

ANNEX 23

**RESOLUTION MSC.435(98)
(adopted on 9 June 2017)**

**AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT
OF MOBILE OFFSHORE DRILLING UNITS, 2009 (2009 MODU CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO that the Assembly, when adopting resolution A.1023(26) on the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009 (2009 MODU Code), authorized the Committee to amend the 2009 MODU Code, as appropriate, taking into consideration developments in design and technology, in consultation with appropriate organizations,

RECOGNIZING that these requirements and provisions are very similar to the SOLAS requirements and that some of them, being applied to mobile offshore units, may lead to potentially hazardous situations, due to the fact that they have been developed on the basis of typical operations for conventional ships,

RECOGNIZING FURTHER the tragic loss of life and lessons learned from the explosion, fire, and sinking of the mobile offshore drilling unit **Deepwater Horizon** in the Gulf of Mexico, which occurred from 20 to 22 April 2010,

HAVING CONSIDERED, at its ninety-eighth session, the recommendation made by the Sub-Committee on Ship Systems and Equipment, at its fourth session,

1 ADOPTS, the amendments to the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009 (2009 MODU Code), as set out in the annex to the present resolution, for mobile offshore drilling units, the keels of which are laid or which are at a similar stage of construction on or after 1 January 2020;

2 INVITES Member States concerned to take appropriate action to give effect to these amendments.

ANNEX

AMENDMENTS TO THE CODE FOR CONSTRUCTION AND EQUIPMENT OF MOBILE OFFSHORE DRILLING UNITS, 2009 (2009 MODU CODE)

CHAPTER 1

GENERAL

1.3 Definitions

- 1 The following new paragraph 1.3.26, and the associated footnote, are inserted after existing 1.3.25:

"1.3.26 'H' class divisions are those divisions which meet the same requirements as 'A' class divisions, as defined in SOLAS regulation II-2/3, except that, when tested according to the Fire Test Procedures Code, the furnace control temperature curve is replaced with the furnace control temperature curve for hydrocarbon fires defined in national or international standards.¹

¹ Refer to national standards such as: BS EN 1363-2:1999 *Fire resistance tests. Alternative and additional procedures*; or ASTM 1529-14a *Standard Test Methods for Determining Effects of Large Hydrocarbon Pool Fires on Structural Members and Assemblies*; or ISO/DIS 20902-1 *Fire test procedures for divisional elements that are typically used in oil, gas and petrochemical industries – Part 1: General requirements*."

- 2 Existing paragraphs 1.3.26 to 1.3.59 are renumbered accordingly.

CHAPTER 6

MACHINERY AND ELECTRICAL INSTALLATIONS IN HAZARDOUS AREAS FOR ALL TYPES OF UNITS

6.5 Emergency conditions due to drilling operations

- 3 The text of existing paragraph 6.5.2 is amended to read as follows:

"6.5.2 In the case of units using dynamic positioning systems disconnection or shutdown of machinery and equipment necessary for maintaining the operability of the dynamic positioning system should be based on a shutdown logic system designed to preserve the capability to maintain operational control over the integrity of the well and station keeping capability. Shutdown of generators and related power supply equipment needed for the operation of the dynamic positioning system should be divided into independent groups to allow response to gas detection alarms while maintaining position keeping."

6.6 Electrical installations in hazardous areas

- 4 In paragraph 6.6.3, the following sentences, and the associated footnote, are added after the existing table 6-1 and its footnote:

"Repairs, maintenance and overhaul of hazardous area certified equipment should be performed by suitably qualified personnel in accordance with appropriate international standards.²⁷

There should be maintained a register of electrical equipment installed in the designated hazardous areas, including a description of the equipment, applicable degree of protection and ratings.

²⁷ Refer to the following International Electrotechnical Commission publications or equivalent for reference to appropriate personnel qualification criteria:

IEC 60079-14:2007 Explosive atmospheres – Part 14: Electrical installations design, selection and erection.

IEC 60079-17:2007 Explosive atmospheres – Part 17: Electrical installations inspection and maintenance.

IEC 60079-19: 2006 Explosive atmospheres – Part 19: Equipment repair, overhaul and reclamation."

CHAPTER 8

PERIODICALLY UNATTENDED MACHINERY SPACES FOR ALL TYPES OF UNITS

8.3 Fire protection

- 5 In paragraph 8.3.8, the reference to section "9.8" is replaced with "9.9".

CHAPTER 9

FIRE SAFETY

- 6 In the second sentence of existing paragraph 9.2.4, the reference to "A-60" is replaced with "H-60".

- 7 The text of existing footnote (e) to tables 9-1 and 9-2 is amended to read:

"(e) Additional provisions for fire boundaries should be assessed in accordance with paragraph 9.3.1."

- 8 The text of existing paragraph 9.3.1 is amended to read:

"9.3.1 In general, accommodation spaces, service spaces, control stations and spaces containing vital machinery and equipment³⁰ should not be located adjacent to hazardous areas. However, where this is not practicable, an engineering evaluation should be performed in accordance with national or international standards³¹ to ensure that the level of fire protection and blast resistance of the bulkheads and decks separating these spaces from the hazardous areas are adequate for the likely hazard. Where it is shown that

these spaces may be exposed to a radiant heat flux in excess of 100 kW/m², the bulkhead or deck should be constructed to at least an "H-60" standard.

³⁰ Vital machinery and equipment are those that are essential to the safety of the MODU and all personnel on board. They include, but are not limited to, fire pumps, emergency sources of power, dynamic positioning systems, remote blowout preventer activation controls, and other operational or safety systems the sudden failure of which may result in hazardous situations. This does not include spaces (e.g. the driller's cabin) located on the drill floor.

³¹ Refer to standards such as: ISO 13702:2015, or API RP 2 FB."

9 The text of existing paragraph 9.4.5 is amended to read:

"9.4.5 Superstructures and deckhouses should be sited such that, in the event of fire at the drill floor, at least one escape route to the embarkation position and survival craft is protected against radiant heat flux levels in excess of 2.5 kW/m² emanating from the drill floor."

10 The following new section 9.8 is inserted after existing section 9.7:

"9.8 Fire-extinguishing arrangements for the drill floor

9.8.1 The drill floor should be protected by a fixed pressure water-spraying system designed to provide a minimum water application rate of 20 l/m²/min to the drill floor and related equipment, including emergency shutdown equipment, critical structural components, and enclosure fire barriers. Alternatively, multiple fixed monitors discharging at a minimum flow rate and pressure 1,900 l/min at 1 N/mm² may be provided and arranged such that all areas and equipment can be reached by at least two monitors which are widely separated.

9.8.2 The system should be designed for manual release from release stations located outside the protected area. Any section valves necessary for the operation of the system should be located outside the protected area. Automatic release may be accepted by the Administration.

9.8.3 Nozzles, piping, fittings and related components should be designed to withstand exposure to temperatures up to 925°C.

9.8.4 The main fire pumps may be used to supply the fixed pressure water-spraying system if they have sufficient capacity to simultaneously supply the fire main at the required flow and pressure."

11 Existing sections 9.8 to 9.19 are renumbered accordingly.

12 In the renumbered subparagraph 9.9.2.1, the reference to subparagraph "9.8.1.1" is replaced with "9.9.1.1".

13 In the renumbered paragraph 9.9.4, the reference to paragraphs "9.8.1 to 9.8.3" is replaced with "9.9.1 to 9.9.3".

14 In the renumbered paragraph 9.10.1, the reference to paragraph "9.9.2" is replaced with "9.10.2".

15 In table 9-3, references to sections "9.16" and "9.8" are replaced with "9.17" and "9.9", respectively.

16 In the renumbered subparagraph 9.17.4.6, the reference to subparagraphs "9.16.4.3 to 9.16.4.5" is replaced with "9.17.4.3 to 9.17.4.5".

17 In the renumbered subparagraph 9.17.4.7, the reference to section "9.13" is replaced with "9.14".

18 In the renumbered paragraph 9.20.2, the reference to paragraph "9.19.1" is replaced with "9.20.1".

CHAPTER 10

LIFE-SAVING APPLIANCES AND EQUIPMENT

10.3 Survival craft

19 Add a new chapeau and new paragraphs 10.3.7 and 10.3.8 following existing paragraph 10.3.6:

"Accounting for anthropomorphic differences in average body mass

10.3.7 Except as provided in 10.3.8, in applying the provisions of paragraph 4.4.2.2 of the LSA Code and paragraph 6.7.1 of resolution MSC.81(70), part 1, the average body mass of the lifeboat occupant should be assumed to be 95 kg, with a corresponding seat radius of 265 mm.

10.3.8 Where it can be demonstrated that the average body mass of the lifeboat occupants differs from 95 kg, the provisions of paragraph 4.4.2.2 of the LSA Code and paragraph 6.7.1 of resolution MSC.81(70), part 1, may be increased or decreased accordingly. The seat width should be adjusted by 4 mm for each 1 kg difference in average body mass."

10.8 Rescue boats

20 The text of existing section 10.8 is amended to read:

Each unit should carry at least one rescue boat complying with the requirements of the LSA Code. A lifeboat may not be accepted as a rescue boat."

10.9 Stowage of rescue boats

21 The existing paragraph 10.9.5 is deleted and the semicolon at the end of subparagraph 10.9.4 is replaced with a period.

10.10 Rescue boat embarkation, launching and recovery arrangements

22 In paragraph 10.10.3, the second sentence is deleted.

CHAPTER 13

HELICOPTER FACILITIES

13.4 Arrangements

23 In paragraph 13.4.4, the reference to paragraph "9.16.5" is replaced with "9.17.5".

CHAPTER 14

OPERATIONS

14.10 Emergency procedures

24 The following new paragraph 14.10.3 is inserted after existing paragraph 14.10.2:

"14.10.3 For units where a master is assigned, the master should be designated as the person in charge at all times."

25 Existing paragraphs 14.10.3 to 14.10.16 are renumbered accordingly.

14.13 Practice musters and drills

26 In paragraph 14.13.1, the following new sentence is inserted after the existing first sentence:

"A man overboard drill should be conducted at least quarterly."

27 The text of the existing footnote associated to paragraph 14.13.2 and to the title of section 14.15 is replaced with the following:

"Refer to the *Recommendations for the training and certification of personnel on mobile offshore units (MOUs)* (resolution A.1079(28))."

28 The following new paragraph 14.13.5 is inserted after existing paragraph 14.13.4:

"14.13.5 Davit-launched liferafts for MODUs

- .1 a liferaft should be lowered at least quarterly during abandon unit drills. Whenever practicable this may include the inflation of a liferaft. This liferaft may be a special liferaft intended for training purposes only and should not be boarded;
- .2 the dedicated training liferaft should be identical in size, shape and mass to the actual liferaft cases used on board the unit, but of a different colour and prominently marked 'training aid – not for use in emergency'; and

- .3 during such drills, emphasis should be placed on ensuring the crew's familiarity with handling all necessary lashings, painters, connecting the training liferaft to the davit, swinging out the davit and lowering the liferaft."

29 Existing paragraphs 14.13.5 to 14.13.7 are renumbered accordingly.

30 The text of renumbered paragraph 14.13.6 is amended to read as follows:

"14.13.6 As far as is reasonably practicable, rescue boats should be launched each month with the assigned crew aboard and manoeuvred in the water. In all cases these provisions should be complied with at least once every three months during a man overboard drill to simulate the recovery of a person from the water."

31 The text of renumbered paragraph 14.13.7 is amended to read as follows:

"14.13.7 For lifeboats, the provisions of SOLAS regulation III/19.3.4.3 should be applied.⁶⁴

⁶⁴ Refer to the *Guidelines on alternative methods for lifeboat drills on MODUs* (MSC.1/Circ.1486)."

14.16 Records

32 In subparagraph 14.16.2.5, the reference to paragraph "9.19.4" is replaced with "9.20.4".

33 In paragraph 14.16.2, the following new subparagraphs .10 and .11 are inserted after existing subparagraph .9, the word "and" at the end of subparagraph 8 is deleted and the period at the end of subparagraph 9 is replaced with a semicolon:

".10 the electrical equipment register under paragraph 6.6.3.

.11 maintenance and repair of all electrical equipment in hazardous areas for continued certification in accordance with the international standards referred to in paragraph 6.6.1."

34 The following new section 14.17 is inserted after existing section 14.16:

"14.17 Hazardous areas

14.17.1 Portable and transportable electrical equipment or spark-producing equipment should not be introduced into, or remain in, any area classified as hazardous area zone 0, zone 1 or zone 2 in accordance with section 6.2 unless it has been determined that:

- .1 the equipment is certified as suitable for use in the area in question; or
- .2 the area is free of ignitable concentrations of flammable vapours and appropriate controls have been put in place to prevent the introduction of flammable vapours into the area.

14.17.2 Repairs, maintenance and overhaul of certified electrical equipment in hazardous areas should be performed by suitably qualified personnel in accordance with appropriate international standards."

35 All existing footnotes of the Code are renumbered accordingly.
