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"Proposal for Amendments to the STCW Convention for the Safe Operation of Ammonia-Fueled Ships"

INDEX

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The Mock IMO Assembly

Chapter 1

BACKGROUND

Introduction of ammonia-powered ships

1

Strengthening Environmental Regulations

2

Clean Fuel

3

Fuel Costs

4

Market Accessibility

Constant ammonia leakage accidents

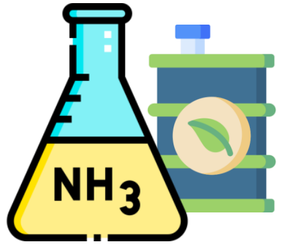
Chapter 2

PROBLEM ANALYSIS

Lack of education and awarness of ammonia- powered ship

Ammonia concentration (ppm)	Symptoms
10	Some negative effects at long term exposure
15	Smell threshold for human beings
20	Eye irritation for broilers
20–40	Increase of respiratory diseases
25–35	Stockmen feel uncomfortable
50	Disturbance of productive capacity; Water flows from the eyes
50–150	Decrease of young pig growth by 12– 29%
70	Reduced daily gain and poor feed conversion
100–200	Irritation and anorexia
5000	Deadly within a few minutes

The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers



Lack of STCW regulations for ammonia-powered ships

1	2	3	4
Delay in Adoption of New Technologies	Safety Concerns	Need for Technological Standardization	Changes in Environmental Regulations

Need of STCW Amendment Proposal

4 The current STCW Code includes a series of competences that reference the IGF Code. If ammonia is incorporated as a fuel under the IGF Code, then it will be essential for the STCW Code to appropriately cross-reference the relevant sections of the IGF Code concerning ammonia. However, since the inclusion of ammonia in the IGF Code is still under discussion by IMO, an interim solution is necessary. Ammonia as a marine fuel is being addressed under the interim guidelines text, which is why the STCW Code should temporarily reference these guidelines on ammonia as a marine fuel, as developed by the Organization. Table 1 below covers the cross-references between the STCW and IGF Codes.

PROBLEM ANAYSIS

Adding regulations related to ammonia-powered vessels as STCW is getting to be amended

Comprehensive review of the STCW Convention and Code

The Maritime Safety Committee, at its 105th session in 2022, agreed to conduct a comprehensive review of the STCW Convention and Code and instructed HTW 9 to commence this work.

Following initial discussion in plenary, and the progress made in the working group established at this session, the Sub-Committee instructed the Correspondence Group on the Review of the STCW Convention and Code to identify the specific areas to be reviewed and to prepare a roadmap for the review. As requested by the MSC, the Sub-Committee agreed that discussions on measures to ensure the quality of onboard training; and on measures to facilitate mandatory seagoing service, as required by the STCW Convention, should be included in the comprehensive review of the Convention.

The Sub-Committee considered and agreed to aims and principles to guide the review.

Chapter 3

PROPOSAL

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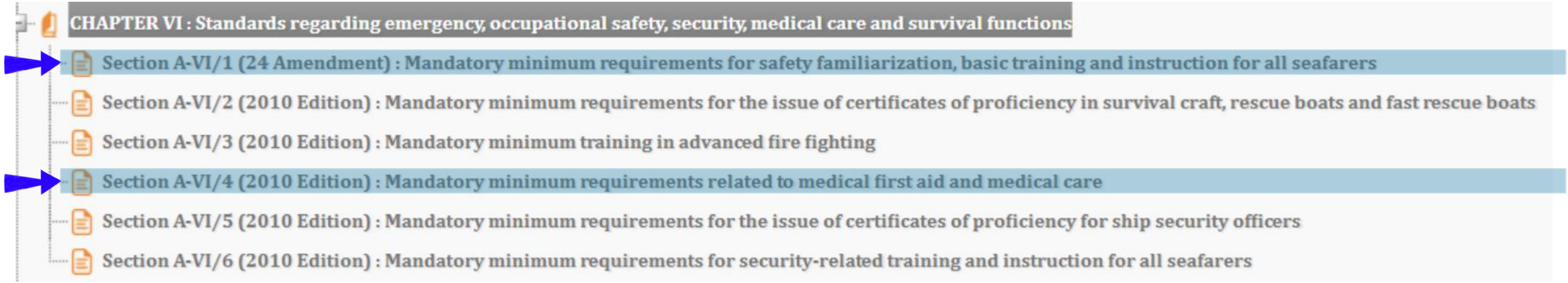
1. STCW Code Part A Chapter VI :Standards regarding regarding emergency, occupational safety, security, medical care and survival functions

2. STCW Code Part A Chapter V :Standards regarding special training requirements for personnel on certain types of ships

3. STCW Code Part A Chapter II :Standards regarding the master and deck department
STCW Code Part A Chapter III :Standards regarding engine department

STCW Code Part A Chapter VI :Standards regarding regarding emergency, occupational safety, security, medical care and survival functions



Additional regulations for each section

Section A-VI/1 Mandatory minimum requirements for safety familiarization, basic training and instruction for all seafarers

1. Mandatory minimum requirements for all crew members
2. Training content
- Actions in the event of an ammonia leak
- Proper use of protective equipment and firefighting gear
- Emergency response training
3. Safety familiarization training
- Properties of ammonia and liquefied gas
- Dangers of equipment mishandling

Fire Prevention and Fire Fighting
(Model course 1.20) (2023 Edition)

This course provides mandatory minimum training in fire prevention and fire fighting and is based on the provisions of table A-VI/1-2 of the STCW Code.

Section A-VI/4 Mandatory minimum requirements related to medical first aid and medical care

1. Medical training for ammonia toxicity
2. Emergency medical equipment and use

Medical Management Guidelines for Ammonia

(NH_3)

CAS# 7664-41-7
UN# 2672 (between 12% and 44% solution), 2073 (>44% solution), 1005 (anhydrous gas or >50% solution)

PDF Version [183 KB]

Medical First Aid

(Model course 1.14 plus compendium) (2000 Edition)

This model course provides training in elementary first aid at operator's level and is based on the provisions of table A-VI/4-1 of the STCW Code.

English **TA114E** ISBN 978-92-801-61182 French **ETA114F** ISBN 978-92-801-41436 Spanish **ETA114S** ISBN 978-92-801-01034

Format: A4

Medical Care

(Model course 1.15 plus compendium) (2000 Edition)

This two-volume model course provides training in elementary first aid at management level and is based on the provisions of table A-VI/4-2 of the STCW Code.

Table A-VI/4-1

Specification of minimum standard of competence in medical first aid

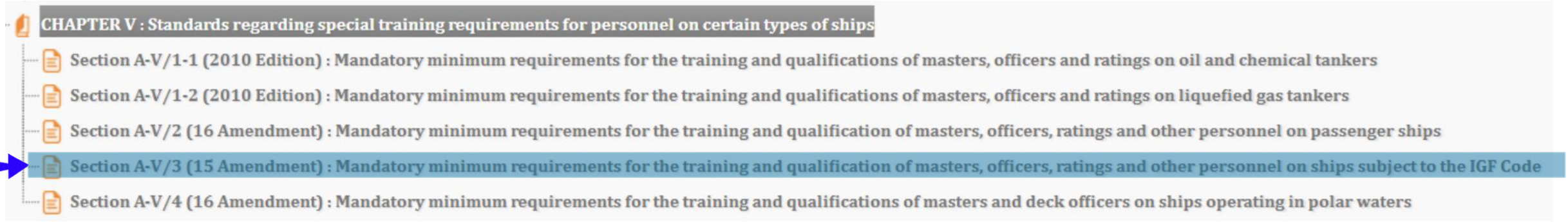
Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Method for demonstrating competence**	**Criteria for evaluating competence**
Apply immediate first aid in the event of accident or illness on board	First-aid kit Body structure and function Toxicological hazards on board, including use of the Medical First Aid Guide for Use in Accidents Involving Dangerous Goods (MFAG) or its national equivalent Examination of casualty or patient Spinal injuries Burns, scalds and effects of heat and cold Fractures, dislocations and muscular injuries Medical care of rescued persons Radio medical advice Pharmacology Sterilization Cardiac arrest, drowning and asphyxia	Assessment of evidence obtained from practical instruction	The identification of probable cause, nature and extent of injuries is prompt, complete and conforms to current first-aid practice Risk of harm to self and to others is minimized at all times Treatment of injuries and the patient's condition is appropriate and conforms to recognized first-aid practice and international guidelines

Table A-VI/4-2

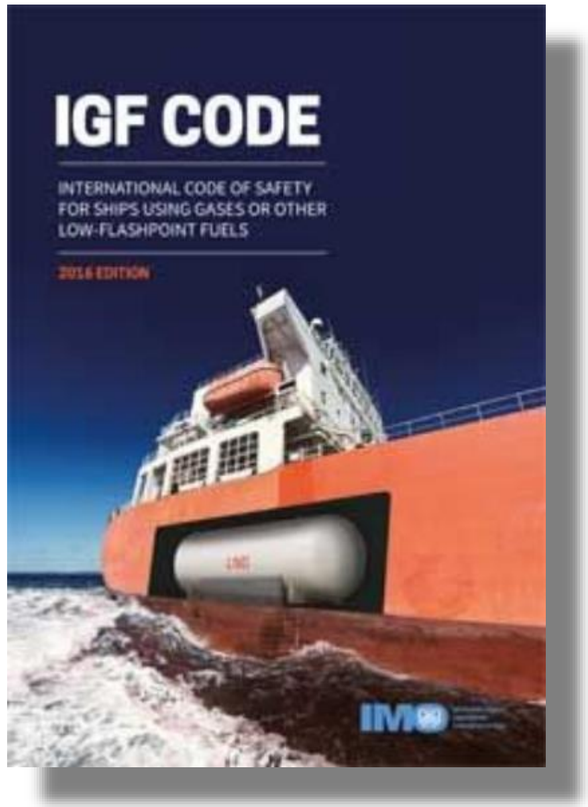
Specification of minimum standard of competence in medical care

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Method for demonstrating competence**	**Criteria for evaluating competence**
Provide medical care to the sick and injured while they remain on board	Care of casualty involving: .1 head and injuries .2 injuries of ear, nose, throat and eyes .3 external and internal bleeding .4 burns, scalds and frostbite .5 fractures, dislocations and muscular injuries .6 wounds, wound healing and infection .7 pain relief .8 techniques of sewing and clamping .9 management of acute abdominal conditions .10 minor surgical treatment .11 dressing and bandaging Aspects of nursing: .1 general principles .2 nursing care	Assessment of evidence obtained from practical instruction and demonstration Where practicable, approved practical experience at a hospital or similar establishment	Identification of symptoms is based on the concepts of clinical examination and medical history Protection against infection and spread of diseases is complete and effective Personal attitude is calm, confident and reassuring Treatment of injury or condition is appropriate and conforms to accepted medical practice and relevant national and international medical guides The dosage and application of drugs and medication complies with manufacturers' recommendations and accepted medical practice The significance of changes in patient's condition is promptly recognized

STCW Code Part A Chapter V :Standards regarding special training requirements for personnel on certain types of ships

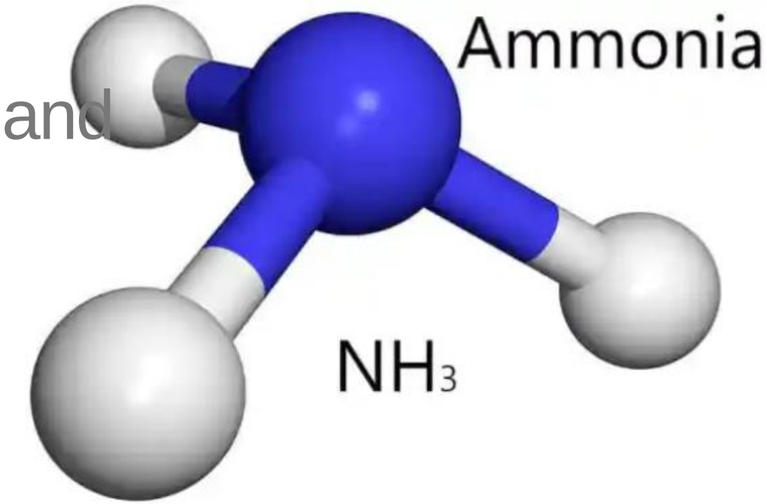


Need for specific regulations for ammonia fueled ship



I. Requirements of understanding the characteristics of the fuel used in ammonia-fueled vessels

- Basic knowledge of the physical properties of ammonia and operations that help prevent risks
- Basic knowledge of ammonia fueled ship and the fuel systems, fuel storage



II. Requirements of understanding the operation of equipment specific to ammonia-fueled vessels

- Knowledge of the function of ammonia gas detector
- Understanding of working safety procedures and practices that follow the industry guideline

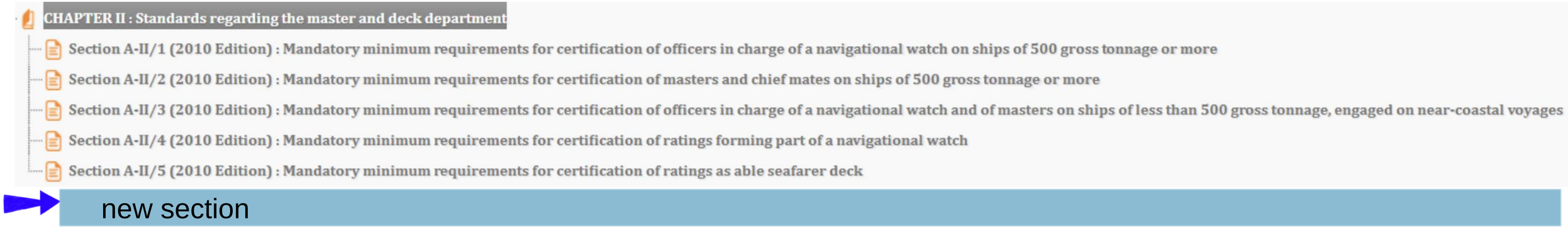
III. Requirements of understanding the fuel supply for ammonia-fueled vessels

- Knowledge of bunkering plan and execution according to the fuel transfer safety manual and procedures
- Understanding of emergency procedures to prevent environmental pollution

IV. Requirements of understanding actions and equipment usage in emergency situations

- Basic knowledge of proper use of safety equipment and protective equipment
- Basic knowledge of the action to be taken in a situation of ammonia leakage/spill

STCW Code Part A Chapter II :Standards regarding the master deck department



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Section A-II/6

Mandatory minimum requirements for certification of deck officers and ratings on ships subject to the IGF code

STCW Code Part A Chapter II : A-II/6

The ships subject to IGF code should generally follow the content of A-II/1 to A-II/5 but they should have additional requirements.

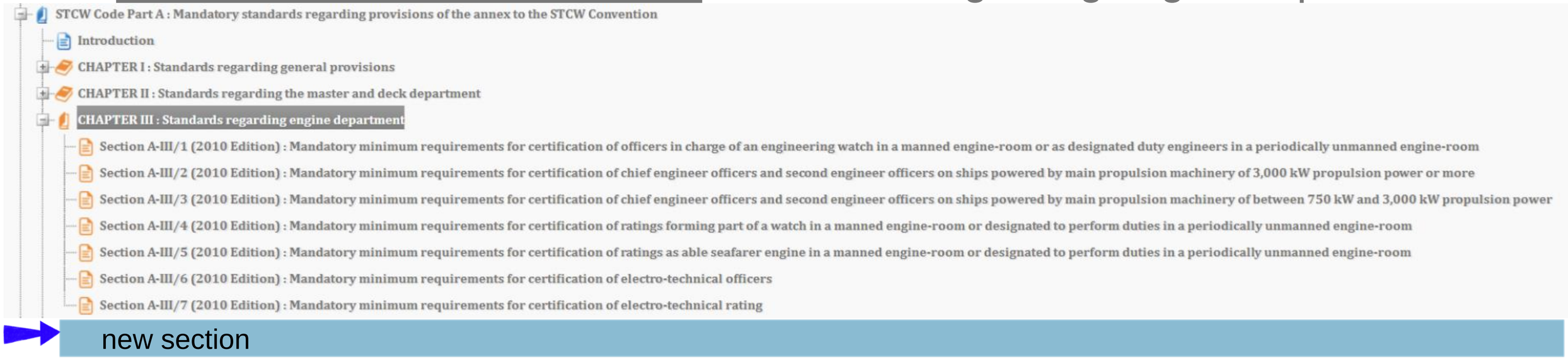
Regulations for accident preventing

- Understanding the hazards and handling precautions of ammonia fuel
- Prevention of marine environmental pollution caused by fuel

Regulations for emergency situations

- Understanding of emergency procedures and devices
- Knowledge of fire prevention, control, and extinguishing measures
- Knowledge of medical first aid procedures for ammonia exposure according to section A-VI/4

STCW Code Part A Chapter III :Standards regarding engine department



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Section A-III/8

Mandatory minimum requirements for certification of engineer officers and ratings on ships subject to the IGF code

STCW Code Part A Chapter III : A-III/8

The ships subject to IGF code should generally follow the content of A-III/1 to A-III/7 but they should have additional requirements.

Regulations for accident preventing

- Completion of training outlined in section A-V/3
- Familiarity with the operation of the ammonia fuel control system.
- Checking the status of the BPCS
- Preparation of the Planned Maintenance System (PMS)
- Understanding of gas detection system

Regulations for emergency situations

- Understanding of emergency procedures and devices
- Knowledge of fire prevention, control, and extinguishing measures
- Knowledge of basic medical first aid procedures for ammonia exposure
- Awareness of escape routes from the engine room.

Chapter 4

CONCLUSION

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Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ(s)
	1.32	Implementation of the STCW Convention	Continuous	MSC	HTW	
	1.34	Development of global maritime SAR services, including harmonization of maritime and aeronautical procedures and amendments to the IAMSAR Manual	Continuous	MSC	NCSR	
	1.35 (New)	Review of the appropriateness and effectiveness of SOLAS regulation IV/5 (Provision of radiocommunication services)	2025	MSC	NCSR	
SD 2	2.1	Response to matters related to the ITU-R Study Groups and ITU World Radiocommunication Conference	Continuous	MSC	NCSR	
	2.2	Approved ballast water management systems which make use of Active Substances, taking into account recommendations of the GESAMP-BWWG	Annual	MEPC		
	2.3	Amendments to the IGF Code and development of guidelines for alternative fuels and related technologies	Continuous	MSC	HTW/PPR /SDC/SSE	CCC
	2.4	Further development of the IP Code and associated guidance	2025	MSC	SDC	
	2.5	Safety objectives and functional requirements of the Guidelines on alternative design and arrangements for SOLAS chapter II-1	2024	MSC	SSE	SDC
	2.6 (New)	Guidelines for use of Fibre-Reinforced Plastics (FRP) within ship structures	2025	MSC	SDC	
	2.8 (New)	Revision of the Guidelines on Maritime Cyber Risk Management (MSC-FAL.1/Circ.3/Rev.2) and identification of next steps to enhance maritime cybersecurity	2024	MSC	FAL	MSC
	2.9 (New)	Revision of SOLAS chapters II-1 (part C) and V, and related instruments regarding steering and propulsion requirements, to address both traditional and non-traditional propulsion and steering systems	2025	MSC	SSE	SDC

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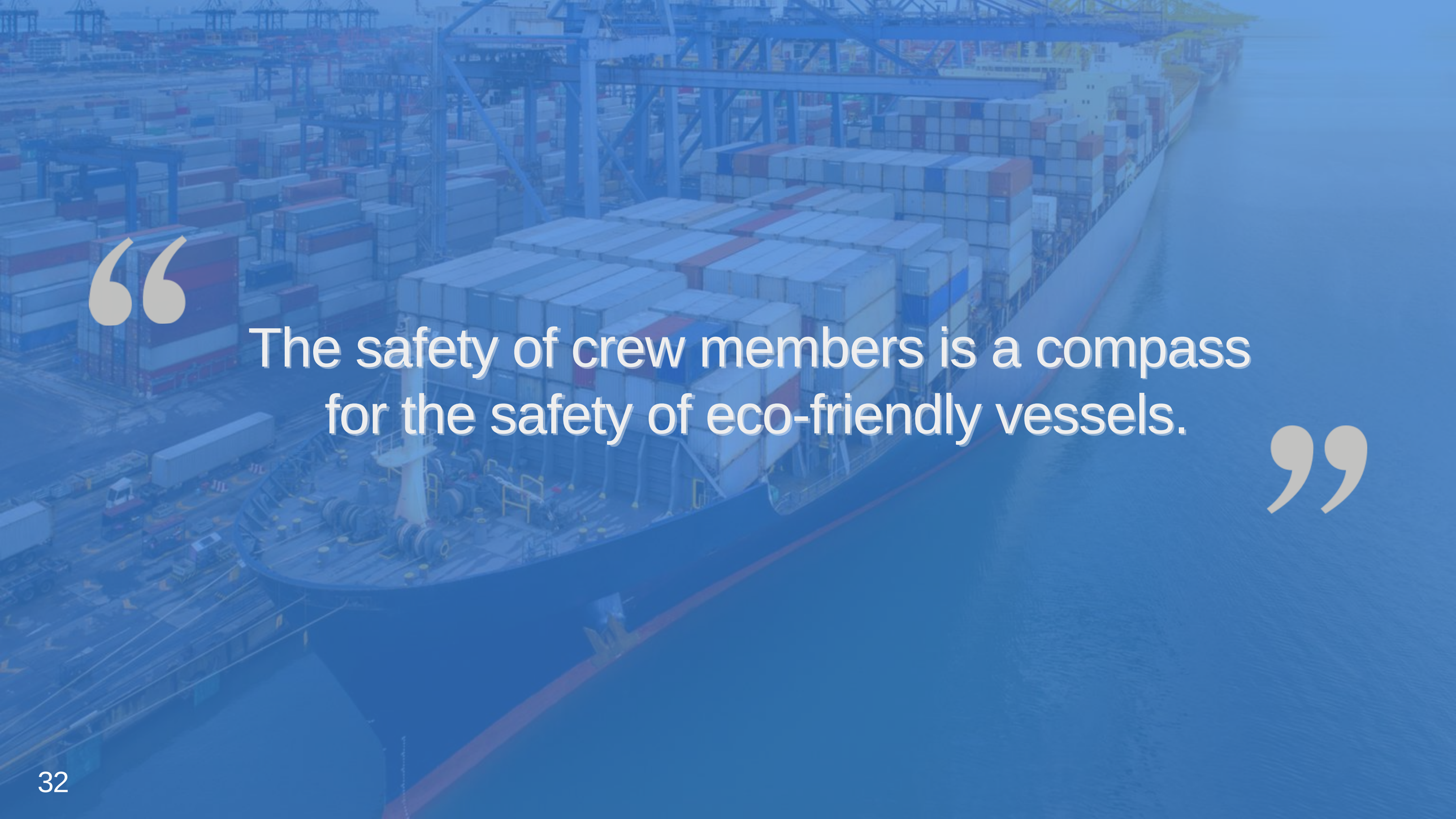
- CHAPTER I : Standards regarding general provisions
- CHAPTER II : Standards regarding the master and deck department
- CHAPTER III : Standards regarding engine department
- CHAPTER IV : Standards regarding radio operators
- CHAPTER V : Standards regarding special training requirements for personnel on certain types of ships
- CHAPTER VI : Standards regarding emergency, occupational safety, security, medical care and survival functions
- CHAPTER VII : Standards regarding alternative certification
- CHAPTER VIII : Standards regarding watchkeeping



“The safety of crew members is a compass for the safety of eco-friendly vessels.”

THANK YOU

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REFERENCE

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