge orders shall be promptly executed. Changes in direction or speed of the main propulsion unit shall be recorded, except where an Administration determines that the size or characteristics of a particular ship make such recording impracticable. The engineer officer in charge of the watch shall ensure that the main propulsion unit controls, when in the manual mode of operation, are continuously attended under standby or manoeuvring conditions.

(f) The engineer officer in charge of the watch shall not be assigned or undertake any duties which would interfere with his supervisory duty in respect of the main propulsion system and its ancillary equipment and he shall ensure that the main propulsion system and auxiliary equipment are kept under constant surveillance until he is properly relieved.

(g) Due attention shall be paid to the maintenance and support of all machinery, including mechanical, electrical, 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.

(h) The chief engineer officer shall ensure that the engineer officer in charge of the watch is informed of all preventive maintenance, damage control, or repair operations to be performed during the watch. The engineer officer in charge of the watch shall be responsible for the isolation, by-passing and adjustment of all machinery under his responsibility that is to be worked on, and shall record all work carried out.

(i) Before going off duty, the engineer officer in charge of the watch shall ensure that all events related to the main and auxiliary machinery are suitably recorded.

(j) To avoid any danger to the safety of the ship and its crew, the engineer officer in charge of the watch shall notify the bridge immediately in the event of fire, impending actions in machinery spaces that may cause reduction in 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, shall be accomplished before changes are made in order to afford the bridge the maximum available time to take whatever actions are possible to avoid a potential marine casualty.

(k) When the engine room is put in a standby condition, the engineer officer in charge of the watch shall 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.

6. **Watch requirements**

(a) Every member of the watch shall be familiar with his assigned watchkeeping duties. In addition, every member shall have with respect to that ship:

(i) knowledge of the use of appropriate internal communication systems;

(ii) knowledge of escape routes from machinery spaces;

(iii) knowledge of engine room alarm systems and the ability to distinguish between the various alarms with special reference to the CO_2 alarm;

(iv) knowledge of the positions and use of the fire-fighting equipment in the machinery spaces.

(b) The composition of an underway watch shall, 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. To achieve this, the following, *inter alia*, shall be taken into acount:

(i) adequate supervision, at all times, of machinery affecting the safe operation of the ship;

(ii) condition and reliability of any remotely operated propulsion and steering equipment and their controls, control location and the procedures involved in placing them in a manual mode of operation in the event of break-down or emergency;

(iii) location and operation of fixed fire detection, fire extinction or fire containment devices and apparatus;

(iv) use and operational condition of auxiliary, standby and emergency equipment affecting the safe navigation, mooring or docking operations of the ship;

(v) steps and procedures necessary to maintain the condition of machinery installations in order to ensure their efficient operation during all modes of ship operation;

(vi) any other demands on the watch which may arise as a result of special operating circumstances.

(c) At an unsheltered anchorage the chief engineer officer shall consult with the master whether or not to maintain an underway watch.

7. **Fitness for duty**

The watch system shall be such that the efficiency of the watch is not impaired by fatigue. Duties shall be so organized by the chief engineer officer that the first watch at the commencement of a voyage and the subsequent relieving watches are sufficiently rested and otherwise fit for duty.

8. **Protection of the marine environment**

All engineer officers and engine room ratings shall be aware of the serious effects of operational or accidental pollution of the marine environment and shall take all possible precautions to prevent such pollution, particularly within the framework of relevant international and port regulations.

Regulation III/2

Mandatory Minimum Requirements for Certification of Chief Engineer Officers and Second Engineer Officers of Ships Powered by Main Propulsion Machinery of 3 000 kW Propulsion Power or More

1. Every chief engineer officer and second engineer officer of a sea-going ship powered by main propulsion machinery of 3 000 kW propulsion power or more shall hold an appropriate certificate.

2. Every candidate for certification shall:

(a) satisfy the Administration as to medical fitness, including eyesight and hearing;

(b) meet the requirements for certification as an engineer officer in charge of a watch; and

(i) for certification as second engineer officer, have not less than 12 months' approved sea-going service as assistant engineer officer or engineer officer;

(ii) for certification as chief engineer officer, have not less than 36 months' approved sea-going service of which not less than 12 months shall be served as an engineer officer in a position of responsibility while qualified to serve as second engineer officer;

(c) have attended an approved practical fire-fighting course;

(d) have passed appropriate examination to the satisfaction of the Administration. Such examination shall include the material set out in the Appendix to this Regulation, except that the Administration may vary these examination requirements for officers of ships with limited propulsion power that are engaged on near-coastal voyages, as it considers necessary, bearing in mind the effect on the safety of all ships which may be operating in the same waters.

3. Training to achieve the necessary theoretical knowledge and practical experience shall take into account relevant international regulations and recommendations.

4. The level of knowledge required under the different paragraphs of the Appendix may be varied according to whether the certificate is being issued at chief engineer officer or second engineer officer level.

APPENDIX TO REGULATION III/2

Minimum knowledge required for certification of chief engineer officers and second engineer officers of ships powered by main propulsion machinery of 3 000 kW propulsion power or more

1. The syllabus given below is compiled for examination of candidates for certification as chief engineer officer or second engineer officer of ships powered by main propulsion machinery of 3 000 kW propulsion power or more. Bearing in mind that a second engineer officer shall be in a position to assume the responsibilities of a chief engineer officer at any time, examination in these subjects shall be designed to test the candidate's ability to assimilate all available information that affects the safe operation of the ship's machinery.

2. With respect to paragraph 4(a) below, the Administration may omit knowledge requirements for types of propulsion machinery other than those machinery installations for which the certificate to be awarded shall be valid. A certificate awarded on such a basis shall not be valid for any category of machinery installation which has been omitted until the engineer officer proves to be competent in these items to the satisfaction of the Administration. Any such limitation shall be stated in the certificate.

3. Every candidate shall possess theoretical knowledge in the following subjects:

(a) thermodynamics and heat transmission;

(b) mechanics and hydromechanics;

(c) operational principles of ships' power installations (diesel, steam and gas turbine) and refrigeration;

(d) physical and chemical properties of fuels and lubricants;

(e) technology of materials;

(f) chemistry and physics of fire and extinguishing agents;

(g) marine electrotechnology, electronics and electrical equipment;

(h) fundamentals of automation, instrumentation and control systems;

(i) naval architecture and ship construction, including damage control.

4. Every candidate shall possess adequate practical knowledge in at least the following subjects:

(a) operation and maintenance of:

(i) marine diesel engines;

(ii) marine steam propulsion plant;

(iii) marine gas turbines;

(b) operation and maintenance of auxiliary machinery, including pumping and piping systems, auxiliary boiler plant and steering gear systems;

(c) operation, testing and maintenance of electrical and control equipment;

(d) operation and maintenance of cargo handling equipment and deck machinery;

(e) detection of machinery malfunction, location of faults and action to prevent damage;

(f) organization of safe maintenance and repair procedures;

(g) methods of, and aids for, fire prevention, detection and extinction;

(h) methods and aids to prevent pollution of the environment by ships;

(i) regulations to be observed to prevent pollution of the marine environment;

(j) effects of marine pollution on the environment;

(k) first aid related to injuries which might be expected in machinery spaces and use of first aid equipment;

(l) functions and use of life-saving appliances;

(m) methods of damage control;

(n) safe working practices.

5. Every candidate shall possess a knowledge of international maritime law embodied in international agreements and conventions as they affect the specific obligations and responsibilities of the engine department, particularly those concerning safety and the protection of the marine environment. The extent of knowledge of national maritime legislation is left to the discretion of the Administration but shall include national arrangements for implementing international agreements and conventions.

6. Every candidate shall possess a knowledge of personnel management, organization and training aboard ships.

Regulation III/3

Mandatory Minimum Requirements for Certification of Chief Engineer Officers and Second Engineer Officers of Ships Powered by Main Propulsion Machinery between 750 kW and 3 000 kW Propulsion Power

1. Every chief engineer officer and second engineer officer of a sea-going ship powered by main propulsion machinery of between 750 and 3 000 kW propulsion power shall hold an appropriate certificate.

2. Every candidate for certification shall:

(a) satisfy the Administration as to medical fitness, including eyesight and hearing;

(b) meet the requirements for certification as an engineer officer in charge of a watch; and

(i) for certification as second engineer officer, have not less than 12 months' approved sea-going service as assistant engineer officer or engineer officer;

(ii) for certification as chief engineer officer, have not less than 24 months' approved sea-going service of which not less than 12 months shall be served while qualified to serve as second engineer officer;

(c) have attended an approved practical fire-fighting course;

(d) have passed appropriate examination to the satisfaction of the Administration. Such examination shall include the material set out in the Appendix to this Regulation, except that the Administration may vary the requirements for examination and sea-going service for officers of ships engaged on near-coastal voyages, bearing in mind the types of automatic and remotely operated controls with which such ships are fitted and the effect on the safety of all ships which may be operating in the same waters.

3. Training to achieve the necessary theoretical knowledge and practical experience shall take into account relevant international regulations and recommendations.

4. The level of knowledge required under the different paragraphs of the Appendix may be varied according to whether the certificate is being issued at chief engineer officer or second engineer officer level.

5. Every engineer officer who is qualified to serve as second engineer officer of ships powered by main propulsion machinery of 3 000 kW propulsion power or more, may serve as chief engineer officer of ships powered by main propulsion machinery of less than 3 000 kW propulsion power provided that not less than 12 months' approved sea-going service shall have been served as an engineer officer in a position of responsibility.

APPENDIX TO REGULATION III/3

Minimum knowledge required for certification of chief engineer officers and second engineer officers of ships powered by main propulsion machinery of between 750 kW and 3 000 kW propulsion power

1. The syllabus given below is compiled for examination of candidates for certification as chief engineer officer or second engineer officer of ships powered by main propulsion machinery of between 750 kW and 3 000 kW propulsion power. Bearing in mind that a second engineer officer shall be in a position to assume the responsibilities of the chief engineer officer at any time, examination in these subjects shall be designed to test the candidate's ability to assimilate all available information that affects the safe operation of the ship's machinery.

2. With respect to paragraphs 3(d) and 4(a) below, the Administration may omit knowledge requirements for types of propulsion machinery other than

those machinery installations for which the certificate to be awarded shall be valid. A certificate awarded on such a basis shall not be valid for any category of machinery installation which has been omitted until the engineer officer proves to be competent in these items to the satisfaction of the Administration. Any such limitation shall be stated in the certificate.

3. Every candidate shall possess sufficient elementary theoretical knowledge to understand the basic principles involved in the following subjects:

(a) combustion processes;

(b) heat transmission;

(c) mechanics and hydromechanics;

(d) (i) marine diesel engines;

(ii) marine steam propulsion plant;

(iii) marine gas turbines;

(e) steering gear systems;

(f) properties of fuels and lubricants;

(g) properties of materials;

(h) fire-extinguishing agents;

(i) marine electrical equipment;

(j) automation, instrumentation and control systems;

(k) ship construction, including damage control;

(l) auxiliary systems.

4. Every candidate shall possess adequate practical knowledge, in at least the following subjects:

(a) operation and maintenance of:

(i) marine diesel engines;

(ii) marine steam propulsion plant;

(iii) marine gas turbines;

(b) operation and maintenance of auxiliary machinery systems, including steering gear systems;

(c) operation, testing and maintenance of electrical and control equipment;

(d) operation and maintenance of cargo handling equipment and deck machinery;

(e) detection of machinery malfunction, location of faults and action to prevent damage;

(f) organization of safe maintenance and repair procedures;

(g) methods of, and aids for, fire prevention, detection and extinction;

(h) regulations to be observed regarding pollution of the marine environment and methods and aids to prevent such pollution;

(i) first aid related to injuries which might be expected in machinery spaces and use of first aid equipment;

(j) functions and use of life-saving appliances;

(k) methods of damage control with specific reference to action to be taken in the event of flooding of sea water into the engine room;

(l) safe working practices.

5. Every candidate shall possess a knowledge of international maritime law as embodied in international agreements and conventions as they affect the specific obligations and responsibilities of the engine department, particularly those concerning safety and the protection of the marine environment. The extent of knowledge of national maritime legislation is left to the discretion of the Administration but shall include national arrangements for implementing international agreements and conventions.

6. Every candidate shall possess a knowledge of personnel management, organization and training aboard ships.

Regulation III/4

Mandatory Minimum Requirements for Certification of Engineer Officers in Charge of a Watch in a Traditionally Manned Engine Room or Designated Duty Engineer Officers in a Periodically Unmanned Engine Room

1. Every engineer officer in charge of a watch in a traditionally manned engine room or the designated duty engineer officer in a periodically unmanned engine room on a sea-going ship powered by main propulsion machinery of 750 kW propulsion power or more shall hold an appropriate certificate.

2. Every candidate for certification shall:

(a) be not less than 18 years of age;

(b) satisfy the Administration as to medical fitness, including eyesight and hearing;

(c) have not less than a total of three years approved education or training, relevant to the duties of a marine engineer;

(d) have completed an adequate period of sea-going service which may have been included within the period of three years stated in sub-paragraph (c);

(e) satisfy the Administration that he has the theoretical and practical knowledge of the operation and maintenance of marine machinery appropriate to the duties of an engineer officer;

(f) have attended an approved practical fire-fighting course;

(g) have knowledge of safe working practices.

The Administration may vary the requirement of sub-paragraphs (c) and (d) for engineer officers of ships powered by main propulsion machinery of less than 3 000 kW propulsion power engaged on near-coastal voyages, bearing in mind the effect on the safety of all ships which may be operating in the same waters.

3. Every candidate shall have knowledge of the operation and maintenance of main and auxiliary machinery, which shall include knowledge of relevant regulatory requirements and also knowledge of at least the following specific items:

(a) *Watchkeeping routines*

(i) duties associated with taking over and accepting a watch;

(ii) routine duties undertaken during a watch;

(iii) maintenance of the machinery space log book and the significance of readings taken;

(iv) duties associated with handing over a watch.

(b) *Main and auxiliary machinery*

(i) assisting in the preparation of main machinery and preparation of auxiliary machinery for operation;

(ii) operation of steam boilers, including combustion system;

(iii) methods of checking water level in steam boilers and action necessary if water level is abnormal;

(iv) location of common faults of machinery and plant in engine and boiler rooms and action necessary to prevent damage.

(c) *Pumping systems*

(i) routine pumping operations;

(ii) operation of bilge, ballast and cargo pumping systems.

(d) *Generating plant*

Preparing, starting, coupling and changing over alternators or generators.

(e) *Safety and emergency procedures*

(i) safety precautions to be observed during a watch and immediate actions to be taken in the event of a fire or accident, with particular reference to oil systems;

(ii) safe isolation of electrical and other types of plant and equipment required before personnel are permitted to work on such plant and equipment.

(f) *Anti-pollution procedures*

The precautions to be observed to prevent pollution of the environment by oil, cargo residue, sewage, smoke or other pollutants. The use of pollution prevention equipment, including oily water separators, sludge tank systems and sewage disposal plant.

(g) *First aid*

Basic first aid related to injuries which might be expected in machinery spaces.

4. Where steam boilers do not form part of a ship's machinery, the Administration may omit the knowledge requirements of paragraphs 3(b)(ii) and (iii). A certificate awarded on such a basis shall not be valid for service on ships in which steam boilers form part of a ship's machinery until the engineer officer proves to be competent in the omitted items to the satisfaction of the Administration. Any such limitations shall be stated in the certificate.

5. The training to achieve the necessary theoretical knowledge and practical experience shall take into account relevant international regulations and recommendations.

Regulation III/5

Mandatory Minimum Requirements to Ensure the Continued Proficiency and Updating of Knowledge for Engineer Officers

1. Every engineer officer holding a certificate who is serving at sea or intends to return to sea after a period ashore shall, in order to continue to qualify for sea-going service in the rank appropriate to his certificate, be required at regular intervals not exceeding five years to satisfy the Administration as to:

(a) medical fitness, including eyesight and hearing; and

(b) professional competence:

(i) by approved service as an engineer officer of at least one year during the preceding five years; or

(ii) by virtue of having performed functions relating to the duties appropriate to the grade of certificate held which is considered to be at least equivalent to the sea-going service required in paragraph 1(b)(i); or

(iii) by one of the following:

- passing an approved test; or
- successfully completing an approved course or courses; or
- having completed approved sea-going service as an engineer officer for a period of not less than three months in a supernumerary capacity, or in a lower rank than that for which he holds the certificate, immediately prior to taking up the rank to which he is entitled by virtue of his certificate.

2. The course or courses referred to in paragraph 1(b)(iii) shall include, in particular, changes in the relevant international regulations and recommendations concerning the safety of life at sea and the protection of the marine environment.

3. The Administration shall ensure that the texts of recent changes in international regulations concerning the safety of life at sea and the protection of the marine environment are made available to ships under its jurisdiction.

Regulation III/6

Mandatory Minimum Requirements for Ratings Forming Part of an Engine Room Watch

1. The minimum requirements for a rating if forming part of an engine room watch shall be as set out in paragraph 2. These requirements are not for:

(a) a rating nominated as the assistant to the engineer officer in charge of the watch*;

(b) a rating who is under training;

(c) a rating whose duties while on watch are of an unskilled nature.

2. Every rating forming part of an engine room watch shall:

(a) be not less than 16 years of age;

(b) satisfy the Administration as to medical fitness, including eyesight and hearing;

(c) satisfy the Administration as to:

(i) experience or training regarding fire-fighting, basic first aid, personal survival techniques, health hazards and personal safety;

(ii) ability to understand orders, and make himself understood in matters relevant to his duties;

(d) satisfy the Administration that he has:

(i) shore experience relevant to his sea-going duties supplemented by an adequate period of sea-going service as required by the Administration; or

(ii) undergone special training either pre-sea or on board ship, including an adequate period of sea-going service as required by the Administration; or

(iii) approved sea-going service of at least six months.

3. Every such rating shall have knowledge of:

(a) engine room watchkeeping procedures and the ability to carry out a watch routine appropriate to his duties;

(b) safe working practices as related to engine room operations;

(c) terms used in machinery spaces and names of machinery and equipment relative to his duties;

* Reference is made to Resolution 9 – "Recommendation on Minimum Requirements for a Rating nominated as the Assistant to the Engineer Officer in Charge of the Watch" adopted by the International Conference on Training and Certification of Seafarers, 1978.

(d) basic environmental protection procedures.

4. Every rating required to keep a boiler watch shall have knowledge of the safe operation of boilers, and shall have the ability to maintain the correct water levels and steam pressures.

5. Every rating forming part of an engine room watch shall be familiar with his watchkeeping duties in the machinery spaces on the ship on which he is to serve. In particular, with respect to that ship the rating shall have:

(a) knowledge of the use of appropriate internal communication systems;

(b) knowledge of escape routes from machinery spaces;

(c) knowledge of engine room alarm systems and ability to distinguish between the various alarms with special reference to fire extinguishing gas alarms;

(d) familiarity with the location and use of fire-fighting equipment in the machinery spaces.

6. A seafarer may be considered by the Administration to have met the requirements of this Regulation if he has served in a relevant capacity in the engine department for a period of not less than one year within the last five years preceding the entry into force of the Convention for that Administration.

ANNEX III

Regulation IV/1

Mandatory Minimum Requirements for Certification of Radio Officers

1. Every radio officer in charge of, or performing, radio duties in a ship shall hold an appropriate certificate or certificates issued or recognized by the Administration under the provisions of the Radio Regulations, and have adequate qualifying service.

2. In addition, a radio officer shall:

(a) be not less than 18 years of age;

(b) satisfy the Administration as to medical fitness, particularly regarding eyesight, hearing and speech;

(c) meet the requirements of the Appendix to this Regulation.

3. Every candidate for a certificate shall be required to pass an examination or examinations to the satisfaction of the Administration concerned.

4. The level of knowledge required for certification shall be sufficient for the radio officer to carry out his radio duties safely and efficiently. In determining the appropriate level of knowledge and the training necessary to achieve that knowledge and practical ability, the Administration shall take into account the requirements of the Radio Regulations and the Appendix to this Regulation. Administrations shall also take into account the relevant resolutions adopted by the International Conference on Training and Certification of Seafarers, 1978, and relevant IMO recommendations.

APPENDIX TO REGULATION IV/1

Minimum additional knowledge and training requirements for radio officers

In addition to satisfying the requirements for the issue of a certificate in compliance with the Radio Regulations, radio officers shall have knowledge and training, including practical training, in the following:

(a) the provision of radio services in emergencies, including:

(i) abandon ship;

(ii) fire aboard ship;

(iii) partial or full breakdown of the radio station;

(b) the operation of lifeboats, liferafts, buoyant apparatus and their equipment, with special reference to portable and fixed lifeboat radio apparatus and emergency position-indicating radio beacons;

(c) survival at sea;

(d) first aid;

(e) fire prevention and fire-fighting with particular reference to the radio installation;

(f) preventive measures for the safety of ship and personnel in connexion with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards;

(g) the use of the IMO Merchant Ship Search and Rescue Manual (MERSAR) with particular reference to radiocommunications;

(h) ship position-reporting systems and procedures;

(i) the use of the International Code of Signals and the IMO Standard Marine Navigational Vocabulary;

(j) radio medical systems and procedures.

Regulation IV/2

Mandatory Minimum Requirements to Ensure the Continued Proficiency and Updating of Knowledge for Radio Officers

1. Every radio officer holding a certificate or certificates issued or recognized by the Administration shall, in order to continue to qualify for sea-going service, be required to satisfy the Administration as to the following:

(a) medical fitness, particularly regarding eyesight, hearing and speech, at regular intervals not exceeding five years; and

(b) professional competence:

(i) by approved radiocommunications service as a radio officer with no single interruption of service exceeding five years;

(ii) following such interruption, by passing an approved test or successfully completing an approved training course or courses at sea or ashore, which shall include elements that are of direct relevance to the safety of life at sea and modern radiocommunication equipment and may also include radionavigation equipment.

2. When new modes, equipment or practices are being introduced aboard ships entitled to fly its flag, the Administration may require radio officers to pass an approved test or successfully complete an appropriate training course or courses, at sea or ashore, with particular reference to safety duties.

3. Every radio officer shall, to continue to qualify for sea-going service on board particular types of ships for which special training requirements have been internationally agreed upon, successfully complete approved relevant training or examinations which shall take into account relevant international regulations and recommendations.

4. The Administration shall ensure that the texts of recent changes in international regulations relating to radiocommunications and relevant to the safety of life at sea, are available to ships under its jurisdiction.

5. Administrations are encouraged, in consultation with those concerned, to formulate or promote the formulation of a structure of refresher and updating courses, either voluntary or mandatory, as appropriate, at sea or ashore, for radio officers who are serving at sea and especially for re-entrants to sea-going service. The course or courses shall include elements that are of direct relevance to radio duties and include changes in marine radiocommunication technology and relevant international regulations and recommendations* concerning the safety of life at sea.

Regulation IV/3

Mandatory Minimum Requirements for Certification of Radiotelephone Operators

1. Every radiotelephone operator in charge of, or performing, radio duties in a ship shall hold an appropriate certificate or certificates issued or recognized by the Administration under the provisions of the Radio Regulations.

2. In addition, such radiotelephone operator of a ship which is required to have a radiotelephone station by the International Convention for the Safety of Life at Sea, shall:

(a) be not less than 18 years of age;

(b) satisfy the Administration as to medical fitness, particularly regarding eyesight, hearing and speech;

(c) meet the requirements of the Appendix to this Regulation.

* Including any IMO recommendations concerning the development of the maritime distress system.

3. Every candidate for a certificate shall be required to pass an examination or examinations to the satisfaction of the Administration concerned.

4. The level of knowledge required for certification shall be sufficient for the radiotelephone operator to carry out his radio duties safely and efficiently. In determining the appropriate level of knowledge and the training necessary to achieve that knowledge and practical ability, the Administration shall take into account the requirements of the Radio Regulations and the Appendix to this Regulation. Administrations shall also take into account the relevant resolutions adopted by the International Conference on Training and Certification of Seafarers, 1978, and relevant IM O recommendations.

APPENDIX TO REGULATION IV/3

Minimum additional knowledge and training requirements for radiotelephone operators

In addition to satisfying the requirements for the issue of a certificate in compliance with the Radio Regulations, radiotelephone operators shall have knowledge and training, including practical training, in the following:

(a) the provision of radio services in emergencies, including:

  (i) abandon ship;

  (ii) fire aboard ship;

  (iii) partial or full breakdown of the radio station;

(b) the operation of lifeboats, liferafts, buoyant apparatus and their equipment, with special reference to portable and fixed lifeboat radio apparatus and emergency position-indicating radio beacons;

(c) survival at sea;

(d) first aid;

(e) fire prevention and fire-fighting with particular reference to the radio installation;

(f) preventive measures for the safety of ship and personnel in connexion with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards;

(g) the use of the IM O Merchant Ship Search and Rescue Manual (MERSAR) with particular reference to radiocommunications;

(h) ship position-reporting systems and procedures;

(i) the use of the International Code of Signals and the IM O Standard Marine Navigational Vocabulary;

(j) radio medical systems and procedures.

ANNEX V

SPECIAL REQUIREMENTS FOR TANKERS

Regulation V/1

Mandatory Minimum Requirements for the Training and Qualifications of Masters, Officers and Ratings of Oil Tankers

1. Officers and ratings who are to have specific duties, and responsibilities related to those duties, in connexion with cargo and cargo equipment on oil tankers and who have not served on board an oil tanker as part of the regular complement, before carrying out such duties shall have completed an appropriate shore-based fire-fighting course; and

(a) an appropriate period of supervised shipboard service in order to acquire adequate knowledge of safe operational practices; or

(b) an approved oil tanker familiarization course which includes basic safety and pollution prevention precautions and procedures, layouts of different types of oil tankers, types of cargo, their hazards and their handling equipment, general operational sequence and oil tanker terminology.

2. Masters, chief engineer officers, chief mates, second engineer officers and, if other than the foregoing, any person with the immediate responsibility for loading, discharging and care in transit or handling of cargo, in addition to the provisions of paragraph 1, shall have:

(a) relevant experience appropriate to their duties on oil tankers; and

(b) completed a specialized training programme appropriate to their duties, including oil tanker safety, fire safety measures and systems, pollution prevention and control, operational practice and obligations under applicable laws and regulations.

Regulation V/2

Mandatory Minimum Requirements for the Training and Qualifications of Masters, Officers and Ratings of Chemical Tankers

1. Officers and ratings who are to have specific duties, and responsibilities related to those duties, in connexion with cargo and cargo equipment on chemical tankers and who have not served on board a chemical tanker as part of the regular complement, before carrying out such duties shall have completed an appropriate shore-based fire-fighting course; and.

(a) an appropriate period of supervised shipboard service in order to acquire adequate knowledge of safe operational practices; or

(b) an approved chemical tanker familiarization course which includes basic safety and pollution prevention precautions and procedures, layouts of different types of chemical tankers, types of cargo, their hazards and their handling equipment, general operational sequence and chemical tanker terminology.

2. Masters, chief engineer officers, chief mates, second engineer officers and, if other than the foregoing, any person with the immediate responsibility for loading, discharging and care in transit or handling of cargo, in addition to the provisions of paragraph 1, shall have:

(a) relevant experience appropriate to their duties on chemical tankers; and

(b) completed a specialized training programme appropriate to their duties including chemical tanker safety, fire safety measures and systems, pollution prevention and control, operational practice and obligations under applicable laws and regulations.

Regulation V/3

Mandatory Minimum Requirements for the Training and Qualifications of Masters, Officers and Ratings of Liquefied Gas Tankers

1. Officers and ratings who are to have specific duties, and responsibilities related to those duties, in connexion with cargo and cargo equipment on liquefied gas tankers and who have not served on board a liquefied gas tanker as part of the regular complement, before carrying out such duties shall have completed an appropriate shore-based fire-fighting course; and

(a) an appropriate period of supervised shipboard service in order to acquire adequate knowledge of safe operational practices; or

(b) an approved liquefied gas tanker familiarization course which includes basic safety and pollution prevention precautions and procedures, layouts of different types of liquefied gas tankers, types of cargo, their hazards and their handling equipment, general operational sequence and liquefied gas tanker terminology.

2. Masters, chief engineer officers, chief mates, second engineer officers and, if other than the foregoing, any person with the immediate responsibility for loading, discharging and care in transit or handling of cargo, in addition to the provisions of paragraph 1, shall have:

(a) relevant experience appropriate to their duties on liquefied gas tankers; and

(b) completed a specialized training programme appropriate to their duties including liquefied gas tanker safety, fire safety measures and systems, pollution prevention and control, operational practice and obligations under applicable laws and regulations.

ANNEX VI

PROFICIENCY IN SURVIVAL CRAFT

Regulation VI/1

Mandatory Minimum Requirements for the Issue of Certificates of Proficiency in Survival Craft

Every seafarer to be issued with a certificate of proficiency in survival craft shall:

(a) be not less than 17½ years of age;

(b) satisfy the Administration as to medical fitness;

(c) have approved sea-going service of not less than 12 months or have attended an approved training course and have approved sea-going service of not less than nine months;

(d) satisfy the Administration by examination or by continuous assessment during an approved training course that he possesses knowledge of the contents of the Appendix to this Regulation;

(e) demonstrate to the satisfaction of the Administration by examination or by continuous assessment during an approved training course that he possesses the ability to:

(i) don a life-jacket correctly; safely jump from a height into the water; board a survival craft from the water while wearing a life-jacket;

(ii) right an inverted liferaft while wearing a life-jacket;

(iii) interpret the markings on survival craft with respect to the number of persons they are permitted to carry;

(iv) make the correct commands required for launching and boarding the survival craft, clearing the ship and handling and disembarking from the survival craft;

(v) prepare and launch survival craft safely into the water and clear the ship's side quickly;

(vi) deal with injured persons both during and after abandonment;

(vii) row and steer, erect a mast, set the sails, manage a boat under sail and steer a boat by compass;

(viii) use signalling equipment, including pyrotechnics;

(ix) use portable radio equipment for survival craft.

APPENDIX TO REGULATION VI/1

Minimum knowledge required for the issue of certificates of proficiency in survival craft

1. Types of emergency situations which may occur, such as collisions, fire, foundering.

2. Principles of survival including:

(a) value of training and drills;

(b) need to be ready for any emergency;

(c) actions to be taken when called to survival craft stations;

(d) actions to be taken when required to abandon ship;

(e) actions to be taken when in the water;

(f) actions to be taken when aboard a survival craft;

(g) main dangers to survivors.

3. Special duties assigned to each crew member as indicated in the muster list, including the differences between the signals calling all crew to survival craft and to fire stations.

4. Types of life-saving appliances normally carried on board ships.

5. Construction and outfit of survival craft and individual items of their equipment.

6. Particular characteristics and facilities of survival craft.

7. Various types of devices used for launching survival craft.

8. Methods of launching survival craft into a rough sea.

9. Action to be taken after leaving the ship.

10. Handling survival craft in rough weather.

11. Use of painter, sea anchor and all other equipment.

12. Apportionment of food and water in survival craft.

13. Methods of helicopter rescue.

14. Use of the first aid kit and resuscitation techniques.

15. Radio devices carried in survival craft, including emergency position-indicating radio beacons.

16. Effects of hypothermia and its prevention; use of protective covers and protective garments.

17. Methods of starting and operating a survival craft engine and its accessories together with the use of fire extinguisher provided.

18. Use of emergency boats and motor lifeboats for marshalling liferafts and rescue of survivors and persons in the sea.

19. Beaching a survival craft.

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