ANNEX 3

DRAFT AMENDMENTS TO PART B OF THE SEAFARERS' TRAINING, CERTIFICATION AND WATCHKEEPING (STCW) CODE

PART B

Recommended guidance regarding provisions of the STCW Convention and its annex

Introduction

1 This part of the STCW Code contains recommended guidance intended to assist Parties to the STCW Convention and those involved in implementing, applying or enforcing its measures to give the Convention full and complete effect in a uniform manner.

2 The measures suggested are not mandatory and the examples given are only intended to illustrate how certain Convention requirements may be complied with. However, the recommendations in general represent an approach to the matters concerned which has been harmonized through discussion within IMO involving, where appropriate, consultation with the International Labour Organization, the International Telecommunication Union and the World Health Organization.

3 Observance of the recommendations contained in this part will assist the Organization in achieving its goal of maintaining the highest practicable standards of competence in respect of crews of all nationalities and ships of all flags.

4 Guidance is provided in this part in respect of certain articles of the Convention, in addition to guidance on certain regulations in its annex. The numbering of the sections of this part therefore corresponds with that of the articles and the regulations of the Convention. As in part A, the text of each section may be divided into numbered parts and paragraphs, but such numbering is unique to that text alone.

Guidance regarding provisions of the articles

Section B-I
Guidance regarding general obligations under the Convention

(No provisions)

Section B-II
Guidance regarding definitions and clarifications

1 The definitions contained in article II of the Convention, and the definitions and clarifications contained in regulation I/1 of its annex, apply equally to the terms used in parts A and B of this Code. Supplementary definitions which apply only to the provisions of this Code are contained in section A-I/1.

2 The definition of *certificate* appearing in article II (c) provides for three possibilities:

.1 the Administration may issue the certificate;

.2 the Administration may have the certificate issued under its authority; or

.3 the Administration may recognize a certificate issued by another Party, as provided for in regulation I/10.

Section B-III
Guidance regarding the application of the Convention

1 While the definition of *fishing vessel* contained in article II, paragraph (h) excludes vessels used for catching fish, whales, seals, walrus or other living resources of the sea from application of the Convention, vessels not engaged in the catching activity cannot enjoy such exclusion.

2 The Convention excludes all wooden ships of primitive build, including junks.

Section B-IV
Guidance regarding the communication of information

1 In paragraph (1)(b) of article IV, the words “where appropriate” are intended to include:

.1 the recognition of a certificate issued by another Party; or

.2 the issue of the Administration’s own certificate, where applicable, on the basis of recognition of a certificate issued by another Party.

Section B-V
Guidance regarding other treaties and interpretation

1 The word “arrangements” in paragraph (1) of article V is intended to include provisions previously established between States for the reciprocal recognition of certificates.

Section B-VI
Guidance regarding certificates

See the guidance given in sections B-II and B-I/2.

1 A policy statement and an outline of the procedures to be followed should be published for the information of companies operating ships under the flag of the Administration.

Section B-VII
Guidance regarding transitional provisions

1 Certificates issued for service in one capacity which are currently recognized by a Party as an adequate qualification for service in another capacity, e.g., chief mate certificates recognized for service as master, should continue to be accepted as valid for such service under article VII. This acceptance also applies to such certificates issued under the provisions of paragraph (2) of article VII.

Section B-VIII
Guidance regarding dispensations

1 A policy statement and an outline of the procedures to be followed should be published for the information of companies operating ships under the flag of the Administration. Guidance should be provided to those officials authorized by the Administration to issue dispensations. Information on action taken should be summarized in the initial report communicated to the Secretary-General in accordance with the requirements of section A-I/7.

Section B-IX
Guidance regarding equivalents

1 Naval certificates may continue to be accepted and certificates of service may continue to be issued to naval officers as equivalents under article IX, provided that the requirements of the Convention are met.

Section B-X
Guidance regarding control

(No provisions – see section B-I/4.)

Section B-XI
Guidance regarding the promotion of technical co-operation

1 Governments should provide, or arrange to provide, in collaboration with IMO, assistance to States which have difficulty in meeting the requirements of the Convention and which request such assistance.

2 The importance of adequate training for masters and other personnel serving on board oil, chemical and liquefied gas tankers and ro-ro passenger ships is stressed, and it is recognized that in some cases there may be limited facilities for obtaining the required experience and providing specialized training programmes, particularly in developing countries.

Examination database

3 Parties with maritime training academies or examination centres serving several countries and wishing to establish a database of examination questions and answers are encouraged to do so, on the basis of bilateral co-operation with a country or countries which already have such a database.

Availability of maritime training simulators

4 The IMO Secretariat maintains a list of maritime training simulators, as a source of information for Parties and others, on the availability of different types of simulators for training seafarers, in particular where such training facilities may not be available to them nationally.

5 Parties are urged* to provide information on their national maritime training simulators to the IMO Secretariat and to update the information whenever any change or addition is made to their maritime training simulator facilities.

Information on technical co-operation

6 Information on technical advisory services, access to international training institutions affiliated with IMO, and information on fellowships and other technical co-operation which may be provided by or through IMO may be obtained by contacting the Secretary-General at 4 Albert Embankment, London SE1 7SR, United Kingdom.

(No guidance is provided regarding articles XII to XVII.)

* See MSC.1/Circ.1209.

Guidance regarding provisions of the annex to the STCW Convention

CHAPTER I

Guidance regarding general provisions

Section B-I/1
Guidance regarding definitions and clarifications

1 The definitions contained in article II of the Convention, and the definitions and interpretations contained in regulation I/1 of its annex, apply equally to the terms used in parts A and B of this Code. Supplementary definitions which apply only to the provisions of this Code are contained in section A-I/1.

2 Officers with capacities covered under the provisions of chapter VII may be designated as "polyvalent officer", "dual-purpose officer" or other designations as approved by the Administration, in accordance with the terminology used in the applicable safe manning requirements.

3 Ratings qualified to serve in capacities covered under the provisions of chapter VII may be designated as "polyvalent ratings" or other designations as approved by the Administration, in accordance with the terminology used in the applicable safe manning requirements.

Section B-I/2
Guidance regarding certificates and endorsements

1 Where an endorsement is integrated in the format of a certificate as provided by section A-I/2, paragraph 1, the relevant information should be inserted in the certificate in the manner explained hereunder, except for the omission of the space numbered .2. Otherwise, in preparing endorsements attesting the issue of a certificate, the spaces numbered .1 to .17 in the form which follows the text hereunder should be completed as follows:

.1 Enter the name of the issuing State.

.2 Enter the number assigned to the certificate by the Administration.

.3 Enter the full name of the seafarer to whom the certificate is issued. The name should be the same as that appearing in the seafarer's passport, seafarer's identity certificate and other official documents issued by the Administration.

.4 The number or numbers of the STCW Convention regulation or regulations under which the seafarer has been found qualified should be entered here, for example:

.4.1 "Regulation II/1", if the seafarer has been found qualified to fill the capacity of officer in charge of a navigational watch,

.4.2 "Regulation III/1", if the seafarer has been found qualified to act as engineer officer in charge of a watch in a manned engine-room, or as designated duty engineer officer in a periodically unmanned engine-room,

.4.3 "Regulation IV/2", if the seafarer has been found qualified to fill the capacity of radio operator,

.4.4 "Regulation VII/1", if the certificate is a functional certificate and the seafarer has been found qualified to perform functions specified in part A of the Code, for example, the function of marine engineering at the management level, and

.4.5 "Regulations III/1 and V/1", if found qualified to act as the engineer officer in charge of a watch in a manned engine-room, or as designated duty engineer officer in a periodically unmanned engine-room in tankers. (See limitations in paragraphs .8 and .10 below.)

.5 Enter the date of expiry of the endorsement. This date should not be later than the date of expiry, if any, of the certificate in respect of which the endorsement is issued, nor later than five years after the date of issue of the endorsement.

.6 In this column should be entered each of the functions specified in part A of the Code which the seafarer is qualified to perform. Functions and their associated levels of responsibility are specified in the tables of competence set out in chapters II, III and IV of part A of the Code, and are also listed for convenient reference in the introduction to part A. When reference is made under .4 above to regulations in chapter II, III or IV it is not necessary to list specific functions.

.7 In this column should be entered the levels of responsibility at which the seafarer is qualified to perform each of the functions entered in column .6. These levels are specified in the tables of competence set out in chapters II, III and IV of part A of the Code, and are also listed, for convenient reference, in the introduction to part A.

.8 A general limitation, such as the requirement to wear corrective lenses when performing duties, should be entered prominently at the top of this limitations column. Limitations applying to the functions listed in column .6 should be entered on the appropriate line against the function concerned, for example:

.8.1 "Not valid for service in tankers" – if not qualified under chapter V,

.8.2 "Not valid for service in tankers other than oil tankers" – if qualified under chapter V for service only in oil tankers,

.8.3 "Not valid for service in ships in which steam boilers form part of the ship's machinery" – if the related knowledge has been omitted in accordance with STCW Code provisions, and

.8.4 "Valid only on near-coastal voyages" – if the related knowledge has been omitted in accordance with STCW Code provisions.

Note: Tonnage and power limitations need not be shown here if they are already indicated in the title of the certificate and in the capacity entered in column .9.

.9 The capacity or capacities entered in this column should be those specified in the title to the STCW regulation or regulations concerned in the case of certificates issued under chapter II or III, or should be as specified in the applicable safe manning requirements of the Administration, as appropriate.

.10 A general limitation, such as the requirement to wear corrective lenses when performing duties, should be entered prominently at the top of this limitations column also. The limitations entered in column .10 should be the same as those shown in column .8 for the functions performed in each capacity entered.

.11 The number entered in this space should be that of the certificate, so that both certificate and endorsement have the same unique number for reference and for location in the register of certificates and/or endorsements, etc.

.12 The date of original issue of the endorsement should be entered here; it may be the same as, or differ from, the date of issue of the certificate, in accordance with the circumstances.

.13 The name of the official authorized to issue the endorsement should be shown here in block letters below the official's signature.

.14 The date of birth shown should be the date confirmed from Administration records or as otherwise verified.

.15 The endorsement should be signed by the seafarer in the presence of an official, or may be incorporated from the seafarer's application form duly completed and verified.

.16 The photograph should be a standard black and white or colour passport-type head and shoulders photograph, supplied in duplicate by the seafarer so that one may be kept in or associated with the register of certificates.

.17 If the blocks for revalidation are shown as part of the endorsement form (see section A-I/2, paragraph 1), the Administration may revalidate the endorsement by completing the block after the seafarer has demonstrated continuing proficiency as required by regulation I/11.

(Official Seal)

(COUNTRY)

ENDORSEMENT ATTESTING THE ISSUE OF A CERTIFICATE UNDER THE PROVISIONS OF THE INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING FOR SEAFARERS, 1978, AS AMENDED

The Government of ……. .1 ..…… certifies that Certificate No. ..… .2 …… has been issued to …… .3 …….. who has been found duly qualified in accordance with the provisions of regulation …… .4 ……... of the above Convention, as amended, and has been found competent to perform the following functions, at the levels specified, subject to any limitations indicated until …… .5 ……. or until the date of expiry of any extension of the validity of this endorsement as may be shown overleaf:

.6 FUNCTION	.7 LEVEL	.8 LIMITATIONS APPLYING (IF ANY)

The lawful holder of this endorsement may serve in the following capacity or capacities specified in the applicable safe manning requirements of the Administration:

.9 CAPACITY	.10 LIMITATIONS APPLYING (IF ANY)

Endorsement No ..... .11 ..... issued on ..... .12 .....

(Official Seal)

.....
Signature of duly authorized official

..... .13 .....
Name of duly authorized official

The original of this endorsement must be kept available in accordance with regulation I/2, paragraph 11 of the Convention while serving on a ship.

Date of birth of the holder of the certificate ..... .14 .....

Signature of the holder of the certificate ..... .15 .....

Photograph of the holder of the certificate

.16

The validity of this endorsement is hereby extended until *(Official Seal)* *Signature of duly authorized official* Date of revalidation ..... .17 *Name of duly authorized official*
The validity of this endorsement is hereby extended until *(Official Seal)* *Signature of the authorized official* Date of revalidation ..... .17 *Name of duly authorized official*

2 An endorsement attesting the recognition of a certificate may be attached to and form part of the certificate endorsed, or may be issued as a separate document (see STCW regulation I/2, paragraph 8). All entries made in the form are required to be in Roman characters and Arabic figures (see STCW regulation I/2, paragraph 10). The spaces numbered .1 to .17 in the form which follows the text hereunder are intended to be completed as indicated in paragraph 1 above, except in respect of the following spaces:

.2 where the number assigned by the Party which issued the certificate being recognized should be entered;

.3 where the name entered should be the same as that appearing in the certificate being recognized;

.4 where the name of the Party which issued the certificate being recognized should be entered;

.9 where the capacity or capacities entered should be selected, as appropriate, from those specified in the safe applicable manning requirements of the Administration which is recognizing the certificate;

.11 where the number entered should be unique to the endorsement both for reference and for location in the register of endorsements; and

.12 where the date of original issue of the endorsement should be entered.

(Official Seal)

(COUNTRY)

ENDORSEMENT ATTESTING THE RECOGNITION OF A CERTIFICATE UNDER THE PROVISIONS OF THE INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING FOR SEAFARERS, 1978, AS AMENDED

The Government of …….. .1 ……..…… certifies that Certificate No. …….. .2 …….…… issued to …… .3 …….by or on behalf of the Government of …… .4 …… is duly recognized in accordance with the provisions of regulation I/10 of the above Convention, as amended, and the lawful holder is authorized to perform the following functions, at the levels specified, subject to any limitations indicated until …… .5 …….or until the date of expiry of any extension of the validity of this endorsement as may be shown overleaf:

.6 FUNCTION	.7 LEVEL	.8 LIMITATIONS APPLYING (IF ANY)

The lawful holder of this endorsement may serve in the following capacity or capacities specified in the applicable safe manning requirements of the Administration:

.9 CAPACITY	.10 LIMITATIONS APPLYING (IF ANY)

Endorsement No ..... .11 ..... issued on ..... .12 .....

(Official Seal)

.....
Signature of duly authorized official

..... .13 .....
Name of duly authorized official

The original of this endorsement must be kept available in accordance with regulation I/2, paragraph 11 of the Convention while serving on a ship.

Date of birth of the holder of the certificate ..... .14 .....

Signature of the holder of the certificate ..... .15 .....

Photograph of the holder of the certificate

.16

The validity of this endorsement is hereby extended until *(Official Seal)* *Signature of duly authorized official* Date of revalidation ..... .17 *Name of duly authorized official*
The validity of this endorsement is hereby extended until *(Official Seal)* *Signature of the authorized official* Date of revalidation ..... .17 *Name of duly authorized official*

3 When replacing a certificate or endorsement which has been lost or destroyed, Parties should issue the replacement under a new number, to avoid confusion with the document to be replaced.

4 If an application for revalidation is made within six months before the expiry of an endorsement, the endorsement referred to in paragraphs 5, 6 and 7 of regulation I/2 may be revalidated until:

.1 the fifth anniversary of the date of validity, or extension of the validity, of the endorsement; or

.2 the date the certificate endorsed expires, whichever is earlier.

5 Where a Certificate of Proficiency is issued, it should contain at least the following information:

.1 names of the issuing Party and authority;

.2 number assigned to the certificate by the issuing authority;

.3 full name and date of birth of the seafarer to whom the certificate is issued. The name and birth date should be the same as that appearing in the seafarer's passport or seafarer's identification document;

.4 title of the certificate. For example, if the certificate is issued in relation to regulation VI/3, paragraph 2, the title used should be “advanced fire fighting” and if it is issued in relation to regulation VI/5, paragraph 1, the title used should be “ship security officer”;

.5 number, or numbers, of the Convention regulation(s) or of the STCW Code section under which the seafarer has been found qualified;

.6 dates of issue and expiry of the certificate. If validity of the certificate is unlimited, then, for the benefit of clarification, the “unlimited” term should be entered in front of the date of expiry;

.7 if applicable, limitations, either general limitation (such as the requirement to wear corrective lenses), ship’s type limitation (such as “valid only for service on ships of GT<500”) or, voyage limitation (such as “valid only on near-coastal voyages”);

.8 name and signature of the authorized person who issues the certificate;

.9 photograph of the seafarer. The photograph should be a standard black and white or colour passport-type head and shoulders photograph;

.10 if the certificate is intended to be revalidated then, the date of revalidation, extension of the validity, name and signature of the authorized person; and

.11 the contact details of the issuing Authority.

Table B-I/2

List of certificates or documentary evidence required under the STCW Convention

The list below identifies all certificates or documentary evidence in the Convention which authorize the holder to serve in certain functions on board ships. The certificates are subject to the requirements of regulation I/2 regarding language and their availability in original form.

The list also references the relevant regulations and the requirements for endorsement and registration.

Regulations	Type of certificate and brief description	Endorsement attesting recognition of a certificate[1]	Registration required[2]	Revalidation of certificate[3]
II/1, II/2, II/3, III/1, III/2, III/3, III/6, IV/2, VII/2	Certificate of Competency – For masters, officers and GMDSS radio operator	Yes	Yes	Yes
II/4, III/4, VII/2	Certificate of Proficiency – For Ratings duly certified to be a part of a navigational or engine-room watch	No	Yes	No
II/5, III/5, III/7, VII/2	Certificate of Proficiency – For Ratings duly certified as able seafarer deck, able seafarer engine electro-technical rating	No	Yes	No
V/1-1	Certificate of Proficiency or endorsement to a Certificate of Competency – For masters and officers on oil and chemical tankers	Yes	Yes	Yes
V/1-1	Certificate of Proficiency or endorsement to a Certificate of Competency – For ratings on oil and chemical tankers	No	Yes	No
V/1-2	Certificate of Proficiency – For masters and officers on liquefied gas tankers	Yes	Yes	Yes
V/1-2	Certificate of Proficiency – For ratings on liquefied gas tankers	No	Yes	No
V/2	Documentary evidence – Training for masters, officers, ratings and other personnel serving on passenger ships	No	No	No
VI/1	Documentary evidence –Basic training Or As part of the Certificate of Competency – for masters and officers	No	No	Yes

Regulations	Type of certificate and brief description	Endorsement attesting recognition of a certificate[1]	Registration required[2]	Revalidation of certificate[3]
VI/2	Certificate of Proficiency – Survival craft, rescue boats and fast rescue boats Or As part of the Certificate of Competency – For masters and officers	No	No	Yes
VI/3	Certificate of Proficiency – Advanced fire fighting Or As part of the Certificate of Competency – For masters and officers	No	No	Yes
VI/4	Certificate of Proficiency – Medical first aid and medical care	No	No	No
VI/5	Certificate of Proficiency – Ship security officer	No	No	No
VI/6	Certificate of Proficiency – Security training for seafarers with designated security duties	No	No	No
	Certificate of Proficiency – Security awareness training	No	No	No

Notes:

1 *Endorsement attesting recognition of certificate* means endorsement in accordance with regulation I/2, paragraph 7.

2 *Registration required* means as part of a register or registers in accordance with regulation I/2, paragraph 14.

3 *Revalidation of certificate* means establishing continued professional competence.

Section B-I/3
Guidance regarding near-coastal voyages

1 Coastal States may adopt regional "near-coastal voyage limits" through bilateral or multilateral arrangements. Details of such arrangements shall be reported to the Secretary-General, who shall circulate such particulars to all Parties.

Section B-I/4
Guidance regarding control procedures[*]

Introduction

1 The purpose of the control procedures of regulation I/4 is to enable officers duly authorized by port States to ensure that the seafarers on board have sufficient competence to ensure safe and pollution-free operation of the ship.

2 This provision is no different in principle from the need to make checks on ships' structures and equipment. Indeed, it builds on these inspections to make an appraisal of the total system of onboard safety and pollution prevention.

Assessment

3 By restricting assessment as indicated in section A-I/4, the subjectivity which is an unavoidable element in all control procedures is reduced to a minimum, no more than would be evident in other types of control inspection.

4 The clear grounds given in regulation I/4, paragraph 1.3 will usually be sufficient to direct the inspector's attention to specific areas of competency, which could then be followed up by seeking evidence of training in the skills in question. If this evidence is inadequate or unconvincing, the authorized officer may ask to observe a demonstration of the relevant skill.

5 It will be a matter for the professional judgement of the inspector when on board, either following an incident as outlined in regulation I/4 or for the purposes of a routine inspection, whether the ship is operated in a manner likely to pose a danger to persons, property or the environment[*].

Section B-I/5
Guidance regarding national provisions

(No provisions)

[*] The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

Section B-I/6
Guidance regarding training and assessment

Qualifications of instructors and assessors

1 Each Party should ensure that instructors and assessors are appropriately qualified and experienced for the particular types and levels of training or assessment of competence of seafarers, as required under the Convention, in accordance with the guidelines in this section.

In-service training and assessment

2 Any person, on board or ashore, conducting in-service training of a seafarer intended to be used in qualifying for certification under the Convention should have received appropriate guidance in instructional techniques*.

3 Any person responsible for the supervision of in-service training of a seafarer intended to be used in qualifying for certification under the Convention should have appropriate knowledge of instructional techniques and of training methods and practice.

4 Any person, on board or ashore, conducting an in-service assessment of the competence of a seafarer intended to be used in qualifying for certification under the Convention should have:

.1 received appropriate guidance in assessment methods and practice*; and

.2 gained practical assessment experience under the supervision and to the satisfaction of an experienced assessor.

5 Any person responsible for the supervision of the in-service assessment of competence of a seafarer intended to be used in qualifying for certification under the Convention should have a full understanding of the assessment system, assessment methods and practice*.

Use of distance learning and e-learning

6 Parties may allow the training of seafarers by distance learning and e-learning in accordance with the standards of training and assessment set forth in section A-I/6 and the guidance given below.

Guidance for training by distance learning and e-learning

7 Each Party should ensure that any distance learning and e-learning programme:

.1 is provided by an entity that is approved by the Party;

.2 is suitable for the selected objectives and training tasks to meet the competence level for the subject covered;

* The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

.3 has clear and unambiguous instructions for the trainees to understand how the programme operates;

.4 provides learning outcomes that meet all the requirements to provide the underpinning knowledge and proficiency of the subject;

.5 is structured in a way that enables the trainee to systematically reflect on what has been learnt through both self assessment and tutor-marked assignments; and

.6 provides professional tutorial support through telephone, facsimile or e-mail communications.

8 Companies should ensure that a safe learning environment is provided and that there has been sufficient time provided to enable the trainee to study.

9 Where e-learning is provided, common information formats such as XML (Extensible Markup Language), which is a flexible way to share both the format and the data on the World Wide Web, intranets, and elsewhere, should be used.

10 The e-learning system should be secured from tampering and attempts to hack into the system.

Guidance for assessing a trainee's progress and achievements by training by distance learning and e-learning

11 Each Party should ensure that approved assessment procedures are provided for any distance learning and e-learning programme, including:

.1 clear information to the students on the way that tests and examinations are conducted and how the results are communicated;

.2 have test questions that are comprehensive and will adequately assess a trainee's competence and are appropriate to the level being examined;

.3 procedures in place to ensure questions are kept up to date and;

.4 the conditions where the examinations can take place and the procedures for invigilation to be conducted;

.5 secure procedures for the examination system so that it will prevent cheating;

.6 secure validation procedures to record results for the benefit of the Party.

Register of approved training providers, courses and programmes

12 Each Party should ensure that a register or registers of approved training providers, courses and programmes are maintained and made available to Companies and other Parties on request.

Section B-I/7
Guidance regarding communication of information

Reports of difficulties encountered

1 Parties are encouraged, when communicating information in accordance with article IV and regulation I/7 of the Convention, to include an index specifically locating the required information as follows:

Index of materials submitted in accordance with article IV and regulation I/7 of the STCW Convention

Article IV of the STCW Convention	**Location**
1 Text of laws, decrees, orders, regulations and instruments (article IV(1)(a))	
2 Details on study courses (article IV(1)(b))	
3 National examination and other requirements (article IV(1)(b))	
4 Specimen certificates (article IV(1)(c))	
Section A-I/7 part 1 of the STCW Code	**Location**
5 Information on Governmental organization (section A-I/7, paragraph 2.1)	
6 Explanation of legal and administrative measures (section A-I/7, paragraph 2.2)	
7 Statement of the education, training, examination, assessment and certification policies (section A-I/7, paragraph 2.3)	
8 Summary of the courses, training programmes, examinations, assessments by certificate (section A-I/7, paragraph 2.4)	
9 Outline of the procedures and conditions for authorizations, accreditations and approvals (section A-I/7, paragraph 2.5)	
10 List of authorizations, accreditations and approvals granted (section A-I/7, paragraph 2.5)	

11	Summary of procedures for dispensations (section A-I/7, paragraph 2.6)	
12	Comparison carried out pursuant to regulation I/11 (section A-I/7, paragraph 2.7)	
13	Outline of refresher and upgrading training mandated (section A-I/7, paragraph 2.7)	

Section A-I/7, part 2, paragraph 3 of the STCW Code		**Location**
14	Description of equivalency arrangements adopted pursuant to article IX (section A-I/7, paragraph 3.1)	
15	Summary of measures taken to ensure compliance with regulation I/10 (section A-I/7, paragraph 3.2)	
16	Specimen copy of safe manning documents issued to ships employing seafarers holding alternative certificates under regulation VII/1 (section A-I/7, paragraph 3.3)	

Section A-I/7, part 2, paragraph 4 of the STCW Code		**Location**
17	Report of results of independent evaluations carried out pursuant to regulation I/8 covering:	
18	Terms of reference of evaluators for the independent evaluation	
19	Qualifications and experience of evaluators	
20	Date and scope of evaluation	
21	Non-conformities found	
22	Corrective measures recommended	
23	Corrective measures carried out	
24	List of training institutions/centres covered by the independent evaluation	

Section A-I/7, part 2, paragraph 6 of the STCW Code		**Location**
25	Explanation of legal and administrative measures (section A-I/7, paragraph 6.1)	

26 Statement of the education, training, examination, assessment and certification policies (section A-I/7, paragraph 6.2)

27 Summary of the courses, training programmes, examinations, assessments by certificate (section A-I/7, paragraph 6.3)

28 Outline of refresher and upgrading training mandated (section A-I/7, paragraph 6.4)

29 Comparison carried out pursuant to regulation I/11 (section A-I/7, paragraph 6.5)

2 Parties are requested to include, in the reports required by regulation I/7, an indication of any relevant guidance contained in part B of this Code, the observance of which has been found to be impracticable.

Section B-I/8
Guidance regarding quality standards

1 In applying quality standards under the provisions of regulation I/8 and section A-I/8 to the administration of its certification system, each Party should take account of existing national or international models, and incorporate the following key elements:

.1 an expressed policy regarding quality and the means by which such policy is to be implemented;

.2 a quality system incorporating the organizational structure, responsibilities, procedures, processes and resources necessary for quality management;

.3 the operational techniques and activities to ensure quality control;

.4 systematic monitoring arrangements, including internal quality-assurance evaluations, to ensure that all defined objectives are being achieved; and

.5 arrangements for periodic external quality evaluations as described in the following paragraphs.

2 In establishing such quality standards for the administration of their national certification system, Administrations should seek to ensure that the arrangements adopted:

.1 are sufficiently flexible to enable the certification system to take account of the varying needs of the industry, and that they facilitate and encourage the application of new technology;

.2 cover all the administrative matters that give effect to the various provisions of the Convention, in particular regulations I/2 to I/15 and other provisions which enable the Administration to grant certificates of service and dispensations and to withdraw, cancel and suspend certificates;

.3 encompass the Administration's responsibilities for approving training and assessment at all levels, from undergraduate-type courses and updating courses for certificates of competency to short courses of vocational training; and

.4 incorporate arrangements for the internal quality-assurance reviews under paragraph 1.4 involving a comprehensive self-study of the administrative procedures, at all levels, in order to measure achievement of defined objectives and to provide the basis for the independent external evaluation required under section A-I/8, paragraph 3.

Quality standards model for assessment of knowledge, understanding, skills and competence

3 The quality standards model for assessment of knowledge, understanding, skills and competence should incorporate the recommendations of this section within the general framework of either:

.1 a national scheme for education and training accreditation or quality standards; or

.2 an alternative quality-standards model acceptable to the Organization.

4 The above quality-standards model should incorporate:

.1 a quality policy, including a commitment by the training institution or unit to the achievement of its stated aims and objectives and to the consequential recognition by the relevant accrediting or quality-standards authority;

.2 those quality-management functions that determine and implement the quality policy, relating to aspects of the work which impinge on the quality of what is provided, including provisions for determining progression within a course or programme;

.3 quality system coverage, where appropriate, of the academic and administrative organizational structure, responsibilities, procedures, processes and the resources of staff and equipment;

.4 the quality-control functions to be applied at all levels to the teaching, training, examination and assessment activities, and to their organization and implementation, in order to ensure their fitness for their purpose and the achievement of their defined objectives;

.5 the internal quality-assurance processes and reviews which monitor the extent to which the institution, or training unit, is achieving the objectives of the programmes it delivers, and is effectively monitoring the quality-control procedures which it employs; and

.6 the arrangements made for periodic external quality evaluations required under regulation I/8, paragraph 2 and described in the following paragraphs, for which the outcome of the quality-assurance reviews forms the basis and starting point.

5 In establishing quality standards for education, training and assessment programmes, the organizations responsible for implementing these programmes should take account of the following:

.1 Where provisions exist for established national accreditation, or education quality standards, such provisions should be utilized for courses incorporating the knowledge and understanding requirements of the Convention. The quality standards should be applied to both management and operational levels of the activity, and should take account of how it is managed, organized, undertaken and evaluated, in order to ensure that the identified goals are achieved.

.2 Where acquisition of a particular skill or accomplishment of a designated task is the primary objective, the quality standards should take account of whether real or simulated equipment is utilized for this purpose, and of the appropriateness of the qualifications and experience of the assessors, in order to ensure achievement of the set standards.

.3 The internal quality-assurance evaluations should involve a comprehensive self-study of the programme, at all levels, to monitor achievement of defined objectives through the application of quality standards. These quality-assurance reviews should address the planning, design, presentation and evaluation of programmes as well as the teaching, learning and communication activities. The outcome provides the basis for the independent evaluation required under section A-I/8, paragraph 3.

The independent evaluation

6 Each independent evaluation should include a systematic and independent examination of all quality activities, but should not evaluate the validity of the defined objectives. The evaluation team should:

.1 carry out the evaluation in accordance with documented procedures;

.2 ensure that the results of each evaluation are documented and brought to the attention of those responsible for the area evaluated; and

.3 check that timely action is taken to correct any deficiencies.

7 The purpose of the evaluation is to provide an independent assessment of the effectiveness of the quality-standard arrangements at all levels. In the case of an education or training establishment, a recognized academic accreditation or quality-standards body or Government agency should be used. The evaluation team should be provided with sufficient advance information to give an overview of the tasks in hand. In the case of a major training institution or programme, the following items are indicative of the information to be provided:

.1 the mission statement of the institution;

.2 details of academic and training strategies in use;

.3 an organization chart and information on the composition of committees and advisory bodies;

.4 staff and student information;

.5 a description of training facilities and equipment; and

.6 an outline of the policies and procedures on:

.6.1 student admission,

.6.2 the development of new courses and review of existing courses,

.6.3 the examination system, including appeals and resits,

.6.4 staff recruitment, training, development, appraisal and promotion,

.6.5 feedback from students and from industry, and

.6.6 staff involvement in research and development.

The report

8 Before submitting a final report, the evaluation team should forward an interim report to the management, seeking their comments on their findings. Upon receiving their comments, the evaluators should submit their final report, which should:

.1 include brief background information about the institution or training programme;

.2 be full, fair and accurate;

.3 highlight the strengths and weaknesses of the institution;

.4 describe the evaluation procedure followed;

.5 cover the various elements identified in paragraph 4;

.6 indicate the extent of compliance or non-compliance with the requirements of the Convention and the effectiveness of the quality standards in ensuring achievement of defined aims and objectives; and

.7 spell out clearly the areas found to be deficient, offer suggestions for improvement and provide any other comments the evaluators consider relevant.

Section B-I/9
Guidance regarding medical standards

MEDICAL EXAMINATION AND CERTIFICATION

1 The Party, in establishing seafarer medical fitness standards and provisions, should follow the guidance contained in the ILO/WHO publication *Guidelines for Conducting Pre-sea and Periodic Medical Fitness Examinations for Seafarers*, including any subsequent versions, and any other applicable international guidelines published by the International Labour Organization, the International Maritime Organization or the World Health Organization.

2 Appropriate qualifications and experience for medical practitioners conducting medical fitness examinations of seafarers may include occupational health or maritime health qualifications, experience of working as a ship's doctor or a shipping company doctor or working under the supervision of someone with the aforementioned qualifications or experience.

3 The premises where medical fitness examinations are carried out should have the facilities and equipment required to carry out medical fitness examination of seafarers.

4 Administrations should ensure that recognized medical practitioners enjoy full professional independence in exercising their medical judgement when undertaking medical examination procedures.

5 Persons applying for a medical certificate should present to the recognized medical practitioner appropriate identity documentation to establish their identity. They should also surrender their previous medical certificate.

6 The medical fitness standards should, so far as possible, define objective criteria with regard to fitness for sea service, taking into account access to medical facilities and medical expertise on board ship. They should, in particular, specify the conditions under which seafarers suffering from potentially life-threatening medical conditions that are controlled by medication may be allowed to continue to serve at sea.

7 The medical standards should also identify particular medical conditions, such as colour blindness, which might preclude seafarers holding particular positions on board ship.

8 The minimum in-service eyesight standards in each eye for unaided distance vision should be at least 0.1[*].

9 Persons requiring the use of spectacles or contact lenses to perform duties should have a spare pair or pairs, as required, conveniently available on board the ship. Any need to wear visual aids to meet the required standards should be recorded on the medical fitness certificate issued.

10 Colour vision testing should be in accord with the *International Recommendation for Colour Vision Requirements for Transport*, published by the Commission Internationale de l'Eclairage (CIE 143-2001) or comparable test methods.

[*] Value given in Snellen decimal notation.

Section B-I/10
Guidance regarding the recognition of certificates

1 Training carried out under the STCW Convention which does not lead to the issue of an appropriate certificate and on which information provided by a Party is found by the Maritime Safety Committee to give full and complete effect to the Convention in accordance with regulation I/7, paragraph 2 may be accepted by other Parties to the Convention as meeting the relevant training requirements thereof.

2 Contacted Administrations should issue documentary proof referred to in regulation I/10, paragraph 5 to enable port State control authorities to accept the same in lieu of endorsement of a certificate issued by another Party for a period of three months from the date of issue, providing the information listed below:

.1 seafarer's name
.2 date of birth
.3 number of the original Certificate of Competency
.4 capacity
.5 limitations
.6 contact details of the Administration
.7 dates of issue and expiry.

3 Such documentary proof may be made available by electronic means.

Section B-I/11
Guidance regarding the revalidation of certificates

1 The courses required by regulation I/11 should include relevant changes in marine legislation, technology and recommendations concerning the safety of life at sea, security and the protection of the marine environment.

2 A test may take the form of written or oral examination, the use of a simulator or other appropriate means.

3 Approved seagoing service stated in section A-I/11, paragraph 1 may be served in an appropriate lower officer rank than the certificate held.

4 If an application for revalidation of a certificate referred to in paragraph 1 of regulation I/11 is made within six months before expiry of the certificate, the certificate may be revalidated until the fifth anniversary of the date of validity, or extension of the validity, of the certificate.

Section B-I/12
Guidance regarding the use of simulators

1 When simulators are being used for training or assessment of competency, the following guidelines should be taken into consideration in conducting any such training or assessment.

TRAINING AND ASSESSMENT IN RADAR OBSERVATION AND PLOTTING*

2 Training and assessment in radar observation and plotting should:

.1 incorporate the use of radar simulation equipment; and

.2 conform to standards not inferior to those given in paragraphs 3 to 17 below.

3 Demonstrations of and practice in radar observation should be undertaken, where appropriate, on live marine radar equipment, including the use of simulators. Plotting exercises should preferably be undertaken in real time, in order to increase trainees' awareness of the hazards of the improper use of radar data and improve their plotting techniques to a standard of radar plotting commensurate with that necessary for the safe execution of collision-avoidance manoeuvring under actual seagoing conditions.

General

Factors affecting performance and accuracy

4 An elementary understanding should be attained of the principles of radar, together with a full practical knowledge of:

.1 range and bearing measurement, characteristics of the radar set which determine the quality of the radar display, radar antennae, polar diagrams, the effects of power radiated in directions outside the main beam, a non-technical description of the radar system, including variations in the features encountered in different types of radar set, performance monitors and equipment factors which affect maximum and minimum detection ranges and accuracy of information;

.2 the current marine radar performance specification adopted by the Organization**;

.3 the effects of the siting of the radar antenna, shadow sectors and arcs of reduced sensitivity, false echoes, effects of antenna height on detection ranges and of siting radar units and storing spares near magnetic compasses, including magnetic safe distances; and

.4 radiation hazards and safety precautions to be taken in the vicinity of antenna and open waveguides.

Detection of misrepresentation of information, including false echoes and sea returns

5 A knowledge of the limitations to target detection is essential, to enable the observer to estimate the dangers of failure to detect targets. The following factors should be emphasized:

.1 performance standard of the equipment;

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* The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

** See relevant/appropriate performance standards adopted by the Organization and set out in IMO publication "Performance standards for shipborne radiocommunications and navigational equipment".

.2 brilliance, gain and video processor control settings;

.3 radar horizon;

.4 size, shape, aspect and composition of targets;

.5 effects of the motion of the ship in a seaway;

.6 propagation conditions;

.7 meteorological conditions; sea clutter and rain clutter;

.8 anti-clutter control settings;

.9 shadow sectors; and

.10 radar-to-radar interference.

6 A knowledge should be attained of factors which might lead to faulty interpretation, including false echoes, effects of nearby pylons and large structures, effects of power lines crossing rivers and estuaries, echoes from distant targets occurring on second or later traces.

7 A knowledge should be attained of aids to interpretation, including corner reflectors and radar beacons; detection and recognition of land targets; the effects of topographical features; effects of pulse length and beam width; radar-conspicuous and -inconspicuous targets; factors which affect the echo strength from targets.

Practice

Setting up and maintaining displays

8 A knowledge should be attained of:

.1 the various types of radar display mode; unstabilized ship's-head-up relative motion; ship's-head-up, course-up and north-up stabilized relative motion and true motion;

.2 the effects of errors on the accuracy of information displayed; effects of transmitting compass errors on stabilized and true-motion displays; effects of transmitting log errors on a true-motion display; and the effects of inaccurate manual speed settings on a true-motion display;

.3 methods of detecting inaccurate speed settings on true-motion controls; the effects of receiver noise limiting the ability to display weak echo returns, and the effects of saturation by receiver noise, etc.; the adjustment of operational controls; criteria which indicate optimum points of adjustment; the importance of proper adjustment sequence, and the effects of maladjusted controls; the detection of maladjustments and corrections of:

.3.1 controls affecting detection ranges, and

.3.2 controls affecting accuracy;

.4 the dangers of using radar equipment with maladjusted controls; and

.5 the need for frequent regular checking of performance, and the relationship of the performance indicator to the range performance of the radar set.

Range and bearing

9 A knowledge should be attained of:

.1 the methods of measuring ranges; fixed range markers and variable range markers;

.2 the accuracy of each method and the relative accuracy of the different methods;

.3 how range data are displayed; ranges at stated intervals, digital counter and graduated scale;

.4 the methods of measuring bearings; rotatable cursor on transparent disc covering the display, electronic bearing cursor and other methods;

.5 bearing accuracy and inaccuracies caused by parallax, heading marker displacement, centre maladjustment;

.6 how bearing data are displayed; graduated scale and digital counter; and

.7 the need for regular checking of the accuracy of ranges and bearings, methods of checking for inaccuracies and correcting or allowing for inaccuracies.

Plotting techniques and relative-motion concepts

10 Practice should be provided in manual plotting techniques, including the use of reflection plotters, with the objective of establishing a thorough understanding of the interrelated motion between own ship and other ships, including the effects of manoeuvring to avoid collision. At the preliminary stages of this training, simple plotting exercises should be designed to establish a sound appreciation of plotting geometry and relative-motion concepts. The degree of complexity of exercises should increase throughout the training course until the trainee has mastered all aspects of the subject. Competence can best be enhanced by exposing the trainee to real-time exercises performed on a simulator or using other effective means.

Identification of critical echoes

11 A thorough understanding should be attained of:

.1 position fixing by radar from land targets and sea marks;

.2 the accuracy of position fixing by ranges and by bearings;

.3 the importance of cross-checking the accuracy of radar against other navigational aids; and

.4 the value of recording ranges and bearings at frequent, regular intervals when using radar as an aid to collision avoidance.

Course and speed of other ships

12 A thorough understanding should be attained of:

.1 the different methods by which course and speed of other ships can be obtained from recorded ranges and bearings, including:

.1.1 the unstabilized relative plot,

.1.2 the stabilized relative plot, and

.1.3 the true plot; and

.2 the relationship between visual and radar observations, including detail and the accuracy of estimates of course and speed of other ships, and the detection of changes in movements of other ships.

Time and distance of closest approach of crossing, meeting or overtaking ships

13 A thorough understanding should be attained of:

.1 the use of recorded data to obtain:

.1.1 measurement of closest approach distance and bearing, and

.1.2 time to closest approach, and

.2 the importance of frequent, regular observations.

Detecting course and speed changes of other ships

14 A thorough understanding should be attained of:

.1 the effects of changes of course and/or speed by other ships on their tracks across the display;

.2 the delay between change of course or speed and detection of that change; and

.3 the hazards of small changes as compared with substantial changes of course or speed in relation to rate and accuracy of detection.

Effects of changes in own ship's course or speed or both

15 A thorough understanding of the effects on a relative-motion display of own ship's movements, and the effects of other ships' movements and the advantages of compass stabilization of a relative display.

16 In respect of true-motion displays, a thorough understanding should be attained of:

.1 the effects of inaccuracies of:

.1.1 speed and course settings, and

.1.2 compass stabilization data driving a stabilized relative-motion display;

.2 the effects of changes in course or speed or both by own ship on tracks of other ships on the display; and

.3 the relationship of speed to frequency of observations.

Application of the International Regulations for Preventing Collisions at Sea, 1972

17 A thorough understanding should be attained of the relationship of the International Regulations for Preventing Collisions at Sea, 1972 to the use of radar, including:

.1 action to avoid collision, dangers of assumptions made on inadequate information and the hazards of small alterations of course or speed;

.2 the advantages of safe speed when using radar to avoid collision;

.3 the relationship of speed to closest approach distance and time and to the manoeuvring characteristics of various types of ships;

.4 the importance of radar observation reports and radar reporting procedures being well defined;

.5 the use of radar in clear weather, to obtain an appreciation of its capabilities and limitations, compare radar and visual observations and obtain an assessment of the relative accuracy of information;

.6 the need for early use of radar in clear weather at night and when there are indications that visibility may deteriorate;

.7 comparison of features displayed by radar with charted features; and

.8 comparison of the effects of differences between range scales.

TRAINING AND ASSESSMENT IN THE OPERATIONAL USE OF AUTOMATIC RADAR PLOTTING AIDS (ARPA)

18 Training and assessment in the operational use of automatic radar plotting aids (ARPA) should:

.1 require prior completion of the training in radar observation and plotting or combine that training with the training given in paragraphs 19 to 35 below;*

.2 incorporate the use of ARPA simulation equipment; and

.3 conform to standards not inferior to those given in paragraphs 19 to 35 below.

19 Where ARPA training is provided as part of the general training under the 1978 STCW Convention, masters, chief mates and officers in charge of a navigational watch should understand the factors involved in decision-making based on the information supplied by ARPA in association with other navigational data inputs, having a similar appreciation of the operational aspects and of system errors of modern electronic navigational systems, including ECDIS. This training should be progressive in nature, commensurate with the responsibilities of the individual and the certificates issued by Parties under the 1978 STCW Convention.

Theory and demonstration

Possible risks of over-reliance on ARPA

20 Appreciation that ARPA is only a navigational aid and:

.1 that its limitations, including those of its sensors, make over-reliance on ARPA dangerous, in particular for keeping a look-out; and

.2 the need to observe at all times the Principles to be observed in keeping a navigational watch and the Guidance on keeping a navigational watch.

Principal types of ARPA systems and their display characteristics

21 Knowledge of the principal types of ARPA systems in use; their various display characteristics and an understanding of when to use ground- or sea-stabilized modes and north-up, course-up or head-up presentations.

IMO performance standards for ARPA

22 An appreciation of the IMO performance standards for ARPA, in particular the standards relating to accuracy.**

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* The relevant IMO Model Course(s) and resolution MSC.64(67) may be of assistance in the preparation of courses.

** See relevant/appropriate performance standards adopted by the Organization and set out in IMO publication "Performance standards for shipborne radiocommunications and navigational equipment".

Factors affecting system performance and accuracy

23 Knowledge of ARPA sensor input performance parameters – radar, compass and speed inputs and the effects of sensor malfunction on the accuracy of ARPA data.

24 Knowledge of:

.1 the effects of the limitations of radar range and bearing discrimination and accuracy and the limitations of compass and speed input accuracies on the accuracy of ARPA data; and

.2 factors which influence vector accuracy.

Tracking capabilities and limitations

25 Knowledge of:

.1 the criteria for the selection of targets by automatic acquisition;

.2 the factors leading to the correct choice of targets for manual acquisition;

.3 the effects on tracking of “lost” targets and target fading; and

.4 the circumstances causing “target swap” and its effects on displayed data.

Processing delays

26 Knowledge of the delays inherent in the display of processed ARPA information, particularly on acquisition and re-acquisition or when a tracked target manoeuvres.

Operational warnings, their benefits and limitations

27 Appreciation of the uses, benefits and limitations of ARPA operational warnings and their correct setting, where applicable, to avoid spurious interference.

System operational tests

28 Knowledge of:

.1 methods of testing for malfunctions of ARPA systems, including functional self-testing; and

.2 precautions to be taken after a malfunction occurs.

Manual and automatic acquisition of targets and their respective limitations

29 Knowledge of the limits imposed on both types of acquisition in multi-target scenarios, and the effects on acquisition of target fading and target swap.

True and relative vectors and typical graphic representation of target information and danger areas

30 Thorough knowledge of true and relative vectors; derivation of targets' true courses and speeds, including:

.1 threat assessment, derivation of predicted closest point of approach and predicted time to closest point of approach from forward extrapolation of vectors, the use of graphic representation of danger areas;

.2 the effects of alterations of course and/or speed of own ship and/or targets on predicted closest point of approach and predicted time to closest point of approach and danger areas;

.3 the effects of incorrect vectors and danger areas; and

.4 the benefit of switching between true and relative vectors.

Information on past positions of targets being tracked

31 Knowledge of the derivation of past positions of targets being tracked, recognition of historic data as a means of indicating recent manoeuvring of targets and as a method of checking the validity of the ARPA's tracking.

Practice

Setting up and maintaining displays

32 Ability to demonstrate:

.1 the correct starting procedure to obtain the optimum display of ARPA information;

.2 the selection of display presentation; stabilized relative-motion displays and true-motion displays;

.3 the correct adjustment of all variable radar display controls for optimum display of data;

.4 the selection, as appropriate, of required speed input to ARPA;

.5 the selection of ARPA plotting controls, manual/automatic acquisition, vector/graphic display of data;

.6 the selection of the timescale of vectors/graphics;

.7 the use of exclusion areas when automatic acquisition is employed by ARPA; and

.8 performance checks of radar, compass, speed input sensors and ARPA.

System operational tests

33 Ability to perform system checks and determine data accuracy of ARPA, including the trial manoeuvre facility, by checking against basic radar plot.

Obtaining information from the ARPA display

34 Demonstrate the ability to obtain information in both relative- and true-motion modes of display, including:

.1 the identification of critical echoes;

.2 the speed and direction of target's relative movement;

.3 the time to, and predicted range at, target's closest point of approach;

.4 the courses and speeds of targets;

.5 detecting course and speed changes of targets and the limitations of such information;

.6 the effect of changes in own ship's course or speed or both; and

.7 the operation of the trial manoeuvre facility.

Application of the International Regulations for Preventing Collisions at Sea, 1972

35 Analysis of potential collision situations from displayed information, determination and execution of action to avoid close-quarters situations in accordance with the International Regulations for Preventing Collisions at Sea, 1972 in force.

TRAINING AND ASSESSMENT IN THE OPERATIONAL USE OF ELECTRONIC CHART DISPLAY AND INFORMATION SYSTEMS (ECDIS)

Introduction

36 When simulators are being used for training or assessment in the operational use of Electronic Chart Display and Information Systems (ECDIS), the following interim guidance should be taken into consideration in any such training or assessment.

37 Training and assessment in the operational use of the ECDIS should:

.1 incorporate the use of ECDIS simulation equipment; and

.2 conform to standards not inferior to those given in paragraphs 38 to 65 below.

38 ECDIS simulation equipment should, in addition to meeting all applicable performance standards set out in section A-I/12 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, as amended, be capable of

simulating navigational equipment and bridge operational controls which meet all applicable performance standards adopted by the Organization, incorporate facilities to generate soundings and:

.1 create a real-time operating environment, including navigation control and communications instruments and equipment appropriate to the navigation and watchkeeping tasks to be carried out and the manoeuvring skills to be assessed; and

.2 realistically simulate "own ship" characteristics in open-water conditions, as well as the effects of weather, tidal stream and currents.

39 Demonstrations of, and practice in, ECDIS use should be undertaken, where appropriate, through the use of simulators. Training exercises should preferably be undertaken in real time, in order to increase trainees' awareness of the hazards of the improper use of ECDIS. Accelerated timescale may be used only for demonstrations.

General

Goals of an ECDIS training programme

40 The ECDIS trainee should be able to:

.1 operate the ECDIS equipment, use the navigational functions of ECDIS, select and assess all relevant information and take proper action in the case of a malfunction;

.2 state the potential errors of displayed data and the usual errors of interpretation; and

.3 explain why ECDIS should not be relied upon as the sole reliable aid to navigation.

Theory and demonstration

41 As the safe use of ECDIS requires knowledge and understanding of the basic principles governing ECDIS data and their presentation rules as well as potential errors in displayed data and ECDIS-related limitations and potential dangers**,** a number of lectures covering the theoretical explanation should be provided. As far as possible, such lessons should be presented within a familiar context and make use of practical examples. They should be reinforced during simulator exercises.

42 For safe operation of ECDIS equipment and ECDIS-related information (use of the navigational functions of ECDIS, selection and assessment of all relevant information, becoming familiar with ECDIS man–machine interfacing), practical exercises and training on the ECDIS simulators should constitute the main content of the course.

43 For the definition of training objectives, a structure of activities should be defined. A detailed specification of learning objectives should be developed for each topic of this structure.

Simulator exercises

44 Exercises should be carried out on individual ECDIS simulators, or full-mission navigation simulators including ECDIS, to enable trainees to acquire the necessary practical skills. For real-time navigation exercises, navigation simulators are recommended to cover the complex navigation situation. The exercises should provide training in the use of the various scales, navigational modes, and display modes which are available, so that the trainees will be able to adapt the use of the equipment to the particular situation concerned.

45 The choice of exercises and scenarios is governed by the simulator facilities available. If one or more ECDIS workstations and a full-mission simulator are available, the workstations may primarily be used for basic exercises in the use of ECDIS facilities and for passage-planning exercises, whereas full-mission simulators may primarily be used for exercises related to passage-monitoring functions in real time, as realistic as possible in connection with the total workload of a navigational watch. The degree of complexity of exercises should increase throughout the training programme until the trainee has mastered all aspects of the learning subject.

46 Exercises should produce the greatest impression of realism. To achieve this, the scenarios should be located in a fictitious sea area. Situations, functions and actions for different learning objectives which occur in different sea areas can be integrated into one exercise and experienced in real time.

47 The main objective of simulator exercises is to ensure that trainees understand their responsibilities in the operational use of ECDIS in all safety-relevant aspects and are thoroughly familiar with the system and equipment used.

Principal types of ECDIS systems and their display characteristics

48 The trainee should gain knowledge of the principal types of ECDIS in use; their various display characteristics, data structure and an understanding of:

.1 differences between vector and raster charts;

.2 differences between ECDIS and ECS;

.3 differences between ECDIS and RCDS*;

.4 characteristics of ECDIS and their different solutions; and

.5 characteristics of systems for special purposes (unusual situations/emergencies).

Risks of over-reliance on ECDIS

49 The training in ECDIS operational use should address:

.1 the limitations of ECDIS as a navigational tool;

* SN/Circ.207/Rev.1 – Differences between RCDS and ECDIS.

.2 potential risk of improper functioning of the system;

.3 system limitations, including those of its sensors;

.4 hydrographic data inaccuracy; limitations of vector and raster electronic charts (ECDIS *vs* RCDS and ENC *vs* RNC); and

.5 potential risk of human errors.

Emphasis should be placed on the need to keep a proper look-out and to perform periodical checking, especially of the ship's position, by ECDIS-independent methods.

Detection of misrepresentation of information

50 Knowledge of the limitations of the equipment and detection of misrepresentation of information is essential for the safe use of ECDIS. The following factors should be emphasized during training:

.1 performance standards of the equipment;

.2 radar data representation on an electronic chart, elimination of discrepancy between the radar image and the electronic chart;

.3 possible projection discrepancies between an electronic and paper charts;

.4 possible scale discrepancies (overscaling and underscaling) in displaying an electronic chart and its original scale;

.5 effects of using different reference systems for positioning;

.6 effects of using different horizontal and vertical datums;

.7 effects of the motion of the ship in a seaway;

.8 ECDIS limitations in raster chart display mode;

.9 potential errors in the display of:

.9.1 the own ship's position,

.9.2 radar data and ARPA and AIS information,

.9.3 different geodetic co-ordinate systems; and

.10 verification of the results of manual or automatic data correction:

.10.1 comparison of chart data and radar picture, and

.10.2 checking the own ship's position by using the other independent position-fixing systems.

51 False interpretation of the data and proper action taken to avoid errors of interpretation should be explained. The implications of the following should be emphasized:

.1 ignoring overscaling of the display;

.2 uncritical acceptance of the own ship's position;

.3 confusion of display mode;

.4 confusion of chart scale;

.5 confusion of reference systems;

.6 different modes of presentation;

.7 different modes of vector stabilization;

.8 differences between true north and gyro north (radar);

.9 using the same data reference system;

.10 using the appropriate chart scale;

.11 using the best-suited sensor to the given situation and circumstances;

.12 entering the correct values of safety data:

.12.1 the own ship's safety contour,

.12.2 safety depth (safe water), and

.12.3 events; and

.13 proper use of all available data.

52 Appreciation that RCDS is only a navigational aid and that, when operating in the RCDS mode, the ECDIS equipment should be used together with an appropriate portfolio of up-to-date paper charts:

.1 appreciation of the differences in operation of RCDS mode as described in SN.1/Circ.207/Rev.1 "Differences between RCDS and ECDIS"; and

.2 ECDIS, in any mode, should be used in training with an appropriate portfolio of up-to-date charts.

Factors affecting system performance and accuracy

53 An elementary understanding should be attained of the principles of ECDIS, together with a full practical knowledge of:

.1 starting and setting up ECDIS; connecting data sensors: satellite and radio navigation system receivers, radar, gyro-compass, log, echo-sounder; accuracy and limitations of these sensors, including effects of measurement errors and ship's position accuracy, manoeuvring on the accuracy of course indicator's performance, compass error on the accuracy of course indication, shallow water on the accuracy of log performance, log correction on the accuracy of speed calculation, disturbance (sea state) on the accuracy of an echo-sounder performance; and

.2 the current performance standards for electronic chart display and information systems adopted by the Organization*.

Practice

Setting up and maintaining display

54 Knowledge and skills should be attained in:

.1 the correct starting procedure to obtain the optimum display of ECDIS information;

.2 the selection of display presentation (standard display, display base, all other information displayed individually on demand);

.3 the correct adjustment of all variable radar/ARPA display controls for optimum display of data;

.4 the selection of convenient configuration;

.5 the selection, as appropriate, of required speed input to ECDIS;

.6 the selection of the timescale of vectors; and

.7 performance checks of position, radar/ARPA, compass, speed input sensors and ECDIS.

Operational use of electronic charts

55 Knowledge and skills should be attained in:

.1 the main characteristics of the display of ECDIS data and selecting proper information for navigational tasks;

.2 the automatic functions required for monitoring ship's safety, such as display of position, heading/gyro course, speed, safety values and time;

* See relevant/appropriate performance standards adopted by the Organization and set out in IMO publication "Performance standards for shipborne radiocommunications and navigational equipment".

.3 the manual functions (by the cursor, electronic bearing line, range rings);

.4 selecting and modification of electronic chart content;

.5 scaling (including underscaling and overscaling);

.6 zooming;

.7 setting of the own ship's safety data;

.8 using a daytime or night-time display mode;

.9 reading all chart symbols and abbreviations;

.10 using different kinds of cursors and electronic bars for obtaining navigational data;

.11 viewing an area in different directions and returning to the ship's position;

.12 finding the necessary area, using geographical co-ordinates;

.13 displaying indispensable data layers appropriate to a navigational situation;

.14 selecting appropriate and unambiguous data (position, course, speed, etc.);

.15 entering the mariner's notes;

.16 using north-up orientation presentation and other kinds of orientation; and

.17 using true- and relative-motion modes.

Route planning

56 Knowledge and skills should be attained in:

.1 loading the ship's characteristics into ECDIS;

.2 selection of a sea area for route planning:

.2.1 reviewing required waters for the sea passage, and

.2.2 changing over of chart scale;

.3 verifying that proper and updated charts are available;

.4 route planning on a display by means of ECDIS, using the graphic editor, taking into consideration rhumb line and great-circle sailing:

.4.1 using the ECDIS database for obtaining navigational, hydro-meteorological and other data,

.4.2 taking into consideration turning radius and wheel-over points/lines when they are expressed on chart scale,

.4.3 marking dangerous depths and areas and exhibiting guarding depth contours,

.4.4 marking waypoints with the crossing depth contours and critical cross-track deviations, as well as by adding, replacing and erasing of waypoints,

.4.5 taking into consideration safe speed,

.4.6 checking pre-planned route for navigational safety, and

.4.7 generating alarms and warnings;

.5 route planning with calculation in the table format, including:

.5.1 waypoints selection,

.5.2 recalling the waypoints list,

.5.3 planning notes,

.5.4 adjustment of a planned route,

.5.5 checking a pre-planned route for navigational safety,

.5.6 alternative route planning,

.5.7 saving planned routes, loading and unloading or deleting routes,

.5.8 making a graphic copy of the monitor screen and printing a route,

.5.9 editing and modification of the planned route,

.5.10 setting of safety values according to the size and manoeuvring parameters of the vessel,

.5.11 back-route planning, and

.5.12 connecting several routes.

Route monitoring

57 Knowledge and skills should be attained in:

.1 using independent data to control ship's position or using alternative systems within ECDIS;

.2 using the look-ahead function:

.2.1 changing charts and their scales,

.2.2 reviewing navigational charts,

.2.3 vector time selecting,

.2.4 predicting the ship's position for some time interval,

.2.5 changing the pre-planned route (route modification),

.2.6 entering independent data for the calculation of wind drift and current allowance,

.2.7 reacting properly to the alarm,

.2.8 entering corrections for discrepancies of the geodetic datum,

.2.9 displaying time markers on a ship's route,

.2.10 entering ship's position manually, and

.2.11 measuring co-ordinates, course, bearings and distances on a chart.

Alarm handling

58 Knowledge and ability to interpret and react properly to all kinds of systems, such as navigational sensors, indicators, data and charts alarms and indicator warnings, including, switching the sound and visual alarm signalling system, should be attained in case of:

.1 absence of the next chart in the ECDIS database;

.2 crossing a safety contour;

.3 exceeding cross-track limits;

.4 deviation from planned route;

.5 approaching a waypoint;

.6 approaching a critical point;

.7 discrepancy between calculated and actual time of arrival to a waypoint;

.8 information on under-scaling or over-scaling;

.9 approaching an isolated navigational danger or danger area;

.10 crossing a specified area;

.11 selecting a different geodetic datum;

.12 approaching other ships;

.13 watch termination;

.14 switching timer;

.15 system test failure;

.16 malfunctioning of the positioning system used in ECDIS;

.17 failure of dead-reckoning; and

.18 inability to fix vessel's position using the navigational system.

Manual correction of a ship's position and motion parameters

59 Knowledge and skills should be attained in manually correcting:

.1 the ship's position in dead-reckoning mode, when the satellite and radio navigation system receiver is switched off;

.2 the ship's position, when automatically obtained co-ordinates are inaccurate; and

.3 course and speed values.

Records in the ship's log

60 Knowledge and skills should be attained in:

.1 automatic voyage recording;

.2 reconstruction of past track, taking into account:

.2.1 recording media,

.2.2 recording intervals,

.2.3 verification of database in use;

.3 viewing records in the electronic ship's log;

.4 instant recording in the electronic ship's log;

.5 changing ship's time;

.6 entering the additional data;

.7 printing the content of the electronic ship's log;

.8 setting up the automatic record time intervals;

.9 composition of voyage data and reporting; and

.10 interface with a voyage data recorder (VDR).

Chart updating

61 Knowledge and skills should be attained in:

.1 performing manual updating of electronic charts. Special attention should be paid to reference-ellipsoid conformity and to conformity of the measurement units used on a chart and in the correction text;

.2 performing semi-automatic updating of electronic charts, using the data obtained on electronic media in the electronic chart format; and

.3 performing automatic updating of electronic charts, using update files obtained via electronic data communication lines.

In the scenarios where non-updated data are employed to create a critical situation, trainees should be required to perform *ad hoc* updating of the chart.

Operational use of ECDIS where radar/ARPA is connected

62 Knowledge and skills should be attained in:

.1 connecting ARPA to ECDIS;

.2 indicating target's speed vectors;

.3 indicating target's tracks;

.4 archiving target's tracks;

.5 viewing the table of the targets;

.6 checking alignment of radar overlay with charted geographic features;

.7 simulating one or more manoeuvres;

.8 corrections to own ship's position, using a reference point captured by ARPA; and

.9 corrections using the ARPA's cursor and electronic bar.

See also section B-I/12, Guidance regarding the use of simulators (pertaining to radar and ARPA), especially paragraphs 17 to 19 and 36 to 38.

Operational use of ECDIS where AIS is connected

63 Knowledge and skills should be attained in:

.1 interface with AIS;

.2 interpretation of AIS data;

.3 indicating target's speed vectors;

.4 indicating target's tracks; and

.5 archiving target's tracks.

Operational warnings, their benefits and limitations

64 Trainees should gain an appreciation of the uses, benefits and limitations of ECDIS operational warnings and their correct setting, where applicable, to avoid spurious interference.

System operational tests

65 Knowledge and skills should be attained in:

.1 methods of testing for malfunctions of ECDIS, including functional self-testing;

.2 precautions to be taken after a malfunction occurs; and

.3 adequate back-up arrangements (take over and navigate using the back-up system).

Debriefing exercise

66 The instructor should analyse the results of all exercises completed by all trainees and print them out. The time spent on the debriefing should occupy between 10% and 15% of the total time used for simulator exercises.

RECOMMENDED PERFORMANCE STANDARDS FOR NON-MANDATORY TYPES OF SIMULATION

67 Performance standards for non-mandatory simulation equipment used for training and/or assessment of competence or demonstration of skills are set out hereunder. Such forms of simulation include, but are not limited to, the following types:

.1 navigation and watchkeeping;

.2 ship handling and manoeuvring;

.3 cargo handling and stowage;

.4 reporting and radiocommunications; and

.5 main and auxiliary machinery operation.

Navigation and watchkeeping simulation

68 Navigation and watchkeeping simulation equipment should, in addition to meeting all applicable performance standards set out in section A-I/12, be capable of simulating navigational equipment and bridge operational controls which meet all applicable performance standards adopted by the Organization,* incorporate facilities to generate soundings and:

.1 create a real-time operating environment, including navigation control and communications instruments and equipment appropriate to the navigation and watchkeeping tasks to be carried out and the manoeuvring skills to be assessed;

.2 provide a realistic visual scenario by day or by night, including variable visibility, or by night only as seen from the bridge, with a minimum horizontal field of view available to the trainee in viewing sectors appropriate to the navigation and watchkeeping tasks and objectives;

.3 realistically simulate "own ship" dynamics in open-water conditions, including the effects of weather, tidal stream, currents and interaction with other ships; and

.4 realistically simulate VTS communication procedures between ship and shore.

Ship handling and manoeuvring simulation

69 In addition to meeting the performance standards set out in paragraph 37, ship handling simulation equipment should:

.1 provide a realistic visual scenario as seen from the bridge, by day and by night, with variable visibility throughout a minimum horizontal field of view available to the trainee in viewing sectors appropriate to the ship handling and manoeuvring training tasks and objectives;** and

.2 realistically simulate "own ship" dynamics in restricted waterways, including shallow-water and bank effects.

70 Where manned scale models are used to provide ship handling and manoeuvring simulation, in addition to the performance standards set out in paragraphs 68.3 and 69.2, such equipment should:

.1 incorporate scaling factors which present accurately the dimensions, areas, volume and displacement, speed, time and rate of turn of a real ship; and

.2 incorporate controls for the rudder and engines, to the correct timescale.

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* See relevant/appropriate performance standards adopted by the Organization and set out in IMO publication "Performance standards for shipborne radiocommunications and navigational equipment".

** The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

Cargo handling and stowage simulation

71 Cargo handling simulation equipment should be capable of simulating cargo handling and control equipment which meets all applicable performance standards adopted by the Organization,* and incorporate facilities to:

.1 create an effective operational environment, including a cargo-control station with such instrumentation as may be appropriate to the particular type of cargo system modelled;

.2 model loading and unloading functions and stability and stress data appropriate to the cargo-handling tasks to be carried out and the skills to be assessed; and

.3 simulate loading, unloading, ballasting and deballasting operations and appropriate associated calculations for stability, trim, list, longitudinal strength, torsional stress and damage stability.**

GMDSS communication simulation

72 GMDSS communication simulation equipment should be capable of simulating GMDSS communication equipment which meets all applicable performance standards adopted by the Organization***, and incorporate facilities to:

.1 simulate the operation of VHF, VHF-DSC, NAVTEX, EPIRB and watch receiver equipment as required for the Restricted Operator's Certificate (ROC);

.2 simulate the operation of INMARSAT-A, -B and -C ship earth stations, MF/HF NBDP, MF/HF-DSC, VHF, VHF-DSC, NAVTEX, EPIRB and watch receiver equipment as required for the General Operator's Certificate (GOC);

.3 provide voice communication with background noise;

.4 provide a printed text communication facility; and

.5 create a real-time operating environment, consisting of an integrated system, incorporating at least one instructor/assessor station and at least two GMDSS ship or shore stations.

Main and auxiliary machinery operation simulation

73 Engine-room simulation equipment should be capable of simulating a main and auxiliary machinery system and incorporate facilities to:

.1 create a real-time environment for seagoing and harbour operations, with communication devices and simulation of appropriate main and auxiliary propulsion machinery equipment and control panels;

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* No standards have as yet been adopted by the Organization.

** The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

*** See relevant/appropriate performance standards adopted by the Organization and set out in IMO publication "Performance standards for shipborne radiocommunications and navigational equipment".

.2 simulate relevant sub-systems that should include, but not be restricted to, boiler, steering gear, electrical power general and distribution systems, including emergency power supplies, and fuel, cooling water, refrigeration, bilge and ballast systems;

.3 monitor and evaluate engine performance and remote sensing systems;

.4 simulate machinery malfunctions;

.5 allow for the variable external conditions to be changed so as to influence the simulated operations: weather, ship's draught, seawater and air temperatures;

.6 allow for instructor-controlled external conditions to be changed: deck steam, accommodation steam, deck air, ice conditions, deck cranes, heavy power, bow thrust, ship load;

.7 allow for instructor-controlled simulator dynamics to be changed: emergency run, process responses, ship responses; and

.8 provide a facility to isolate certain processes, such as speed, electrical system, diesel oil system, lubricating oil system, heavy oil system, seawater system, steam system, exhaust boiler and turbo generator, for performing specific training tasks.*

Section B-I/13
Guidance regarding the conduct of trials

(No provisions)

Section B-I/14
Guidance regarding responsibilities of companies and recommended responsibilities of masters and crew members

Companies

1 Companies should provide ship-specific introductory programmes aimed at assisting newly employed seafarers to familiarize themselves with all procedures and equipment relating to their areas of responsibility. Companies should also ensure that:

.1 all seafarers on a ship fitted with free-fall lifeboats should receive familiarization training in boarding and launching procedures for such lifeboats;

.2 prior to joining a ship, seafarers assigned as operating crew of free-fall lifeboats should have undergone appropriate training in boarding, launching and recovering of such lifeboats, including participation on at least one occasion in a free-fall launch; and

* The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

.3 personnel who may be required to operate the GMDSS equipment receive GMDSS familiarization training, on joining the ship, and at appropriate intervals thereafter.

2 The familiarization training required by paragraph 3 of section A-I/14 should at least ensure attainment of the abilities that are appropriate to the capacity to be filled and the duties and responsibilities to be taken up, as follows:

Design and operational limitations

.1 Ability to properly understand and observe any operational limitations imposed on the ship, and to understand and apply performance restrictions, including speed limitations in adverse weather, which are intended to maintain the safety of life, ship and cargo.

Procedures for opening, closing and securing hull openings

.2 Ability to apply properly the procedures established for the ship regarding the opening, closing and securing of bow, stern, and side doors and ramps and to correctly operate the related systems.

Legislation, codes and agreements affecting ro-ro passenger ships

.3 Ability to understand and apply international and national requirements for ro-ro passenger ships relevant to the ship concerned and the duties to be performed.

Stability and stress requirements and limitations

.4 Ability to take proper account of stress limitations for sensitive parts of the ship, such as bow doors and other closing devices that maintain watertight integrity, and of special stability considerations which may affect the safety of ro-ro passenger ships.

Procedures for the maintenance of special equipment on ro-ro passenger ships

.5 Ability to apply properly the shipboard procedures for maintenance of equipment peculiar to ro-ro passenger ships such as bow, stern and side doors and ramps, scuppers and associated systems.

Loading and cargo securing manuals and calculators

.6 Ability to make proper use of the loading and securing manuals in respect of all types of vehicles and rail cars where applicable, and to calculate and apply stress limitations for vehicle decks.

Dangerous cargo areas

.7 Ability to ensure proper observance of special precautions and limitations applying to designated dangerous cargo areas.

Emergency procedures

.8 Ability to ensure proper application of any special procedures to:

.8.1 prevent or reduce the ingress of water on vehicle decks,

.8.2 remove water from vehicle decks, and

.8.3 minimize effects of water on vehicle decks.

Master

3 The master should take all steps necessary to implement any company instructions issued in accordance with section A-I/14. Such steps should include:

.1 identifying all seafarers who are newly employed on board the ship before they are assigned to any duties;

.2 providing the opportunity for all newly arrived seafarers to:

.2.1 visit the spaces in which their primary duties will be performed,

.2.2 get acquainted with the location, controls and display features of equipment they will be operating or using,

.2.3 activate the equipment when possible, and perform functions, using the controls on the equipment, and

.2.4 observe and ask questions of someone who is already familiar with the equipment, procedures and other arrangements, and who can communicate information in a language which the seafarer understands; and

.3 providing for a suitable period of supervision when there is any doubt that a newly employed seafarer is familiar with the shipboard equipment, operating procedures and other arrangements needed for the proper performance of his or her duties.

Crew members

4 Seafarers who are newly assigned to a ship should take full advantage of every opportunity provided to become familiar with the shipboard equipment, operating procedures and other arrangements needed for the proper performance of their duties. Immediately upon arriving on board for the first time, each seafarer has the responsibility to become acquainted with the ship's working environment, particularly with respect to new or unfamiliar equipment, procedures or arrangements.

5 Seafarers who do not promptly attain the level of familiarity required for performing their duties have the obligation to bring this fact to the attention of their supervisor or to the attention of the crew member designated in accordance with section A-I/14, paragraph 2.2, and to identify any equipment, procedure or arrangement which remains unfamiliar.

Section B-I/15
Guidance regarding transitional provisions

(No provisions)

CHAPTER II

Guidance regarding the master and the deck department

Section B-II/1

Guidance regarding the certification of officers in charge of a navigational watch on ships of 500 gross tonnage or more

Training

1 Every candidate for certification as officer in charge of a navigational watch should have completed a planned and structured programme of training designed to assist a prospective officer to achieve the standard of competence in accordance with table A-II/1.

2 The structure of the programme of training should be set out in a training plan which clearly expresses, for all parties involved, the objectives of each stage of training on board and ashore. It is important that the prospective officer, tutors, ships' staff and company personnel are clear about the competences which are to be achieved at the end of the programme and how they are to be achieved through a combination of education, training and practical experience on board and ashore.

3 The mandatory periods of seagoing service are of prime importance in learning the job of being a ship's officer and in achieving the overall standard of competence required. Properly planned and structured, the periods of seagoing service will enable prospective officers to acquire and practice skills and will offer opportunities for competences achieved to be demonstrated and assessed.

4 Where the seagoing service forms part of an approved training programme, the following principles should be observed:

.1 The programme of onboard training should be an integral part of the overall training plan.

.2 The programme of onboard training should be managed and co-ordinated by the company which manages the ship on which the seagoing service is to be performed.

.3 The prospective officer should be provided with a training record book* to enable a comprehensive record of practical training and experience at sea to be maintained. The training record book should be laid out in such a way that it can provide detailed information about the tasks and duties which should be undertaken and the progress towards their completion. Duly completed, the record book will provide unique evidence that a structured programme of onboard training has been completed which can be taken into account in the process of evaluating competence for the issue of a certificate.

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* The relevant IMO Model Course(s) and a similar document produced by the International Shipping Federation may be of assistance in the preparation of training record books.

.4 At all times, the prospective officer should be aware of two identifiable individuals who are immediately responsible for the management of the programme of onboard training. The first of these is a qualified seagoing officer, referred to as the "shipboard training officer", who, under the authority of the master, should organize and supervise the programme of training for the duration of each voyage. The second should be a person nominated by the company, referred to as the "company training officer", who should have an overall responsibility for the training programme and for co-ordination with colleges and training institutions.

.5 The company should ensure that appropriate periods are set aside for completion of the programme of onboard training within the normal operational requirements of the ship.

Roles and responsibilities

5 The following section summarizes the roles and responsibilities of those individuals involved in organizing and conducting onboard training:

.1 The company training officer should be responsible for:

.1.1 overall administration of the programme of training,

.1.2 monitoring the progress of the prospective officer throughout, and

.1.3 issuing guidance as required and ensuring that all concerned with the training programme play their parts.

.2 The shipboard training officer should be responsible for:

.2.1 organizing the programme of practical training at sea,

.2.2 ensuring, in a supervisory capacity, that the training record book is properly maintained and that all other requirements are fulfilled, and

.2.3 making sure, so far as is practicable, that the time the prospective officer spends on board is as useful as possible in terms of training and experience, and is consistent with the objectives of the training programme, the progress of training and the operational constraints of the ship.

.3 The master's responsibilities should be to:

.3.1 provide the link between the shipboard training officer and the company training officer ashore,

.3.2 fulfil the role of continuity if the shipboard training officer is relieved during the voyage, and

.3.3 ensure that all concerned are effectively carrying out the onboard training programme.

.4 The prospective officer's responsibilities should be to:

.4.1 follow diligently the programme of training as laid down,

.4.2 make the most of the opportunities presented, be they in or outside working hours, and

.4.3 keep the training record book up to date and ensure that it is available at all times for scrutiny.

Induction

6 At the beginning of the programme and at the start of each voyage on a different ship, prospective officers should be given full information and guidance as to what is expected of them and how the training programme is to be organized. Induction presents the opportunity to brief prospective officers about important aspects of the tasks they will be undertaking, with particular regard to safe working practices and protection of the marine environment.

Shipboard programme of training

7 The training record book should contain, amongst other things, a number of training tasks or duties which should be undertaken as part of the approved programme of onboard training. Such tasks and duties should relate to at least the following areas:

.1 steering systems;

.2 general seamanship;

.3 mooring, anchoring and port operations;

.4 life-saving and fire-fighting appliances;

.5 systems and equipment;

.6 cargo work;

.7 bridge work and watchkeeping; and

.8 engine-room familiarization.

8 It is extremely important that the prospective officer is given adequate opportunity for supervised bridge watchkeeping experience, particularly in the later stages of the onboard training programme.

9 The performance of the prospective officers in each of the tasks and duties itemized in the training record book should be initialled by a qualified officer when, in the opinion of the officer concerned, a prospective officer has achieved a satisfactory standard of proficiency. It is important to appreciate that a prospective officer may need to demonstrate ability on several occasions before a qualified officer is confident that a satisfactory standard has been achieved.

Monitoring and reviewing

10 Guidance and reviewing are essential to ensure that prospective officers are fully aware of the progress they are making and to enable them to join in decisions about their future programme. To be effective, reviews should be linked to information gained through the training record book and other sources as appropriate. The training record book should be scrutinized and endorsed formally by the master and the shipboard training officer at the beginning, during and at the end of each voyage. The training record book should also be examined and endorsed by the company training officer between voyages.

Assessment of abilities and skills in navigational watchkeeping

11 A candidate for certification who is required to have received special training and assessment of abilities and skills in navigational watchkeeping duties should be required to provide evidence, through demonstration either on a simulator or on board ship as part of an approved programme of shipboard training, that the skills and ability to perform as officer in charge of a navigational watch in at least the following areas have been acquired, namely to:

.1 prepare for and conduct a passage, including:

.1.1 interpreting and applying information obtained from charts,

.1.2 fixing position in coastal waters,

.1.3 applying basic information obtained from tide tables and other nautical publications,

.1.4 checking and operating bridge equipment,

.1.5 checking magnetic and gyro-compasses,

.1.6 assessing available meteorological information,

.1.7 using celestial bodies to fix position,

.1.8 determining the compass error by celestial and terrestrial means, and

.1.9 performing calculations for sailings of up to 24 hours;

.2 operate and apply information obtained from electronic navigation systems;

.3 operate radar, ARPA and ECDIS and apply radar information for navigation and collision avoidance;

.4 operate propulsion and steering systems to control heading and speed;

.5 implement navigational watch routines and procedures;

.6 implement the manoeuvres required for rescue of persons overboard;

.7 initiate action to be taken in the event of an imminent emergency situation (e.g., fire, collision, stranding) and action in the immediate aftermath of an emergency;

.8 initiate action to be taken in event of malfunction or failure of major items of equipment or plant (e.g., steering gear, power, navigation systems);

.9 conduct radiocommunications and visual and sound signalling in normal and emergency situations; and

.10 monitor and operate safety and alarm systems, including internal communications.

12 Assessment of abilities and skills in navigational watchkeeping should:

.1 be made against the criteria for evaluating competence for the function of navigation set out in table A-II/1;

.2 ensure that the candidate performs navigational watchkeeping duties in accordance with the Principles to be observed in keeping a safe navigational watch (section A-VIII/2, part 4-1) and the Guidance on keeping a navigational watch (section B-VIII/2, part 4-1).

Evaluation of competence

13 The standard of competence to be achieved for certification as officer in charge of a navigational watch is set out in table A-II/1. The standard specifies the knowledge and skill required and the application of that knowledge and skill to the standard of performance required on board ship.

14 Scope of knowledge is implicit in the concept of competence. Assessment of competence should, therefore, encompass more than the immediate technical requirements of the job, the skills and tasks to be performed, and should reflect the broader aspects needed to meet the full expectations of competent performance as a ship's officer. This includes relevant knowledge, theory, principles and cognitive skills which, to varying degrees, underpin all levels of competence. It also encompasses proficiency in what to do, how and when to do it, and why it should be done. Properly applied, this will help to ensure that a candidate can:

.1 work competently in different ships and across a range of circumstances;

.2 anticipate, prepare for and deal with contingencies; and

.3 adapt to new and changing requirements.

15 The criteria for evaluating competence (column 4 of table A-II/1) identify, primarily in outcome terms, the essential aspects of competent performance. They are expressed so that assessment of a candidate's performance can be made against them and should be adequately documented in the training record book.

16 Evaluation of competence is the process of:

.1 collecting sufficient valid and reliable evidence about the candidate's knowledge, understanding and proficiency to accomplish the tasks, duties and responsibilities listed in column 1 of table A-II/1; and

.2 judging that evidence against the criteria specified in the standard.

17 The arrangements for evaluating competence should be designed to take account of different methods of assessment which can provide different types of evidence about candidates' competence, e.g.:

.1 direct observation of work activities (including seagoing service);

.2 skills/proficiency/competency tests;

.3 projects and assignments;

.4 evidence from previous experience; and

.5 written, oral and computer-based questioning techniques*.

18 One or more of the first four methods listed should almost invariably be used to provide evidence of ability, in addition to appropriate questioning techniques to provide evidence of supporting knowledge and understanding.

Training in celestial navigation

19 The following areas summarize the recommended training in celestial navigation:

.1 correctly adjust sextant for adjustable errors;

.2 determine corrected reading of the sextant altitude of celestial bodies;

.3 accurate sight reduction computation, using a preferred method;

.4 calculate the time of meridian altitude of the sun;

.5 calculate latitude by Polaris or by meridian altitude of the sun;

.6 accurate plotting of position line(s) and position fixing;

.7 determine time of visible rising/setting sun by a preferred method;

.8 identify and select the most suitable celestial bodies in the twilight period;

.9 determine compass error by azimuth or by amplitude, using a preferred method; and

.10 nautical astronomy as required to support the required competence in paragraphs 19.1 to 19.9 above.

20 Training in celestial navigation may include the use of electronic nautical almanac and celestial navigation calculation software.

* The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

Section B-II/2
Guidance regarding the certification of masters and chief mates on ships of 500 gross tonnage or more

(See section B-II/1 for guidance.)

Section B-II/3
Guidance regarding the certification of officers in charge of a navigational watch and of masters on ships of less than 500 gross tonnage

(See section B-II/1 for guidance.)

Section B-II/4
Guidance regarding the training and certification of ratings forming part of a navigational watch

1 In addition to the requirements stated in table A-II/4 of this Code, Parties are encouraged, for safety reasons, to include the following subjects in the training of ratings forming part of a navigational watch:

.1 a basic knowledge of the International Regulations for Preventing Collisions at Sea, 1972;

.2 rigging a pilot ladder;

.3 an understanding of wheel orders given by pilots in English;

.4 training for proficiency in survival craft and rescue boats;

.5 support duties when berthing and unberthing and during towing operations;

.6 a basic knowledge of anchoring;

.7 a basic knowledge of dangerous cargoes;

.8 a basic knowledge of stowage procedures and arrangements for bringing stores on board; and

.9 a basic knowledge of deck maintenance and of tools used on deck.

Section B-II/5
Guidance regarding the certification of ratings as able seafarer deck

1 Onboard training should be documented in an approved training record book.

CHAPTER III

Guidance regarding the engine department

Section B-III/1

Guidance regarding the certification of officers in charge of an engineering watch in a manned engine-room or as designated duty engineers in a periodically unmanned engine-room

1 In table A-III/1, the tools referred to should include hand tools, common measuring equipment, centre lathes, drilling machines, welding equipment and milling machines as appropriate.

2 Training in workshop skills ashore can be carried out in a training institution or approved workshop.

3 Onboard training should be adequately documented in the training record book by qualified assessors.

Section B-III/2

Guidance regarding the certification of chief engineer officers and second engineer officers of ships powered by main propulsion machinery of 3,000 kW propulsion power or more

(No provisions)

Guidance regarding training of engineering personnel having management responsibilities for the operation and safety of electrical power plant above 1,000 volts

1 Training of engineering personnel having management responsibilities for the operation and safety of electrical power plant more than 1,000 V should at least include:

.1 the functional, operational and safety requirements for a marine high-voltage system;

.2 assignment of suitably qualified personnel to carry out maintenance and repair of high-voltage switchgear of various types;

.3 taking remedial action necessary during faults in a high-voltage system;

.4 producing a switching strategy for isolating components of a high-voltage system;

.5 selecting suitable apparatus for isolation and testing of high-voltage equipment;

.6 carrying out a switching and isolation procedure on a marine high-voltage system, complete with safety documentation; and

.7 performing tests of insulation resistance and polarization index on high-voltage equipment.

Section B-III/3
Guidance regarding the 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

(No provisions)

Section B-III/4
Guidance regarding the training and certification of ratings forming part of a watch in a manned engine-room or designated to perform duties in a periodically unmanned engine-room

In addition to the requirements stated in section A-III/4 of this Code, Parties are encouraged, for safety reasons, to include the following items in the training of ratings forming part of an engineering watch:

.1 a basic knowledge of routine pumping operations, such as bilge, ballast and cargo pumping systems;

.2 a basic knowledge of electrical installations and the associated dangers;

.3 a basic knowledge of maintenance and repair of machinery and tools used in the engine-room; and

.4 a basic knowledge of stowage and arrangements for bringing stores on board.

Section B-III/5
Guidance regarding the certification of ratings as able seafarer engine

1 Onboard training should be documented in an approved training record book.

Section B-III/6
Guidance regarding training and certification for electro-technical officers

In addition to the requirements stated in table A-III/6 of this Code, Parties are encouraged to take into account resolution A.702(17) concerning radio maintenance guidelines for the global maritime distress and safety system within their training programmes.

Section B-III/7
Guidance regarding training and certification for electro-technical ratings

(No provisions)

CHAPTER IV

Guidance regarding radiocommunication and radio operators

Section B-IV/1
Guidance regarding the application of chapter IV

(No provisions)

Section B-IV/2
Guidance regarding training and certification of GMDSS radio operators

TRAINING RELATED TO THE FIRST-CLASS RADIOELECTRONIC CERTIFICATE

General

1 The requirements of medical fitness, especially as to hearing, eyesight and speech, should be met by the candidate before training is commenced.

2 The training should be relevant to the provisions of the STCW Convention, the provisions of the Radio Regulations annexed to the International Telecommunication Convention (Radio Regulations) and the provisions of the International Convention for the Safety of Life at Sea (SOLAS Convention) currently in force, with particular attention given to provisions for the global maritime distress and safety system (GMDSS). In developing training requirements, account should be taken of at least the knowledge and training given in paragraphs 3 to 14 hereunder.

Theory

3 Knowledge of the general principles and basic factors necessary for safe and efficient use of all sub-systems and equipment required in the GMDSS, sufficient to support the practical training provisions given in paragraph 13.

4 Knowledge of the use, operation and service areas of GMDSS sub-systems, including satellite system characteristics, navigational and meteorological warning systems and selection of appropriate communication circuits.

5 Knowledge of the principles of electricity and the theory of radio and electronics sufficient to meet the provisions given in paragraphs 6 to 10 below.

6 Theoretical knowledge of GMDSS radiocommunication equipment, including narrow-band direct-printing telegraphy and radiotelephone transmitters and receivers, digital selective calling equipment, ship earth stations, emergency position-indicating radio beacons (EPIRBs), marine antenna systems, radio equipment for survival craft together with all auxiliary items, including power supplies, as well as general knowledge of the principles of other equipment generally used for radionavigation, with particular reference to maintaining the equipment in service.

7 Knowledge of factors that affect system reliability, availability, maintenance procedures and proper use of test equipment.

8 Knowledge of microprocessors and fault diagnosis in systems using microprocessors.

9 Knowledge of control systems in the GMDSS radio equipment, including testing and analysis.

10 Knowledge of the use of computer software for the GMDSS radio equipment and methods for correcting faults caused by loss of software control of the equipment.

Regulations and documentation

11 Knowledge of:

.1 the SOLAS Convention and the Radio Regulations, with particular emphasis on:

.1.1 distress, urgency and safety radiocommunications,

.1.2 avoiding harmful interference, particularly with distress and safety traffic, and

.1.3 prevention of unauthorized transmissions;

.2 other documents relating to operational and communication procedures for distress, safety and public correspondence services, including charges, navigational warnings, and weather broadcasts in the Maritime Mobile Service and the Maritime Mobile Satellite Service; and

.3 use of the International Code of Signals and the IMO Standard Marine Communication Phrases.

Watchkeeping and procedures

12 Knowledge of and training in:

.1 communication procedures and discipline to prevent harmful interference in GMDSS sub-systems;

.2 procedures for using propagation-prediction information to establish optimum frequencies for communications;

.3 radiocommunication watchkeeping relevant to all GMDSS sub-systems, exchange of radiocommunication traffic, particularly concerning distress, urgency and safety procedures, and radio records;

.4 use of the international phonetic alphabet;

.5 monitoring a distress frequency while simultaneously monitoring or working on at least one other frequency;

.6 ship reporting systems and procedures;

.7 radiocommunication procedures of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual;

.8 radio medical systems and procedures; and

.9 causes of false distress alerts and means to avoid them*.

Practical

13 Practical training, supported by appropriate laboratory work, should be given in:

.1 correct and efficient operation of all GMDSS sub-systems and equipment under normal propagation conditions and under typical interference conditions;

.2 safe operation of all the GMDSS communication equipment and ancillary devices, including safety precautions;

.3 adequate and accurate keyboard skills for the satisfactory exchange of communications;

.4 operational techniques for:

.4.1 receiver and transmitter adjustment for the appropriate mode of operation, including digital selective calling and direct-printing telegraphy,

.4.2 antenna adjustment and realignment, as appropriate,

.4.3 use of radio life-saving appliances, and

.4.4 use of emergency position-indicating radio beacons (EPIRBs);

.5 antenna rigging, repair and maintenance, as appropriate;

.6 reading and understanding pictorial, logic and circuit diagrams;

.7 use and care of those tools and test instruments necessary to carry out at-sea electronic maintenance;

.8 manual soldering and desoldering techniques, including those involving semi-conductor devices and modern circuits, and the ability to distinguish whether the circuit is suitable to be manually soldered or desoldered;

.9 tracing and repair of faults to component level, where practicable, and to board/module level in other cases;

* See COM/Circ.127 – Guidelines for avoiding false distress alerts.

.10 recognition and correction of conditions contributing to the fault occurring;

.11 maintenance procedures, both preventive and corrective, for all GMDSS communication equipment and radionavigation equipment; and

.12 methods of alleviating electrical and electromagnetic interference such as bonding, shielding and bypassing.

Miscellaneous

14 Knowledge of and/or training in:

.1 the English language, both written and spoken, for the satisfactory exchange of communications relevant to the safety of life at sea;

.2 world geography, especially the principal shipping routes, services of rescue coordination centres (RCCs) and related communication routes;

.3 survival at sea, the operation of lifeboats, rescue boats, liferafts, buoyant apparatus and their equipment, with special reference to radio life-saving appliances;

.4 fire prevention and fire fighting, with particular reference to the radio installation;

.5 preventive measures for the safety of ship and personnel in connection with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards;

.6 first aid, including heart-respiration revival techniques; and

.7 coordinated universal time (UTC), global time zones and the international date line.

TRAINING RELATED TO THE SECOND-CLASS RADIOELECTRONIC CERTIFICATE

General

15 The requirements of medical fitness, especially as to hearing, eyesight and speech, should be met by the candidate before training is commenced.

16 The training should be relevant to the provisions of the STCW Convention and the SOLAS Convention currently in force, with particular attention given to provisions for the global maritime distress and safety system (GMDSS). In developing training requirements, account should be taken of at least the knowledge and training given in paragraphs 17 to 28 hereunder[*].

[*] The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

Theory

17 Knowledge of the general principles and basic factors necessary for safe and efficient use of all sub-systems and equipment required in the GMDSS, sufficient to support the practical training provisions given in paragraph 27 below.

18 Knowledge of the use, operation and service areas of GMDSS sub-systems, including satellite system characteristics, navigational and meteorological warning systems and selection of appropriate communication circuits.

19 Knowledge of the principles of electricity and the theory of radio and electronics sufficient to meet the provisions given in paragraphs 20 to 24 below.

20 General theoretical knowledge of GMDSS radiocommunication equipment, including narrow-band direct-printing telegraph and radiotelephone transmitters and receivers, digital selective calling equipment, ship earth stations, emergency position-indicating radio beacons (EPIRBs), marine antenna systems, radio equipment for survival craft together with all auxiliary items, including power supplies, as well as general knowledge of other equipment generally used for radionavigation, with particular reference to maintaining the equipment in service.

21 General knowledge of factors that affect system reliability, availability, maintenance procedures and proper use of test equipment.

22 General knowledge of microprocessors and fault diagnosis in systems using microprocessors.

23 General knowledge of control systems in the GMDSS radio equipment, including testing and analysis.

24 Knowledge of the use of computer software for the GMDSS radio equipment and methods for correcting faults caused by loss of software control of the equipment.

Regulations and documentation

25 Knowledge of:

.1 the SOLAS Convention and the Radio Regulations, with particular emphasis on:

.1.1 distress, urgency and safety radiocommunications,

.1.2 avoiding harmful interference, particularly with distress and safety traffic, and

.1.3 the prevention of unauthorized transmissions;

.2 other documents relating to operational and communication procedures for distress, safety and public correspondence services, including charges, navigational warnings, and weather broadcasts in the Maritime Mobile Service and the Maritime Mobile Satellite Service; and

.3 the use of the International Code of Signals and the IMO Standard Marine Communication Phrases.

Watchkeeping and procedures

26 Training should be given in:

.1 communication procedures and discipline to prevent harmful interference in GMDSS sub-systems;

.2 procedures for using propagation-prediction information to establish optimum frequencies for communications;

.3 radiocommunication watchkeeping relevant to all GMDSS sub-systems, exchange of radiocommunication traffic, particularly concerning distress, urgency and safety procedures, and radio records;

.4 use of the international phonetic alphabet;

.5 monitoring a distress frequency while simultaneously monitoring or working on at least one other frequency;

.6 ship reporting systems and procedures;

.7 radiocommunication procedures of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual;

.8 radio medical systems and procedures; and

.9 causes of false distress alerts and means to avoid them.*

Practical

27 Practical training, supported by appropriate laboratory work, should be given in:

.1 correct and efficient operation of all GMDSS sub-systems and equipment under normal propagation conditions and under typical interference conditions;

.2 safe operation of all the GMDSS communication equipment and ancillary devices, including safety precautions;

.3 adequate and accurate keyboard skills for the satisfactory exchange of communications;

.4 operational techniques for:

* See COM/Circ.127 – Guidelines for avoiding false distress alerts.

.4.1 receiver and transmitter adjustment for the appropriate mode of operation, including digital selective calling and direct-printing telegraphy,

.4.2 antenna adjustment and realignment, as appropriate,

.4.3 use of radio life-saving appliances, and

.4.4 use of emergency position-indicating radio beacons (EPIRBs);

.5 antenna rigging, repair and maintenance, as appropriate;

.6 reading and understanding pictorial, logic and module interconnection diagrams;

.7 use and care of those tools and test instruments necessary to carry out at-sea electronic maintenance at the level of replacement of a unit or module;

.8 basic manual soldering and desoldering techniques and their limitations;

.9 tracing and repair of faults to board/module level;

.10 recognition and correction of conditions contributing to the fault occurring;

.11 basic maintenance procedures, both preventive and corrective, for all the GMDSS communication equipment and radionavigation equipment; and

.12 methods of alleviating electrical and electromagnetic interference, such as bonding, shielding and bypassing.

Miscellaneous

28 Knowledge of, and/or training in:

.1 the English language, both written and spoken, for the satisfactory exchange of communications relevant to the safety of life at sea;

.2 world geography, especially the principal shipping routes, services of rescue co-ordination centres (RCCs) and related communication routes;

.3 survival at sea, the operation of lifeboats, rescue boats, liferafts, buoyant apparatus and their equipment, with special reference to radio life-saving appliances;

.4 fire prevention and fire fighting, with particular reference to the radio installation;

.5 preventive measures for the safety of ship and personnel in connection with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards;

.6 first aid, including heart-respiration revival techniques; and

.7 coordinated universal time (UTC), global time zones and the international date line.

TRAINING RELATED TO THE GENERAL OPERATOR'S CERTIFICATE

General

29 The requirements of medical fitness, especially as to hearing, eyesight and speech, should be met by the candidate before training is commenced.

30 The training should be relevant to the provisions of the STCW Convention, the Radio Regulations and the SOLAS Convention currently in force, with particular attention given to provisions for the global maritime distress and safety system (GMDSS). In developing training requirements, account should be taken of at least the knowledge and training given in paragraphs 31 to 36 hereunder*.

Theory

31 Knowledge of the general principles and basic factors necessary for safe and efficient use of all sub-systems and equipment required in the GMDSS sufficient to support the practical training provisions given in paragraph 35 below.

32 Knowledge of the use, operation and service areas of GMDSS sub-systems, including satellite system characteristics, navigational and meteorological warning systems and selection of appropriate communication circuits.

Regulations and documentation

33 Knowledge of:

.1 the SOLAS Convention and the Radio Regulations, with particular emphasis on:

.1.1 distress, urgency and safety radiocommunications,

.1.2 avoiding harmful interference, particularly with distress and safety traffic, and

.1.3 prevention of unauthorized transmissions;

.2 other documents relating to operational and communication procedures for distress, safety and public correspondence services, including charges, navigational warnings, and weather broadcasts in the Maritime Mobile Service and the Maritime Mobile Satellite Service; and

.3 use of the International Code of Signals and the IMO Standard Marine Communication Phrases.

* The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

Watchkeeping and procedures

34 Training should be given in:

.1 communication procedures and discipline to prevent harmful interference in GMDSS sub-systems;

.2 procedures for using propagation-prediction information to establish optimum frequencies for communications;

.3 radiocommunication watchkeeping relevant to all GMDSS sub-systems, exchange of radiocommunication traffic, particularly concerning distress, urgency and safety procedures, and radio records;

.4 use of the international phonetic alphabet;

.5 monitoring a distress frequency while simultaneously monitoring or working on at least one other frequency;

.6 ship reporting systems and procedures;

.7 radiocommunication procedures of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual;

.8 radio medical systems and procedures; and

.9 causes of false distress alerts and means to avoid them.*

Practical

35 Practical training should be given in:

.1 correct and efficient operation of all GMDSS sub-systems and equipment under normal propagation conditions and under typical interference conditions;

.2 safe operation of all the GMDSS communications equipment and ancillary devices, including safety precautions;

.3 accurate and adequate keyboard skills for the satisfactory exchange of communications; and

.4 operational techniques for:

.4.1 receiver and transmitter adjustment for the appropriate mode of operation, including digital selective calling and direct-printing telegraphy,

.4.2 antenna adjustment and realignment as appropriate,

* See COM/Circ.127 – Guidelines for avoiding false distress alerts.

.4.3 use of radio life-saving appliances, and

.4.4 use of emergency position-indicating radio beacons (EPIRBs).

Miscellaneous

36 Knowledge of, and/or training in:

.1 the English language, both written and spoken, for the satisfactory exchange of communications relevant to the safety of life at sea;

.2 world geography, especially the principal shipping routes, services of rescue coordination centres (RCCs) and related communication routes;

.3 survival at sea, the operation of lifeboats, rescue boats, liferafts, buoyant apparatus and their equipment, with special reference to radio life-saving appliances;

.4 fire prevention and fire-fighting, with particular reference to the radio installation;

.5 preventive measures for the safety of ship and personnel in connection with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards;

.6 first aid, including heart-respiration revival techniques; and

.7 coordinated universal time (UTC), global time zones and the international date line.

TRAINING RELATED TO THE RESTRICTED OPERATOR'S CERTIFICATE

General

37 The requirements of medical fitness, especially as to hearing, eyesight and speech, should be met by the candidate before training is commenced.

38 The training should be relevant to the provisions of the STCW Convention, the Radio Regulations and the SOLAS Convention currently in force, with particular attention given to provisions for the global maritime distress and safety system (GMDSS). In developing training guidance, account should be taken of at least the knowledge and training given in paragraphs 39 to 44 hereunder*.

Theory

39 Knowledge of the general principles and basic factors, including VHF range limitation and antenna height effect necessary for safe and efficient use of all sub-systems and equipment required in GMDSS in sea area A1, sufficient to support the training given in paragraph 43 below.

* The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

40 Knowledge of the use, operation and service areas of GMDSS sea area A1 sub-systems, e.g., navigational and meteorological warning systems and the appropriate communication circuits.

Regulations and documentation

41 Knowledge of:

.1 those parts of the SOLAS Convention and the Radio Regulations relevant to sea area A1, with particular emphasis on:

.1.1 distress, urgency and safety radiocommunications,

.1.2 avoiding harmful interference, particularly with distress and safety traffic, and

.1.3 prevention of unauthorized transmissions;

.2 other documents relating to operational and communication procedures for distress, safety and public correspondence services, including charges, navigational warnings and weather broadcasts in the Maritime Mobile Service in sea area A1; and

.3 use of the International Code of Signals and the IMO Standard Marine Communication Phrases.

Watchkeeping and procedures

42 Training should be given in:

.1 communication procedures and discipline to prevent harmful interference in GMDSS sub-systems used in sea area A1;

.2 VHF communication procedures for:

.2.1 radiocommunication watchkeeping, exchange of radiocommunication traffic, particularly concerning distress, urgency and safety procedures, and radio records,

.2.2 monitoring a distress frequency while simultaneously monitoring or working on at least one other frequency, and

.2.3 the digital selective calling system;

.3 use of the international phonetic alphabet;

.4 ship reporting systems and procedures;

.5 VHF radiocommunication procedures of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual;

.6 radio medical systems and procedures; and

.7 causes of false distress alerts and means to avoid them*.

Practical

43 Practical training should be given in:

.1 correct and efficient operation of the GMDSS sub-systems and equipment prescribed for ships operating in sea area A1 under normal propagation conditions and under typical interference conditions;

.2 safe operation of relevant GMDSS communication equipment and ancillary devices, including safety precautions; and

.3 operational techniques for use of:

.3.1 VHF, including channel, squelch, and mode adjustment, as appropriate,

.3.2 radio life-saving appliances,

.3.3 emergency position-indicating radio beacons (EPIRBs), and

.3.4 NAVTEX receivers.

Miscellaneous

44 Knowledge of, and/or training in:

.1 the English language, both written and spoken, for the satisfactory exchange of communications relevant to the safety of life at sea;

.2 services of rescue co-ordination centres (RCCs) and related communication routes;

.3 survival at sea, the operation of lifeboats, rescue boats, liferafts, buoyant apparatus and their equipment, with special reference to radio life-saving appliances;

.4 fire prevention and fire fighting, with particular reference to the radio installation;

.5 preventive measures for the safety of ship and personnel in connection with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards; and

.6 first aid, including heart-respiration revival techniques.

* See COM/Circ.127 – Guidelines for avoiding false distress alerts.

TRAINING RELATED TO MAINTENANCE OF GMDSS INSTALLATIONS ON BOARD SHIPS

General

45 Reference is made to the maintenance requirements of SOLAS Convention regulation IV/15, and to IMO resolution A.702(17) on Radio maintenance guidelines for the GMDSS related to sea areas A3 and A4, which includes in its annex the following provision:

> "4.2 The person designated to perform functions for at-sea electronic maintenance should either hold an appropriate certificate as specified by the Radio Regulations, as required, or have equivalent at-sea electronic maintenance qualifications, as may be approved by the Administration, taking into account the recommendations of the Organization on the training of such personnel."

46 The following guidance on equivalent electronic maintenance qualifications is provided for use by Administrations as appropriate.

47 Training as recommended below does not qualify any person to be an operator of GMDSS radio equipment who does not hold an appropriate Radio Operator's Certificate.

Maintenance training equivalent to the First-Class Radioelectronic Certificate

48 In determining training equivalent to the elements of the listed First-Class Radioelectronic Certificate:

.1 the theory content should cover at least the subjects given in paragraphs 3 to 10;

.2 the practical content should cover at least the subjects given in paragraph 13; and

.3 the miscellaneous knowledge included should cover at least the subjects given in paragraph 14.

Maintenance training equivalent to the Second-Class Radioelectronic Certificate

49 In determining training equivalent to the maintenance elements of the Second-Class Radioelectronic Certificate:

.1 the theory content should cover at least the subjects given in paragraphs 17 to 24;

.2 the practical content should cover at least the subjects given in paragraph 27; and

.3 the miscellaneous knowledge included should cover at least the subjects given in paragraph 28.

CHAPTER V

Guidance regarding special training requirements for personnel on certain types of ships

Section B-V/1
Guidance regarding the training and qualifications of tanker personnel

Person with immediate responsibility

1 The term "person with immediate responsibility" as used in paragraphs 3 and 5 of regulation V/1-1 and paragraph 3 of regulation V/1-2 means a person being in a decision-making capacity with respect to loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations.

FAMILIARIZATION TRAINING FOR ALL TANKER PERSONNEL

2 All tanker personnel should undergo familiarization training on board and, where appropriate, ashore before being assigned to shipboard duties, which should be given by qualified personnel experienced in the handling and characteristics of oil, chemical or liquefied gas cargoes, as appropriate, and the safety procedures involved. The training should at least cover the matters set out in paragraphs 3 to 8 below.

Regulations

3 Knowledge of the ship's rules and regulations governing the safety of personnel on board a tanker in port and at sea.

Health hazards and precautions to be taken

4 Dangers of skin contact; inhalation and accidental swallowing of cargo; the harmful properties of the cargoes carried, personnel accidents and associated first aid; lists of do's and don'ts.

Fire prevention and fire fighting

5 Control of smoking and cooking restrictions; sources of ignition; fire and explosion prevention; methods of fire fighting; portable fire extinguishers and fixed installations.

Pollution prevention

6 Procedures to be followed to prevent air and water pollution and measures which will be taken in the event of spillage.

Safety equipment and its use

7 The proper use of protective clothing and equipment, resuscitators, escape and rescue equipment.

Emergency procedures

8 Familiarization with the emergency plan procedures.

PROOF OF QUALIFICATION

9 The master of every oil, chemical and liquefied gas tanker should ensure that the officer or the person primarily responsible for the cargo possesses the appropriate certificate, issued or endorsed or validated as required by regulation V/1-1, paragraph 3; regulation V/1-1, paragraph 5 or regulation V/1-2, paragraph 3, as appropriate, and has had adequate recent practical experience on board an appropriate type of tanker to permit that officer or person to safely perform the duties assigned.

GUIDANCE REGARDING APPROVED ONBOARD TRAINING

General

10 The purpose of qualifying shipboard service is to provide training and knowledge for the safe carriage of specific tanker cargoes.

11 To satisfy the experience appropriate to their duties on the type of tanker on which they serve referred to in regulation V/1-1, paragraph 4.2.2, regulation V/1-1, paragraph 6.2.2 and regulation V/1-2, paragraph 4.2.2, onboard training should:

.1 emphasize practical “hands on experience” and be relative to the employment of the seafarer, i.e. the training of deck and engineering departments may be different;

.2 be under the supervision of personnel qualified and experienced in the handling, characteristics and safety procedures of the cargoes being carried by the vessel;

.3 be on board the tanker carrying products relative to the tanker Certificate of Proficiency/Endorsement being sought and should be such that the specialist equipment is brought into operation but may be on a ballast passage between cargoes for part of that period;

.4 take part in at least three loading and discharge operations; and*

.5 at least cover the matters set out in “Onboard training criteria” in paragraph 19.

12 The onboard training programme must in no way affect the safe running or the seaworthiness of the vessel.

* A loading or discharging operation is considered to be the loading or discharge of more than 60% of the total cargo tank capacity of the vessel. Loading/discharges of less than this quantity may be summed together to be equivalent to this quantity.

Onboard training programme

13 The trainee should be carried in a supernumerary capacity (i.e. the trainee will have no other duties than that of undertaking the training programme and emergency duties).

14 The programme of onboard training should be managed and co-ordinated by the company which manages the ship on which the seagoing service is to be performed and be a vessel nominated by the company as a training vessel.*

15 At all times, the trainee should be aware of two identifiable individuals who are immediately responsible for the management of the programme of onboard training. The first of these is a qualified seagoing officer, referred to as the "shipboard training officer", who, under the authority of the master, should organize and supervise the programme of training. The second should be a person nominated by the company, referred to as the "company training officer", who should have an overall responsibility for the training programme and for co-ordination with training organizations.

16 The trainee should be provided with an approved training record book to enable a comprehensive record of practical training and experience at sea to be maintained. The approved training record book should be laid out in such a way that it can provide detailed information about the tasks and duties which should be undertaken and the progress towards their completion. Duly completed and countersigned by the master, the approved record book will provide unique evidence that a structured programme of onboard training has been completed leading towards the issue of a relevant Certificate in Advanced Training for Tanker Cargo Operations.

17 During the approved onboard training programme the trainee should be instructed in the loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations of the tanker to ensure that the experience gained is at least equal to that which would be obtained in three months' normal service.

18 If the three-loading and three-unloading criteria cannot be achieved within the one-month onboard training period, then the period of onboard training should be extended until these criteria have been satisfactorily achieved.

Onboard training criteria

19 The onboard training should at least provide knowledge and experience, relevant to the applicable tanker type, of the following:

.1 Safety

.1.1 All tanker types

.1 Ship's safety-management system
.2 Cargo-specific fire-fighting equipment and procedures

* A nominated training vessel is a trading vessel named by the company that is suitable for the purpose of this guidance, as applicable.

.3 Cargo-specific first-aid procedures, including the Medical First Aid Guide for Use in Accidents involving Dangerous Goods (MFAG)
.4 Ship-/cargo-specific hazards, including smoking regulations, oxygen-depleted atmospheres, cargo hydrocarbon narcosis and toxicity
.5 Risk assessment system
.6 Permit to work, including hot work and enclosed spaces entry procedures
.7 Use of personal protective equipment

.1.2 Additional for liquefied gas tankers

.1 Dangers and precautions related to handling and storage of cargoes at cryogenic temperatures

.2 Construction, cargo, cargo tanks and pipelines

.2.1 All tanker types

.1 Hull/tank construction and limitations
.2 Cargo connections
.3 Properties and hazards associated with the types of cargo being carried, including use of Material Safety Data Sheets
.4 The risks that cargo operations (such as purging/gas-freeing/tank cleaning) may have on the accommodation ventilation systems and actions to mitigate these risks
.5 Configuration of cargo and ballast system
.6 Pumps and associated equipment
.7 Specialist equipment associated with the cargo operations
.8 Particulars of the tanker's construction and how this affects the cargo operations

.2.2 Additional for liquefied gas tankers

.1 Use of segregation, separation and airlocks to maintain gas-safe areas
.2 Cargo tank, inter-barrier, insulation spaces, and pipeline relief valves and vapour venting systems
.3 Cargo vapour compressors and associated equipment

.3 Trim and stability

.3.1 All tanker types

.1 Tanker's stability information and calculating equipment
.2 Importance of maintaining stress levels within acceptable limits
.3 Dangers of free surface effect and "sloshing" effect

.4 Cargo operations

.4.1 All tanker types

.1 Pre-planning of loading/in-transit care, discharge/ballast operations
.2 Record keeping
.3 Start up/stopping procedures, including emergency shutdown
.4 Attention required for mooring arrangements during cargo operations
.5 Purging and inerting requirements and associated hazards
.6 Loading cargo, including topping-off operations
.7 Discharging cargo, including draining and stripping operations
.8 Monitoring of cargo during loading/discharging operations, including sampling where applicable
.9 Tank gauging and alarm systems
.10 Dangers from electrostatic discharge and its prevention
.11 Ballasting and de-ballasting operations
.12 Maintenance requirements, including coating inspections

.4.2 Additional for chemical tankers

.1 Polymerization, cargo compatibility, tank coating compatibility and other reactions
.2 Functions of inhibitors and catalysts
.3 Vapour/gas dispersion

.4.3 Additional for liquefied gas tankers

.1 Polymerization, cargo compatibility, tank coating compatibility and other reactions
.2 Functions of inhibitors and catalysts
.3 Causes of backpressure and pressure surge effects
.4 Use of boil-off gas as a fuel
.5 Vapour/gas dispersion
.6 Purging and cool-down operations
.7 Operation and maintenance of re-liquefaction equipment
.8 Understanding and use of the custody transfer system

.4.4 Additional for oil tankers

.1 Crude oil washing systems

.5 Tank washing/cleaning

.5.1 All tanker types

.1 Tank cleaning systems and equipment fitted on the tanker
.2 Pre-planning of tank washing/cleaning operations
.3 Tank washing procedures, including purging and inerting

.4 Control of slops/waste product
.5 Electro-static hazards
.6 Cleanliness requirements
.7 Maintenance requirements

.5.2 Additional for chemical tankers

.1 Removal of inhibitors and residues
.2 Use of absorption, cleaning agents and detergents

.5.3 Additional for liquefied gas tankers

.1 Hot-gassing/boil-off of liquid residues and regassification process

.6 Inert gas systems

.6.1 All tanker types

.1 Inerting system(s) and equipment fitted to the tanker
.2 Hazards associated with inerting spaces, with particular reference to safe entry into tanks
.3 Purging, maintaining inert atmosphere and gas-freeing operations
.4 Maintenance requirements

.7 Pollution prevention and control

.7.1 All tanker types

.1 International, flag State and company regulations, documentation and plans
.2 Operation of the tanker's pollution-prevention systems and equipment, including discharge monitoring
.3 Operation of the tanker's pollution-containment equipment

.8 Gas-detection equipment and instruments

.8.1 All tanker types

.1 Use and calibration of personal, portable and fixed gas analysers, with particular reference to oxygen and hydrocarbon monitoring equipment
.2 Operation, maintenance and limitation of cargo tank level measuring, level alarm and temperature-measuring systems

.8.2 Additional for liquefied gas tankers

.1 Operation and maintenance of hull temperature measurement

.9 Publications

.9.1 All tanker types

.1 International, flag State and company publications relevant to the operation of the tanker, including SOLAS, MARPOL and applicable guidance manuals

.2 Operating and maintenance manuals specific to the equipment on board
.3 Established industrial standards and code of safe working practice (e.g., ICS, OCIMF, SIGTTO)

Section B-V/1-1
Guidance regarding training and qualifications of masters, officers and ratings on oil and chemical tankers

OIL TANKER TRAINING

20 The training required by paragraphs 2.2 and 4.3 of regulation V/1-1 in respect of oil tankers should be set out in a training plan which clearly expresses, for all parties involved, the objectives of the training. Training may be given on board or ashore, where appropriate. It should be supplemented by practical instruction on board and, where appropriate, in a suitable shore-based installation. All training and instruction should be given by properly qualified and suitably experienced personnel*.

21 As much use as possible should be made of shipboard operation and equipment manuals, films and suitable visual aids, and the opportunity should be taken to introduce discussion of the part to be played by the safety organization on board ship and the role of safety officers and safety committees.

CHEMICAL TANKER TRAINING

22 The training required by paragraphs 2.2 and 6.3 of regulation V/1-1 in respect of chemical tankers should be set out in a training plan which clearly expresses, for all parties involved, the objectives of the training. Training may be given on board or ashore, where appropriate. It should be supplemented by practical instruction on board and, where appropriate, in a suitable shore-based installation. All training and instruction should be given by properly qualified and suitably experienced personnel*.

23 As much use as possible should be made of shipboard operation and equipment manuals, films and suitable visual aids, and the opportunity should be taken to introduce discussion of the part to be played by the safety organization on board ship and the role of safety officers and safety committees.

Section B-V/1-2
Guidance regarding training and qualifications of masters, officers and ratings on liquefied gas tankers

24 The training required by paragraphs 2.2 and 4.3 of regulation V/1-2 in respect of liquefied gas tankers should be set out in a training plan which clearly expresses, for all parties involved, the objectives of the training. Training may be given on board or ashore, where appropriate. It should be supplemented by practical instruction on board and, where appropriate, in a suitable shore-based installation. All training and instruction should be given by properly qualified and suitably experienced personnel*.

* The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

25 As much use as possible should be made of shipboard operation and equipment manuals, films and suitable visual aids, and the opportunity should be taken to introduce discussion of the part to be played by the safety organization on board ship and the role of safety officers and safety committees.

Section B-V/2
Guidance regarding training of seafarers on passenger ships

ENHANCED FIRE FIGHTING

1 For officers and crew on passenger ships, additional training should be provided highlighting the difficulties of fighting fires, including access to confined spaces and prevention of the spread of fire to adjoining spaces.

DAMAGE CONTROL

2 In developing standards of competency given in sections A-II/1, A-II/2 and A-III/2 to achieve the necessary level of theoretical knowledge, understanding and proficiency in damage control and watertight integrity, companies and training institutions should take into account the minimum knowledge, understanding and proficiency for damage control and watertight integrity as given below:

Competence

Minimize the risk of flooding and maintain a state of readiness to respond to emergency situations involving damage to the watertight integrity of the ship.

Knowledge, understanding and proficiency

Shipboard damage control plans and organization.

Damage control systems, equipment (lockers) and emergency escape routes

The key elements in maintaining stability and watertight integrity.

Importance of securing flooding and maintaining watertight boundaries.

Actions to be taken aboard a ship in the event of an explosion, grounding, collision, or fire

Damage control techniques consistent with equipment found on board the ship bilge systems and pumps.

Section B-V/a[*]
Guidance regarding additional training for masters and chief mates of large ships and ships with unusual manoeuvring characteristics

1 It is important that masters and chief mates should have had relevant experience and training before assuming the duties of master or chief mate of large ships or ships having unusual manoeuvring and handling characteristics significantly different from those in which they have recently served. Such characteristics will generally be found in ships which are of considerable deadweight or length or of special design or of high speed.

2 Prior to their appointment to such a ship, masters and chief mates should:

.1 be informed of the ship's handling characteristics by the company, particularly in relation to the knowledge, understanding and proficiency listed under ship manoeuvring and handling in column 2 of table A-II/2 – Specification of the minimum standard of competence for masters and chief mates on ships of 500 gross tonnage or more; and

.2 be made thoroughly familiar with the use of all navigational and manoeuvring aids fitted in the ship concerned, including their capabilities and limitations.

3 Before initially assuming command of one of the ships referred to above, the prospective master should have sufficient and appropriate general experience as master or chief mate, and either:

.1 have sufficient and appropriate experience manoeuvring the same ship under supervision or in manoeuvring a ship having similar manoeuvring characteristics; or

.2 have attended an approved ship handling simulator course on an installation capable of simulating the manoeuvring characteristics of such a ship.[**]

4 The additional training and qualifications of masters and chief mates of dynamically supported and high-speed craft should be in accordance with the relevant guidelines of the IMO Code of Safety for Dynamically Supported Craft and the IMO International Codes of Safety for High-Speed Craft (1994 HSC Code and 2000 HSC Code), as appropriate.

Section B-V/b[*]
Guidance regarding training of officers and ratings responsible for cargo handling on ships carrying dangerous and hazardous substances in solid form in bulk

1 Training should be divided into two parts, a general part on the principles involved and a part on the application of such principles to ship operation. All training and instruction should be given by properly qualified and suitably experienced personnel and cover at least the subjects given in paragraphs 2 to 14 hereunder.

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[*] Note there are no corresponding regulations in the Convention or sections in part A of the Code for sections B-V/a, B-V/b, B-V/c, B-V/d, B-V/e, B-V/f and B-V/g.

[**] The relevant IMO Model Course may be of assistance in the preparation of courses.

PRINCIPLES

Characteristics and properties

2 The important physical characteristics and chemical properties of dangerous and hazardous substances, sufficient to give a basic understanding of the intrinsic hazards and risks involved.

Classification of materials possessing chemical hazards

3 IMO dangerous goods classes 4 to 9 and the hazards associated with each class; and materials hazardous only in bulk (MHB) outlined in the International Maritime Solid Bulk Cargoes (IMSBC) Code.

Health hazards

4 Dangers from skin contact, inhalation, ingestion and radiation.

Conventions, regulations and recommendations

5 General familiarization with the relevant requirements of chapters II-2 and VII of the 1974 SOLAS Convention, as amended.

6 General use of and familiarization with the International Maritime Solid Bulk Cargoes (IMSBC) Code, with particular reference to:

.1 safety of personnel, including safety equipment, measuring instruments, their use and practical application and interpretation of results;

.2 hazards from cargoes which have a tendency to shift; and

.3 materials possessing chemical hazards.

SHIPBOARD APPLICATION

Class 4.1 – Flammable solids
Class 4.2 – Substances liable to spontaneous combustion
Class 4.3 – Substances which, in contact with water, emit flammable gases

7 Carriage, stowage and control of temperature to prevent decomposition and possible explosion; stowage categories; general stowage precautions, including those applicable to self-reactive and related substances; segregation requirements to prevent heating and ignition; the emission of poisonous or flammable gases and the formation of explosive mixtures.

Class 5.1 – Oxidizing substances

8 Carriage, stowage and control of temperature to prevent decomposition and possible explosion; stowage categories; general stowage precautions and segregation requirements to ensure separation from combustible material, from acids and heat sources to prevent fire, explosion and the formation of toxic gases.

Class 6.1 – Toxic substances

9 Contamination of foodstuffs, working areas and living accommodation and ventilation.

Class 7 – Radioactive material

10 Transport index; types of ores and concentrates; stowage and segregation from persons, undeveloped photographic film and plates and foodstuffs; stowage categories; general stowage requirements; special stowage requirements; segregation requirements and separation distances; segregation from other dangerous goods.

Class 8 – Corrosive substances

11 Dangers from wetted substances.

Class 9 – Miscellaneous dangerous substances and articles

12 Examples and associated hazards; the hazards of materials hazardous only in bulk (IMSBC Code); general and specific stowage precautions; working and transport precautions; segregation requirements.

Safety precautions and emergency procedures

13 Electrical safety in cargo spaces; precautions to be taken for entry into enclosed spaces that may contain oxygen-depleted, poisonous or flammable atmospheres; the possible effects of fire in shipments of substances of each class; use of the Emergency Response Procedures for Ships Carrying Dangerous Goods; emergency plans and procedures to be followed in case of incidents involving dangerous and hazardous substances and the use of individual entries in the International Maritime Solid Bulk Cargoes (IMSBC) Code, as appropriate, in this respect.

Medical first aid

14 The IMO Medical First Aid Guide for Use in Accidents Involving Dangerous Goods (MFAG) and its use and application in association with other guides and medical advice by radio.

Section B-V/c*
Guidance regarding training of officers and ratings responsible for cargo handling on ships carrying dangerous and hazardous substances in packaged form

1 Training should be divided into two parts, a general part on the principles involved and a part on the application of such principles to ship operation. All training and instruction should be given by properly qualified and suitably experienced personnel and cover at least the subjects given in paragraphs 2 to 19 hereunder.

PRINCIPLES

Characteristics and properties

2 The important physical characteristics and chemical properties of dangerous and hazardous substances, sufficient to give a basic understanding of the intrinsic hazards and risks involved.

Classification of dangerous and hazardous substances and materials possessing chemical hazards

3 IMO dangerous goods classes 1 to 9 and the hazards associated with each class.

Health hazards

4 Dangers from skin contact, inhalation, ingestion and radiation.

Conventions, regulations and recommendations

5 General familiarization with the relevant requirements of chapters II-2 and VII of the 1974 SOLAS Convention and of Annex III of MARPOL 73/78, including its implementation through the IMDG Code.

Use of and familiarization with the International Maritime Dangerous Goods (IMDG) Code

6 General knowledge of the requirements of the IMDG Code concerning declaration, documentation, packing, labelling and placarding; freight container and vehicle packing; portable tanks, tank containers and road tank vehicles, and other transport units used for dangerous substances.

7 Knowledge of identification, marking and labelling for stowage, securing, separation and segregation in different ship types mentioned in the IMDG Code.

8 Safety of personnel, including safety equipment, measuring instruments, their use and practical application and the interpretation of results.

* Note there are no corresponding regulations in the Convention or sections in part A of the Code for sections B-V/a, B-V/b, B-V/c, B-V/d, B-V/e, B-V/f and B-V/g.

SHIPBOARD APPLICATION

Class 1 – Explosives

9 The six hazard divisions and 13 compatibility groups; packagings and magazines used for carriage of explosives; structural serviceability of freight containers and vehicles; stowage provisions, including specific arrangements for on-deck and under-deck stowage; segregation from dangerous goods of other classes within class 1 and from non-dangerous goods; transport and stowage on passenger ships; suitability of cargo spaces; security precautions; precautions to be taken during loading and unloading.

Class 2 – Gases (compressed, liquefied, or dissolved under pressure), flammable, non-flammable, non-toxic and toxic

10 Types of pressure vessels and portable tanks, including relief and closing devices used; stowage categories; general stowage precautions, including those for flammable and poisonous gases and gases which are marine pollutants.

Class 3 – Flammable liquids

11 Packagings, tank containers, portable tanks and road tank vehicles; stowage categories, including the specific requirements for plastics receptacles; general stowage precautions, including those for marine pollutants; segregation requirements; precautions to be taken when carrying flammable liquids at elevated temperatures.

Class 4.1 – Flammable solids
Class 4.2 – Substances liable to spontaneous combustion
Class 4.3 – Substances which, in contact with water, emit flammable gases

12 Types of packagings; carriage and stowage under controlled temperatures to prevent decomposition and possible explosion; stowage categories; general stowage precautions, including those applicable to self-reactive and related substances, desensitized explosives and marine pollutants; segregation requirements to prevent heating and ignition, the emission of poisonous or flammable gases and the formation of explosive mixtures.

Class 5.1 – Oxidizing substances
Class 5.2 – Organic peroxides

13 Types of packagings; carriage and stowage under controlled temperatures to prevent decomposition and possible explosion; stowage categories; general stowage precautions, including those applicable to marine pollutants; segregation requirements to ensure separation from combustible material, from acids and heat sources to prevent fire, explosion and the formation of toxic gases; precautions to minimize friction and impact which can initiate decomposition.

Class 6.1 – Toxic substances
Class 6.2 – Infectious substances

14 Types of packagings; stowage categories; general stowage precautions, including those applicable to toxic, flammable liquids and marine pollutants; segregation requirements, especially considering that the characteristic common to these substances is their ability to cause death or serious injury to human health; decontamination measures in the event of spillage.

Class 7 – Radioactive material

15 Types of packagings; transport index in relation to stowage and segregation; stowage and segregation from persons, undeveloped photographic film and plates and foodstuffs; stowage categories; general stowage requirements; segregation requirements and separation distances; segregation from other dangerous goods.

Class 8 – Corrosive substances

16 Types of packagings; stowage categories; general stowage precautions, including those applicable to corrosive, flammable liquids and marine pollutants; segregation requirements, especially considering that the characteristic common to these substances is their ability to cause severe damage to living tissue.

Class 9 – Miscellaneous dangerous substances and articles

17 Examples of hazards, including marine pollution.

Safety precautions and emergency procedures

18 Electrical safety in cargo spaces; precautions to be taken for entry into enclosed spaces that may contain oxygen-depleted, poisonous or flammable atmospheres; the possible effects of spillage or fire in shipments of substances of each class; consideration of events on deck or below deck; use of the IMO Emergency Response Procedures for Ships Carrying Dangerous Goods; emergency plans and procedures to be followed in case of incidents involving dangerous substances.

Medical first aid

19 The IMO Medical First Aid Guide for Use in Accidents Involving Dangerous Goods (MFAG) and its use and application in association with other guides and medical advice by radio.

Section B-V/d[*]
Guidance on application of the provisions of the STCW Convention to mobile offshore units (MOUs)

1 The provisions of the STCW Convention apply to the maritime personnel of self-propelled MOUs proceeding on voyages.

[*] Note there are no corresponding regulations in the Convention or sections in part A of the Code for sections B-V/a, B-V/b, B-V/c, B-V/d, B-V/e, B-V/f and B-V/g.

2 The provisions of the STCW Convention do not apply to non-self-propelled MOUs or to MOUs on station.

3 When considering appropriate standards of training and certification when an MOU is on station, the country of registry should take account of relevant IMO recommendations. In particular, all maritime crew members on self-propelled MOUs and, where required, on other units should meet the requirements of the STCW Convention, as amended.

4 Self-propelled MOUs proceeding on international voyages are required to carry safe manning documents.

5 MOUs on station are subject to the national legislation of the coastal State in whose Exclusive Economic Zone (EEZ) they are operating. Such coastal States should also take account of relevant IMO recommendations and should not prescribe higher standards for MOUs registered in other countries than the standards applied to MOUs registered in that coastal State.

6 All special personnel employed on board MOUs (whether or not self-propelled) should be provided with appropriate familiarization and basic safety training in accordance with relevant IMO recommendations.

Section B-V/e[*]

Guidance regarding training and qualifications of masters and officers in charge of a navigational watch on board offshore supply vessels

1 It is important that masters and officers involved in offshore supply operations should have relevant experience or training before assuming their duties on offshore supply vessels. The focus should be on onboard operational experience or a combination of operational experience and simulator training.

2 Masters and officers should understand the unique manoeuvring and handling characteristics common to offshore supply vessels.

3 Prior to performing offshore supply operations, the master and officers should:

.1 have knowledge of the offshore industry and the terms used in the various operations;

.2 understand the importance of maintaining a safe working distance at all times when working in an offshore location/installation;

.3 have knowledge of vessel manoeuvring and station-keeping under various weather conditions;

.4 understand the specific design parameters of the vessels; and

.5 understand the need to have unrestricted oversight and views of work areas.

[*] Note there are no corresponding regulations in the Convention or sections in part A of the Code for sections B-V/a, B-V/b, B-V/c, B-V/d, B-V/e, B-V/f and B-V/g.

4 While on board an offshore supply vessel, the master and officers should:

.1 have knowledge of the handling characteristics and behaviour of vessels fitted with various propulsion arrangements; and

.2 be capable of operating the offshore supply vessel in close proximity to an offshore installation and other vessels.

5 Masters should understand the need for other personnel on board who are involved in performing offshore supply operations to be familiarized with their duties.

Offshore supply vessels performing anchor-handling operations

6 It is important that masters and officers in charge of a navigational watch on board supply vessels involved in anchor-handling operations have relevant experience and training.

7 Prior to performing anchor-handling operations, masters and officers in charge of a navigational watch should:

.1 be well informed of the ship's handling characteristics in relation to anchor-handling, including, but not limited to:

.1.1 navigation and position-holding,

.1.2 ship-handling,

.1.3 thorough knowledge of the stability of offshore supply vessels, in particular the combination of low angle of GZ_{max}, low open deck and large external forces. Use of loading calculators and the conflict between a rigid and stiff ship and good work environment on deck. Potential reduction of stability from use of anti-rolling devices, and

.1.4 operations in hazardous oil-field areas, including locating any pipelines or other structures on the seabed in the area where anchors or other mooring equipment is likely to be used; and

.2 be made thoroughly familiar with the use of all instruments and systems fitted in the ship concerned and involved in anchor-handling, including their capabilities and limitations, including, but not limited to:

.2.1 use of various thrusters, conventional or azimuth propulsion,

.2.2 pickup, handling, heavy lifting, towing out, anchor-handling and laying of anchors for offshore rigs, barges and installations,

.2.3 towing of rigs, barges and other vessels,

.2.4 operation of lifting and towing winches with up to 600 metric tons pull,

.2.5 detailed thorough knowledge of the basis of operation of towing- and anchor-handling winches; in particular, functions of load-limiting devices and release systems and associated equipment as towing pins and stoppers, and

.2.6 the significant difference between emergency release of towing hooks and winches.

8 Masters and officers in charge of a navigational watch in charge of anchor-handling should have sufficient and appropriate experience, either by having been supervised or trained in a simulator.

Section B-V/f[*]
Guidance on the training and experience for personnel operating dynamic positioning systems

1 Dynamic positioning is defined as the system whereby a self-propelled vessel's position and heading is automatically controlled by using its own propulsion units.

2 Personnel engaged in operating a Dynamic Positioning (DP) system should receive relevant training and practical experience. Theoretical elements of this training should enable Dynamic Positioning Operators (DPOs) to understand the operation of the DP system and its components. Knowledge, understanding and experience gained should enable personnel to operate vessels safely in DP, with due regard for safety of life at sea and protection of the marine environment.

3 The content of training and experience should include coverage of the following components of a DP system:

.1 DP control station;

.2 power generation and management;

.3 propulsion units;

.4 position reference systems;

.5 heading reference systems;

.6 environmental reference systems; and

.7 external force reference systems, such as hawser tension gauges.

[*] Note there are no corresponding regulations in the Convention or sections in part A of the Code for sections B-V/a, B-V/b, B-V/c, B-V/d, B-V/e, B-V/f and B-V/g.

4 Training and experience should cover the range of routine DP operations, as well as the handling of DP faults, failures, incidents and emergencies, to ensure that operations are continued or terminated safely. Training should not be limited to DPOs and DP masters only; other personnel on board, such as electro-technical and engineer officers, may require additional training and experience to ensure that they are able to carry out their duties on a DP vessel. Consideration should be given to conducting appropriate DP drills as a part of onboard training and experience. DPOs should be knowledgeable of the type and purpose of documentation associated with DP operations, such as operational manuals, Failure Modes and Effects Analysis (FMEAs) and capability plots.

5 All training should be given by properly qualified and suitably experienced personnel.

6 Upon appointment to a vessel operating in DP mode, the master, DPOs and other DP-trained personnel should be familiarized with the specific equipment fitted on and the characteristics of the vessel. Particular consideration should be given to the nature of the work of the vessel and the importance of the DP system to this work.

Section B-V/g[*]
Guidance regarding training of masters and officers for ships operating in polar waters[**]

1 It is important that masters, officers in charge of a navigational watch and officers in charge of an engineering watch on board ships operating in polar waters should have relevant experience and training, as follows:

.1 Prior to being assigned duties on board such ships:

.1.1 For masters and officers in charge of a navigational watch, the training should provide basic knowledge on at least the subjects given in paragraphs 2 to 11 hereunder, and

.1.2 For officers in charge of an engineering watch, the training should provide basic knowledge on at least the subjects given in paragraphs 3, 6, 10 and 11 hereunder.

.2 Masters and Chief Engineer Officers should have sufficient and appropriate experience in operating ships in polar waters.

Ice characteristics – ice areas

2 Interpretation of different ice-charts and awareness of limitations in meteorology and oceanography data, ice physics, formation, growth, ageing and stage of melt; ice types and concentrations; ice pressure; friction from snow-covered ice; implications of spray-icing and icing up; precautions against icing up and mitigation of consequences; ice regimes in different regions and different seasons, including the differences between the Arctic and the Antarctic;

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[*] Note there are no corresponding regulations in the Convention or sections in part A of the Code for sections B-V/a, B-V/b, B-V/c, B-V/d, B-V/e, B-V/f and B-V/g.

[**] Refer to resolution A.1024(26) on Guidelines for ships operating in polar waters.

recognition of consequences of rapid change in ice and weather conditions; movement of icebergs and pack ice.

Ship's performance in ice and cold climate

3 Vessel characteristics; vessel types, hull designs; ice-strengthening requirements; ice-class in different classification societies – polar class and local regulations; limitations of ice-classes; winterization and preparedness of vessel; low-temperature system performance.

Voyage and passage planning for a ship in ice[*]

4 Development of safe routeing and passage planning to avoid ice where possible, including interpreting various forms of ice imagery and data to assist in the preparation of a strategic passage planning; entering ice from open water to avoid icebergs and dangerous ice conditions; navigation, determining when it is safe or not safe to enter areas containing ice or icebergs due to darkness, swell, fog or pressure ice.

Operating and handling a ship in ice

5 Preparations and risk assessment before approaching ice-infested waters; unassisted operation of vessels with different ice-class in different ice-types; safe speed in the presence of ice and icebergs; communications with an icebreaker and other vessels; navigation in various ice concentrations and coverage; awareness of the increase in energy of movement; use of icebergs for shelter and access through packed ice.

6 Use of different type of propulsion system and rudder, including awareness of system strength and capacity limitations; use of heeling and trim systems, engine loads and cooling problems.

Regulations and recommendations

7 Local requirements for entering different regions, including the Antarctic Treaty; international regulations and recommendations.

Equipment limitations

8 Use of and hazards associated with terrestrial navigational aids in polar waters; high-latitude compass errors; discrimination of radar targets and ice-features in ice-clutter; limitations of electronic positioning systems at high latitude; limitations in nautical charts and pilot descriptions; limitations in communication systems.

Safety precautions and emergency procedures

9 Availability of hydrographic data sufficient for safe navigation; precautions when navigating in poorly charted waters; limitations of search and rescue readiness and responsibility, including GMDSS area A4 and its SAR communication facility limitation; awareness of contingency planning; knowledge of towing procedures; value of contact with other ships and

[*] Refer to resolution A.999(25) on Guidelines on voyage planning for passenger ships operating in remote areas.

local SAR organization; recognizing dangers when crews are exposed to low temperatures; procedures and techniques for abandoning the ship and survival on the ice; crew-fatigue problems due to noise and vibrations; carriage of additional resources such as bunkers, food and extra clothing; awareness of the additional severity of consequences of incidents in polar waters.

10 Establishing safe working procedures; awareness of the most common hull and equipment damage and how to avoid them; fire-fighting systems limitations.

Environmental considerations

11 Sensitive sea areas regarding discharge; areas where shipping is prohibited or should be avoided; special areas in MARPOL; oil-spill equipment limitations; plan for coping with increased volumes of garbage, bilge water, sludge, sewage, etc.; consequences of pollution in a cold climate.

CHAPTER VI

Guidance regarding emergency, occupational safety, security, medical care and survival functions

Section B-VI/1
Guidance regarding mandatory requirements for safety familiarization and basic training and instruction for all seafarers

FIRE PREVENTION AND FIRE FIGHTING

1 The training in fire prevention and fire fighting required by section A-VI/1 should include at least the theoretical and practical elements itemized in paragraphs 2 to 4 hereunder*.

Theoretical training

2 The theoretical training should cover:

.1 the three elements of fire and explosion (the fire triangle): fuel; source of ignition; oxygen;

.2 ignition sources: chemical; biological; physical;

.3 flammable materials: flammability; ignition point; burning temperature; burning speed; thermal value; lower flammable limit (LFL); upper flammable limit (UFL); flammable range; inerting; static electricity; flashpoint; auto-ignition;

.4 fire hazard and spread of fire by radiation, convection and conduction;

.5 reactivity;

.6 classification of fires and applicable extinguishing agents;

.7 main causes of fire on board ships: oil leakage in engine-room; cigarettes; overheating (bearings); galley appliances (stoves, flues, fryers, hotplates, etc.); spontaneous ignition (cargo, wastes, etc.); hot work (welding, cutting, etc.); electrical apparatus (short circuit, non-professional repairs); reaction, self-heating and auto-ignition; arson; static electricity;

.8 fire prevention;

.9 fire- and smoke-detection systems; automatic fire alarms;

* The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

.10 fire-fighting equipment, including:

.10.1 fixed installations on board and their locations; fire mains, hydrants; international shore connection; smothering installations, carbon dioxide (CO_2), foam; pressure water spray system in special category spaces, etc.; automatic sprinkler system; emergency fire pump; emergency generator; chemical powder applicants; general outline of required and available mobile apparatus; high-pressure fog system; high-expansion foam; new developments and equipment,

.10.2 firefighter's outfit, personal equipment; breathing apparatus; resuscitation apparatus; smoke helmet or mask; fireproof lifeline and harness; and their location on board, and

.10.3 general equipment, including fire hoses, nozzles, connections, fire axes; portable fire extinguishers; fire blankets;

.11 construction and arrangements, including escape routes; means for gas-freeing tanks; Class A, B and C divisions; inert gas systems;

.12 ship fire-fighting organization, including general alarm; fire control plans, muster stations and duties of individuals; communications, including ship–shore when in port; personnel safety procedures; periodic shipboard drills; patrol systems;

.13 practical knowledge of resuscitation methods;

.14 fire-fighting methods, including sounding the alarm; locating and isolating; jettisoning; inhibiting; cooling; smothering; extinguishing; reflash watch; smoke extraction; and

.15 fire-fighting agents, including water, solid jet, spray, fog, flooding; high-, medium- and low-expansion foam; carbon dioxide (CO_2); aqueous-film-forming foam (AFFF); dry chemical powder; new developments and equipment.

Practical training

3 The practical training given below should take place in spaces which provide truly realistic training conditions (e.g., simulated shipboard conditions), and whenever possible and practical should also be carried out in darkness as well as by daylight and should allow the trainees to acquire the ability to:

.1 use various types of portable fire extinguishers;

.2 use self-contained breathing apparatus;

.3 extinguish smaller fires, e.g., electrical fires, oil fires and propane fires;

.4 extinguish extensive fires with water (jet and spray nozzles);

.5 extinguish fires with either foam, powder or any other suitable chemical agent;

.6 enter and pass through, with lifeline but without breathing apparatus, a compartment into which high-expansion foam has been injected;

.7 fight fire in smoke-filled enclosed spaces, wearing self-contained breathing apparatus;

.8 extinguish fire with water fog or any other suitable fire-fighting agent in an accommodation room or simulated engine-room with fire and heavy smoke;

.9 extinguish an oil fire with fog applicator and spray nozzles; dry chemical powder or foam applicators;

.10 effect a rescue in a smoke-filled space, wearing breathing apparatus.

General

4 Trainees should also be made aware of the necessity of maintaining a state of readiness on board.

ELEMENTARY FIRST AID*

5 The training in elementary first aid required by regulation VI/1 as part of the basic training should be given at an early stage in vocational training, preferably during pre-sea training, to enable seafarers to take immediate action upon encountering an accident or other medical emergency until the arrival of a person with first-aid skills or the person in charge of medical care on board.

PERSONAL SAFETY AND SOCIAL RESPONSIBILITIES*

6 Administrations should bear in mind the significance of communication and language skills in maintaining safety of life and property at sea and in preventing marine pollution. Given the international character of the maritime industry, the reliance on voice communications from ship to ship and from ship to shore, the increasing use of multinational crews, and the concern that crew members should be able to communicate with passengers in an emergency, adoption of a common language for maritime communications would promote safe practice by reducing the risk of human error in communicating essential information.

7 Although not universal, by common practice English is rapidly becoming the standard language of communication for maritime safety purposes, partly as a result of the use of the IMO Standard Marine Communication Phrases.

* The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

8 Administrations should consider the benefits of ensuring that seafarers have an ability to use at least an elementary English vocabulary, with an emphasis on nautical terms and situations.

Section B-VI/2
Guidance regarding certification for proficiency in survival craft, rescue boats and fast rescue boats

1 Before training is commenced, the requirement of medical fitness, particularly regarding eyesight and hearing, should be met by the candidate.

2 The training should be relevant to the provisions of the International Convention for the Safety of Life at Sea (SOLAS), as amended*.

3 Parties may also accept onboard training and experience (such as participation in drills) for maintaining the required standard of competence of table A-VI/2-1, in the areas outlined in section A-VI/2, paragraphs 6.1.2, 6.1.3, 6.1.4, 6.2.1, and 10.1.5. Administrations should bear in mind that onboard training in these areas can only be carried out under good weather conditions and port regulations permitting.

Section B-VI/3
Guidance regarding training in advanced fire fighting

(No provisions)

Section B-VI/4
Guidance regarding requirements in medical first aid and medical care

1 Training programmes for seafarers designated to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/4-1 to provide medical first aid on board ship should take into account guidance in the revised International Medical Guide for Ships, as appropriate.

Section B-VI/5
Guidance regarding training and certification for ship security officers

1 The training should be relevant to the provisions of the ISPS Code and the SOLAS Convention, as amended.*

2 On completion of training, a ship security officer should have adequate knowledge of the English language to correctly interpret and communicate messages relevant to ship or port facility security.

* The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

3 In circumstances of exceptional necessity, when a person holding a certificate of proficiency as a ship security officer is temporarily unavailable, the Administration may permit a seafarer having specific security duties and responsibilities and an understanding of the ship security plan to serve as ship security officer and to execute all duties and responsibilities of the ship security officer until the next port of call or for a period not exceeding 30 days, whichever is greater. The company should, as soon as possible, inform the competent authorities of the next port(s) of call of the arrangements in place.

Section B-VI/6

Guidance regarding mandatory minimum requirements for security-related training and instruction for all seafarers

Familiarization and security-awareness

1 Seafarers and shipboard personnel are not security experts and it is not the aim of the provisions of the Convention or this Code to convert them into security specialists.

2 Seafarers and shipboard personnel should receive adequate security-related training or instruction and familiarization training so as to acquire the required knowledge and understanding to perform their assigned duties and to collectively contribute to the enhancement of maritime security.

3 Seafarers without designated security duties should complete the security awareness training or instruction set out in section A-VI/6 at least one time in their career. There is no need for refreshment or revalidation of this training if the seafarer or the shipboard personnel concerned meet the security-related familiarization requirements of regulation VI/6 and participate in the drills and exercises required by the ISPS Code.

Seafarers with designated security duties

4 The expression “with designated security duties” in section A-VI/6 denotes those having specific security duties and responsibilities in accordance with the ship security plan.

5 Seafarers with designated security duties should complete the training as set out in section A-VI/6 at least one time in their career. There is no need for refreshment or revalidation of this training if the seafarer or the shipboard personnel concerned meet the security-related familiarization requirements of regulation VI/6 and participate in the drills and exercises required by the ISPS Code.

6 Those providing “security-related familiarization training” in accordance with section A-VI/6 should not be required to meet the requirements of either regulation I/6 or of section A-I/6.

7 In circumstances of exceptional necessity, when the shipboard security-related duties are required to be undertaken by a person qualified to perform designated security-related duties and such a person is temporarily unavailable, the Administration may permit a seafarer without designated security duties to perform such duties provided such a person has an understanding of the ship security plan, until the next port of call or for a period not exceeding 30 days, whichever is greater.

CHAPTER VII

Guidance regarding alternative certification

Section B-VII/1
Guidance regarding the issue of alternative certificates

(No provisions)

Section B-VII/2
Guidance regarding special integrated deck and engine training programmes

1 Each Party should ensure that any special integrated deck and engine training programme:

.1 is provided by means of an approved training programme;

.2 takes place ashore within maritime training institutions and/or on board approved training ships; and

.3 is documented in an approved training record book.

Section B-VII/3
Guidance regarding principles governing the issue of alternative certificates

(No provisions)

CHAPTER VIII

Guidance regarding watchkeeping

Section B-VIII/1
Guidance regarding fitness for duty

Prevention of fatigue

1 In observing the rest period requirements, "overriding operational conditions" should be construed to mean only essential shipboard work which cannot be delayed for safety or environmental reasons or which could not reasonably have been anticipated at the commencement of the voyage.

2 Although there is no universally accepted technical definition of fatigue, everyone involved in ship operations should be alert to the factors which can contribute to fatigue, including, but not limited to, those identified by the Organization*, and take them into account when making decisions on ship operations.

3 In applying regulation VIII/1, the following should be taken into account:

.1 provisions made to prevent fatigue should ensure that excessive or unreasonable overall working hours are not undertaken. In particular, the minimum rest periods specified in section A-VIII/1 should not be interpreted as implying that all other hours may be devoted to watchkeeping or other duties;

.2 the frequency and length of leave periods, and the granting of compensatory leave, are material factors in preventing fatigue from building up over a period of time; and

.3 the provisions may be varied for ships on short sea voyages, provided special safety arrangements are put in place.

[3*bis* Exceptions provided for in section A-VIII/1, paragraph 9, should be construed to mean the exceptions laid down by the ILO Convention on Seafarers' Hours of Work and the Manning of Ships, 1996 (No.180) or the Maritime Labour Convention, 2006, when it enters into force. The circumstances under which such exceptions are applied should be defined by the Parties.]

4 Based on information received as a result of investigating maritime casualties, Administrations should keep their provisions on prevention of fatigue under review.

* See the annex to IMO resolution A.772(18), paragraphs 2 to 4.4.1 and MSC/Circ.1014.

Prevention of drug and alcohol abuse

5 Drug and alcohol abuse directly affect the fitness and ability of a seafarer to perform watchkeeping duties or duties that involve designated safety, prevention of pollution and security duties. Seafarers found to be under the influence of drugs or alcohol should not be permitted to perform watchkeeping duties or duties that involve designated safety, prevention of pollution and security duties, until they are no longer impaired in their ability to perform those duties.

6 Administrations should ensure that adequate measures are taken to prevent alcohol and drugs from impairing the ability of watchkeeping personnel and those whose duties involve designated safety, prevention of pollution and security duties, and should establish screening programmes as necessary which:

.1 identify drug and alcohol abuse;

.2 respect the dignity, privacy, confidentiality and fundamental legal rights of the individuals concerned; and

.3 take into account relevant international guidelines.

7 Companies should consider the implementation of a clearly written policy of drug and alcohol abuse prevention, including prohibition to consume alcohol within four hours prior to serving as a member of a watch either by inclusion in the company's quality-management system or by means of providing adequate information and education to the seafarers.

8 Those involved in establishing drug and alcohol abuse prevention programmes should take into account the guidance contained in the ILO publication *Drug and Alcohol Prevention Programmes in the Maritime Industry (A Manual for Planners)*[*], as may be amended.

Section B-VIII/2
Guidance regarding watchkeeping arrangements and principles to be observed

1 The following operational guidance should be taken into account by companies, masters and watchkeeping officers.

PART 1 – GUIDANCE ON CERTIFICATION

(No provisions)

PART 2 – GUIDANCE ON VOYAGE PLANNING

(No provisions)

[*] Annex III of this manual includes "Guiding Principles on Drug and Alcohol Testing procedures for Worldwide Application in the Maritime Industry". These guiding principles were adopted by the Joint ILO/WHO Committee on the Health of Seafarers (May 1993).

PART 3 – WATCHKEEPING PRINCIPLES IN GENERAL

(No provisions)

PART 4 – GUIDANCE ON WATCHKEEPING AT SEA

Part 4-1 – Guidance on keeping a navigational watch

Introduction

2 Particular guidance may be necessary for special types of ships as well as for ships carrying hazardous, dangerous, toxic or highly flammable cargoes. The master should provide this operational guidance as appropriate.

3 It is essential that officers in charge of the navigational watch appreciate that the efficient performance of their duties is necessary in the interests of the safety of life and property at sea and of preventing pollution of the marine environment.

Anchor watch

4 The master of every ship at an unsheltered anchorage, at an open roadstead or any other virtually "at sea" conditions in accordance with chapter VIII, section A-VIII/2, part 4-1, paragraph 51 of the STCW Code, should ensure that watchkeeping arrangements are adequate for maintaining a safe watch at all times. A deck officer should at all times maintain responsibility for a safe anchor watch.

5 In determining the watchkeeping arrangements, and commensurate with maintaining the ship's safety and security and the protection of the marine environment, the master should take into account all pertinent circumstances and conditions such as:

.1 maintaining a continuous state of vigilance by sight and hearing as well as by all other available means;

.2 ship-to-ship and ship-to-shore communication requirements;

.3 the prevailing weather, sea, ice and current conditions;

.4 the need to continuously monitor the ship's position;

.5 the nature, size and characteristics of anchorage;

.6 traffic conditions;

.7 situations which might affect the security of the ship;

.8 loading and discharging operations;

.9 the designation of stand-by crew members; and

.10 the procedure to alert the master and maintain engine readiness.

Part 4-2 – Guidance on keeping an engineering watch

6 Particular guidance may be necessary for special types of propulsion systems or ancillary equipment and for ships carrying hazardous, dangerous, toxic or highly flammable materials or other special types of cargo. The chief engineer officer should provide this operational guidance as appropriate.

7 It is essential that officers in charge of the engineering watch appreciate that the efficient performance of engineering watchkeeping duties is necessary in the interest of the safety of life and property at sea and of preventing pollution of the marine environment.

8 The relieving officer, before assuming charge of the engineering watch, should:

.1 be familiar with the location and use of the equipment provided for the safety of life in a hazardous or toxic environment;

.2 ascertain that materials for the administration of emergency medical first aid are readily available, particularly those required for the treatment of burns and scalds; and

.3 when in port, safely anchored or moored, be aware of:

.3.1 cargo activities, the status of maintenance and repair functions and all other operations affecting the watch, and

.3.2 the auxiliary machinery in use for passenger or crew accommodation services, cargo operations, operational water supplies and exhaust systems.

Part 4-3 – Guidance on keeping a radio watch

General

9 Among other things, the Radio Regulations require that each ship radio station is licensed, is under the ultimate authority of the master or other person responsible for the ship and is only operated under the control of adequately qualified personnel. The Radio Regulations also require that a distress alert shall only be sent on the authority of the master or other person responsible for the ship.

10 The master should bear in mind that all personnel assigned responsibility for sending a distress alert must be instructed with regard to, be knowledgeable of, and be able to operate properly all radio equipment on the ship, as required by regulation I/14, paragraph 1.5. This should be recorded in the deck or radio log-book.

Watchkeeping

11 In addition to the requirements concerning radio watchkeeping, the master of every seagoing ship should ensure that:

.1 the ship's radio station is adequately manned for the purpose of exchanging general communications – in particular public correspondence, taking into account the constraints imposed by the duties of those authorized to operate it; and

.2 the radio equipment provided on board and, where fitted, the reserve sources of energy are maintained in an efficient working condition.

12 Necessary instruction and information on use of radio equipment and procedures for distress and safety purposes should be given periodically to all relevant crew members by the person designated in the muster list to have primary responsibility for radiocommunications during distress incidents. This should be recorded in the radio log.

13 The master of every ship not subject to the SOLAS Convention should require that radio watchkeeping is adequately maintained as determined by the Administration, taking into account the Radio Regulations.

Operational

14 Prior to sailing, the radio operator designated as having primary responsibility for radiocommunications during distress incidents should ensure that:

.1 all distress and safety radio equipment and the reserve source of energy are in an efficient working condition, and that this is recorded in the radio log;

.2 all documents required by international agreement, notices to ship radio stations and additional documents required by the Administration are available and are corrected in accordance with the latest supplements, and that any discrepancy is reported to the master;

.3 the radio clock is correctly set against standard time signals;

.4 antennae are correctly positioned, undamaged and properly connected; and

.5 to the extent practicable, routine weather and navigational warning messages for the area in which the ship will be navigating are updated together with those for other areas requested by the master, and that such messages are passed to the master.

15 On sailing and opening the station, the radio operator on watch should:

.1 listen on the appropriate distress frequencies for any possible existing distress situation; and

.2 send a traffic report (name, position and destination, etc.) to the local coast station and any other appropriate coast station from which general communications may be expected.

16 While the station is open, the radio operator on watch should:

.1 check the radio clock against standard time signals at least once a day;

.2 send a traffic report when entering and on leaving the service area of a coast station from which general communications might be expected; and

.3 transmit reports to ship reporting systems in accordance with the instructions of the master.

17 While at sea, the radio operator designated as having primary responsibility for radiocommunications during distress incidents should ensure the proper functioning of:

.1 the digital selective calling (DSC) distress and safety radio equipment by means of a test call at least once each week; and

.2 the distress and safety radio equipment by means of a test at least once each day but without radiating any signal.

The results of these tests should be recorded in the radio log.

18 The radio operator designated to handle general communications should ensure that an effective watch is maintained on those frequencies on which communications are likely to be exchanged, having regard to the position of the ship in relation to those coast stations and to coast earth stations from which traffic may be expected. When exchanging traffic, radio operators should follow the relevant ITU recommendations.

19 When closing the station on arrival at a port, the radio operator on watch should advise the local coast station and other coast stations with which contact has been maintained of the ship's arrival and of the closing of the station.

20 When closing the radio station, the radio operator designated as having primary responsibility for radiocommunications during distress incidents should:

.1 ensure that transmitting antennae are earthed; and

.2 check that the reserve sources of energy are sufficiently charged.

Distress alerts and procedures

21 The distress alert or distress call has absolute priority over all other transmissions. All stations which receive such signals are required by the Radio Regulations to immediately cease all transmissions capable of interfering with distress communications.

22 In the case of a distress affecting own ship, the radio operator designated as having primary responsibility for radiocommunications during distress incidents should immediately assume responsibility for following the procedures of the Radio Regulations and relevant ITU-R Recommendations.

23 On receiving a distress alert:

.1 the radio operator on watch should alert the master and, if appropriate, the radio operator designated as having primary responsibility for radiocommunications during distress incidents; and

.2 the radio operator designated as having primary responsibility for radiocommunications during distress incidents should evaluate the situation and immediately assume responsibility for following the procedures of the Radio Regulations and relevant ITU-R Recommendations.

Urgency messages

24 In cases of urgency affecting own ship, the radio operator designated as having responsibility for radiocommunications during distress incidents should immediately assume responsibility for following the procedures of the Radio Regulations and relevant ITU-R Recommendations.

25 In cases of communications relating to medical advice, the radio operator designated as having primary responsibility for radiocommunications during distress incidents should follow the procedures of the Radio Regulations and adhere to the conditions as published in the relevant international documentation (see paragraph 14.2) or as specified by the satellite service provider.

26 In cases of communications relating to medical transports, as defined in the Protocol additional to the Geneva Conventions of 12 August 1949, and relating to the protection of victims of international armed conflicts (Protocol I), the radio operator designated as having primary responsibility for radiocommunication during distress incidents should follow the procedures of the Radio Regulations.

27 On receiving an urgency message, the radio operator on watch should alert the master and, if appropriate, the radio operator designated as having primary responsibility for radiocommunications during distress incidents.

Safety messages

28 When a safety message is to be transmitted, the master and the radio operator on watch should follow the procedures of the Radio Regulations.

29 On receiving a safety message, the radio operator on watch should note its content and act in accordance with the master's instructions.

30 Bridge-to-bridge communications should be exchanged on VHF channel 13. Bridge-to-bridge communications are described as "Intership Navigation Safety Communications" in the Radio Regulations.

Radio records

31 Additional entries in the radio log should be made in accordance with paragraphs 10, 12, 14, 17 and 33.

32 Unauthorized transmissions and incidents of harmful interference should, if possible, be identified, recorded in the radio log and brought to the attention of the Administration in compliance with the Radio Regulations, together with an appropriate extract from the radio log.

Battery maintenance

33 Batteries providing a source of energy for any part of the radio installation, including those associated with uninterrupted power supplies, are the responsibility of the radio operator designated as having primary responsibility for radiocommunications during distress incidents and should be:

.1 tested on-load and off-load daily and, where necessary, brought up to the fully charged condition;

.2 tested once per week by means of a hydrometer where practicable, or, where a hydrometer cannot be used, by a suitable load test; and

.3 checked once per month for the security of each battery and its connections and the condition of the batteries and their compartment or compartments.

The results of these tests should be recorded in the radio log.

PART 5 – GUIDANCE ON WATCHKEEPING IN PORT

(No provisions)