Draft Regulations on ballast systems on mobile offshore units

Legal basis: Laid down by the Norwegian Maritime Authority on dd.mm.yyyy under the Act of 16 February 2007 No. 9 relating to Ship Safety and Security (Ship Safety and Security Act) sections 2, 7, 9, 12 and 33, cf. Formal Delegation of 16 February 2007 No. 171 and Formal Delegation of 31 May 2007 No. 590 by the Ministry of Trade, Industry and Fisheries.
EEA references: EEA Agreement, Annex II Chapter XIX point 1 (Directive 98/34/EC as amended by Directive 98/48/EC).

Section 1 *Scope of application*

These Regulations apply to ballast systems on Norwegian mobile offshore units.

Section 2 *Location of pipe and control systems*

(1) Pipe and control systems which are connected to the ballast system shall be placed outside the extent of damage specified in sections 25 to 27 of the Regulations of 20 December 1991 No. 878 on stability, watertight subdivision and watertight/weathertight closing means on mobile offshore units (Stability Regulations).

Section 3 *Redundancy and safeguarding of the ballast system*

(1) The ballast system shall have at least two pumps. The pumps shall be arranged so that ballasting can be carried out in the event of failure of any one pump. Other pumps than dedicated ballast pumps may be used for ballasting if they are readily available for such use at all times.
(2) The ballast system should be arranged so as to prevent any single failure in the system or any single operator failure from causing the unintentional flooding or emptying of tanks.
(3) The requirements of the first paragraph of this section and the third paragraph of section 4 must also be met after loss of the main source of power.
(4) In the event of flooding of any single compartment on self-elevating units or any single compartment in the columns or pontoons of semi-submersible units, ballasting in accordance with the second paragraph of section 4 must still be possible.

Section 4 *Capacity requirements*

(1) The ballast system shall provide the capability to bring the unit from any given operating or transit draught to the survival condition draught within three hours.
(2) The ballast system shall have the capacity of restoring the unit to zero degrees heel within operational limitations within three hours after damage specified in section 21 of the Stability Regulations.
(3) The requirement of the second paragraph must also be met with any one pump inoperable. In addition, ballast pumps and associated parts installed in compartments that are flooded after damage shall be assumed to be inoperable, except for components designed to withstand submersion into water and related pressures. Units with a ship's hull provided with ballast systems which are not considered critical to stability and self-elevating units are exempt from this requirement.
(4) Semi-submersible units in operating draught shall comply with the requirements specified in the second and third paragraphs without taking on additional ballast. Counter-flooding may be considered, provided that there are approved procedures covering strength and stability.

Section 5 *Operation of the ballast system*

(1) The ballast system shall be capable of being operated:
a) from the central control station (highest level);
b) from a secondary level independent of software-based control systems;

c) locally on the pumps and valves (lowest level); Units with a ship's hull provided with ballast systems which are not considered critical to stability and self-elevating units are exempt from this requirement.

(2) The lower levels must be capable of being used independently of higher levels.

(3) Ballast pumps and valves shall be fitted so that they are readily available for use on units where local operation is required.

(4) Equipment required for local operation shall be of a sufficient number and be suitably located for use in an emergency.

Section 6 *Location of the highest level and secondary level*

(1) The highest and secondary level shall be placed on different locations:

a) outside the extent of damage, cf. section 2;

b) over damage waterlines, cf. section 21 of the Stability Regulations;

c) in enclosed spaces that are adequately protected against environmental loads.

(2) The highest level shall, in addition to the requirement of the first paragraph, be placed over the freeboard deck and reserve buoyancy waterline, cf. section 22 of the Stability Regulations.

Section 7 *Ballast control*

(1) The ballast control shall be located in the central control station together with the system control for watertight closing means.

(2) The ballast control shall be provided with:

a) control system and indication system for ballast pump and ballast valves;

b) power availability indicating system (main and emergency power source);

c) ballast system hydraulic/pneumatic pressure-indicating system;

d) emergency stop device;

e) tank level indicating system;

f) draught indicating system;

g) two independent methods for indicating heel and trim.

Section 8 *Control and indicating systems*

(1) The control and indicating systems shall be connected to the main and emergency switchboards.

(2) The control and indicating systems shall function independently of one another, or have sufficient redundancy, such that a failure in one system does not jeopardize the operation of any of the other systems.

(3) Each valve shall be provided with local means to indicate whether the valve is open or closed, and such means shall also be provided at each location from which the valve can be controlled. The indicators shall rely on movement of the valve spindle, or be otherwise arranged with equivalent reliability.

(4) In the event of loss of control on the highest level, the valves shall automatically close. On reactivation, the valves shall remain closed until the operator assumes control of the system. Units with a ship's hull provided with ballast systems which are not considered critical to stability and self-elevating units are exempt from this requirement. This exemption does not apply to sea chest valves.

Section 9 *Emergency stop device*

(1) The ballast system shall be provided with an emergency stop device with a manual activation button.

(2) The emergency stop device shall be capable of isolating or disconnecting the power supply to the control systems and to the pumps, so that the valves close and the pumps stop.
(3) The emergency stop system shall be separate from the ordinary control system.
(4) Units with a ship's hull provided with ballast systems which are not considered critical to stability and self-elevating units are exempt from this requirement.

Section 10 *Tank level indicating system*
(1) The tank level indicating system shall indicate liquid levels in all ballast tanks and in other tanks which affect the stability of the unit when they are filled or emptied.
(2) A secondary system for determining tank levels shall be provided.

Section 11 *Draught indicating system*
The draught indicating system shall display the draught at each corner of semi-submersible and self-elevating units, and fore and aft for units with a ship's hull.

Section 12 *Air pipes*
(1) Air pipes shall be provided on each ballast tank sufficient in number and cross-sectional area to permit the efficient operation of the ballast system.
(2) Air pipes shall be located outside the extent of damage specified in sections 23 to 27 of the Stability Regulations.
(3) Air pipe openings shall be located above the most unfavourable waterline specified in section 21 of the Stability Regulations.

Section 13 *Suction lines*
(1) The suction lines shall be positioned in such a way that as much ballast as possible can be pumped out at an angle of inclination.
(2) Special consideration shall be given to ballast lines passing through ballast tanks, taking into account effects of corrosion or other deterioration.

Section 14 *Internal communication*
A permanently installed two-way means of communication shall be provided between the central control station and spaces that contain ballast pumps or valves, or equipment necessary for the operation of the ballast system. The means of communication shall be provided with redundant power supply.

Section 15 *Requirements for components*
The strength, function and workmanship of the components of the ballast system shall satisfy the requirements stipulated by the MOU classification society with respect to pressures, capacities and loads specified in these Regulations.

Section 16 *Marking*
All operating controls, pumps, valves, ballast lines and air pipes shall be clearly marked to identify the function they serve. In addition, the marking shall provide a reference to the numbering in the control system (tag marking).

Section 17 *Coating of ballast tanks*
(1) Coating of ballast tanks shall be in accordance with MSC.215(82) (Performance Standard for Protective Coatings for Water Ballast Tanks).

(2) Mobile offshore units certified before 1 January 2016 or for which the building contract has been placed before 1 January 2016, need not comply with the requirement of the first paragraph.

Section 18 *Permanent means of access for ballast tanks*

(1) Ballast tanks shall be provided with a permanent means of access in accordance with MSC.133(76) (Technical provisions for means of access for inspections) as amended by MSC.158(78). FPSOs and FSOs shall comply with table 1.

(2) Mobile offshore units certified before 1 January 2016 or for which the building contract has been placed before 1 January 2016, need not comply with the requirement of the first paragraph.

Section 19 *Operating procedure*

(1) An operating procedure shall be provided for the ballast system, and the procedure shall include:

a) normal operation;

b) operation of the ballast system in the event of failure, including operation of the ballast system on the highest, secondary and local level;

c) operation of the emergency stop device.

(2) For semi-submersible units, the operating procedure shall, in addition to the requirement of the first paragraph, contain ballasting from transit condition to survival condition and from operating condition to survival condition.

(3) The emergency preparedness document shall include procedures for recovery after damage. For semi-submersible units, the document shall also include measures to be taken after damage in the waterline and counter-flooding after damage, cf. section 4 fourth paragraph.

Section 20 *Exemptions*

(1) The Norwegian Maritime Authority may exempt a mobile offshore unit from one or more of the requirements of the Regulations if the company applies for an exemption in writing and one of the following requirements is met:

a) it is established that the requirement is not essential and that it is justifiable in terms of safety;

b) it is established that compensating measures will maintain the same level of safety as required by these Regulations;

c) it is established that the requirement hinders the development and use of innovative solutions when such solutions will maintain the same level of safety as required by these Regulations.

(2) Statement from safety representative shall be attached to the application for exemption.

Section 21 *Transitional provision*

Mobile offshore units may as an alternative to the requirements of sections 2 to 19 comply with Appendix I until the next certificate issue, if the building contract for the unit has been placed before 16 January 2016, or the unit is certified before 1 January 2016.

Section 22 *Entry into force*

These Regulations enter into force on xx.xx.xxxx. As from the same date, the Regulations of 20 December 1991 No. 879 on ballast systems on mobile offshore units are repealed.