

# Regulations on vessels used in oil recovery operations

**Legal basis:** Laid down by the Norwegian Maritime Authority on 08 February 2011 under the Act of 16 February 2007 No. 9 relating to ship safety and security (Ship Safety and Security Act) sections 9, 13, 16, 21 and 43, cf. Formal Delegation of 16 February 2007 No. 171 and Formal Delegation of 31 May 2007 No. 590.

**Amended** by Regulations of 21 March 2012 No. 243, 22 December 2014 No. 1893, 20 December 2017 No. 2379, 21 March 2022 No. 460 (in force on 1 April 2022).

## Chapter 1. Introductory provisions

### Section 1. *Scope of application*

(1) These Regulations apply to vessels intended for oil recovery drills and operations in areas with a flashpoint of more than 60 °C carried out by, or in accordance with requirements from, Norwegian authorities.

(2) With the exception of section 13, these Regulations will not apply to vessels which during oil recovery drills and operations are only used for the carriage of persons and equipment, for the performance of simple work operations, or for the towing of lightweight (coastal) booms in trade area 2.

### Section 2. *Definitions*

For the purpose of these Regulations, the following definitions shall apply:

- a. Recognised classification societies means classification societies with which the Ministry has entered into an agreement pursuant to section 41 of the Ship Safety and Security Act:
  1. American Bureau of Shipping (ABS)
  2. Bureau Veritas (BV)
  3. DNV GL
  4. Lloyd's Register of Shipping (LRS)
  5. Rina Services S.p.A (RINA)
  6. Nippon Kaiji Kyokai (Class NK).
- b. Vessel instructions means a document indicating vessel data and recommended limitations on the use of the vessel.
- c. Approved company means a company approved by the Norwegian Maritime Authority to carry out inspections in accordance with Regulations of 22 November 2013 No. 1404 on fishing vessels of less than 15 meters in overall length.
- d. Classed vessel means a ship classed by a recognised classification society.
- e. Machinery spaces of category A means spaces which contain internal combustion machinery used for main propulsion, or for other purposes when such machinery has a total power output of not less than 375 kilowatts, or which contain any oil-fired boiler or fuel oil unit.
- f. Certified vessels means vessels which have a valid vessel instruction issued by an approved company or a valid trading certificate issued by the Norwegian Maritime Authority.
- g. Tow connection means the connection between the tug and the towed object, such as wire, hawser, etc.
- h. Weak link connection means the weakest part of a connection with such dimensions that this part will collapse before other connected components.
- i. Towing means the towing of objects as defined in Regulations of 22 December 2014 No. 1893 on certificates, etc., for Norwegian ships and mobile offshore units.

### **Section 3. Exemption**

The Norwegian Maritime Authority may, in exceptional cases and upon written application, grant exemptions from the requirements of these Regulations. There must be special reasons that make such exemptions necessary, and the exemption must be justifiable in terms of safety.

## **Chapter 2. Vessel requirements**

### **Section 4. General**

- (1) Vessels shall have valid certificates or vessel instructions.
- (2) Vessels equipped with a crane approved in accordance with Regulations of 17 January 1978 No. 4 on cargo-handling appliances in ships, may use this crane in open waters, even if the crane is not certified for such use. The maximum SWL of the crane must then be reduced by 30 per cent.

### **Section 5. (Repealed)**

### **Section 6. Fire pumps, fire mains, fire hydrants, etc.**

- (1) Vessels shall be fitted with at least one power-operated fire pump. The total capacity (Q) of the vessel's fire pumps shall at least be  $Q = (0,15 * \sqrt{L * (B + D)} + 2,25)^2$  cubic metres per hour where L, B and D are in metres. Centrifugal pumps or other pumps connected to the fire main through which backflow could occur shall be fitted with non-return valves. When the fire pump is delivering the required quantity of water, the pressure maintained at any hydrant shall be not less than 0.25 N/m<sup>2</sup>. No fire pump shall have a capacity less than 16 m<sup>3</sup>/hour.
  - a. Sanitary, bilge, ballast or any other general service pumps may be used as fire pumps if they comply with the requirements of this chapter and do not affect the ability to cope with pumping of the bilges. Fire pumps shall be so connected that they cannot be used for pumping oil or other flammable liquids.
  - b. The fire pump may be powered by the main engine.
- (2) Vessels shall be provided with fire mains made of non-combustible materials which are heat-resistant to ensure effective distribution of the prescribed quantity of water. Where fire pump delivery pressure may exceed the designed working pressure of the fire main, relief valves shall be fitted. Where fire mains are not self-draining, suitable drain cocks shall be fitted where frost damage could be expected.
- (3) Fire hydrants shall be positioned in order to allow easy and quick connection of fire hoses, and so that at least one jet can be directed into any part of the vessel which is normally accessible during navigation. The jet shall be from a single length of fire hose. For every required fire hydrant there shall be one fire hose. In addition, at least one spare fire hose shall be provided on board.
  - a. Single lengths of fire hose shall not exceed 20 metres.
  - b. Fire hoses shall be certified. Each fire hose shall be provided with couplings and dual-purpose nozzle (spray/jet). Fire hoses shall together with any necessary fittings and tools be kept ready for use in conspicuous positions near the water service hydrants or connections. The nozzle shall be appropriate to the delivery capacity of the fire pumps fitted, but shall in any case have a diameter of not less than 12 millimetres.
  - c. Machinery spaces of category A shall be provided with at least one hydrant complete with fire hose and dual purpose nozzle (spray/jet). The fire hydrant shall be located outside the space and near the entrance.
  - d. Except where fire hoses are permanently attached to the fire main, the couplings of fire hoses and nozzles shall be completely interchangeable.
- (4) Vessels intending to take aboard oil emulsion in the vessel's cargo spaces or tanks shall have the following equipment on board:

- a. Two ready-to-use 25 kg semi-portable powder fire extinguishers kept in the vicinity of the working deck.
- b. Two portable foam applicator units with a minimum of four portable tanks containing 20 litres of foam to be used with the vessel's fire pump.
- c. Fire control and safety plan including the fire-extinguishing equipment referred to in subparagraphs a and b of this paragraph.

### **Section 7. Instruments for measuring hydrocarbon gas concentrations during oil recovery operations**

- (1) In all oil recovery operations at least one vessel, preferably the vessel in charge of the operation, shall have instruments on board for measuring hydrocarbon gas concentrations.
- (2) Vessels intended to take aboard oil emulsion in the vessel's cargo spaces or tanks shall be fitted with a gas meter.

### **Section 8. Towing**

- (1) Towing arrangements shall be dimensioned in accordance with the following requirements:
  - a. Towing arrangements with the mounting arrangement shall be designed for the maximum towing force of the vessel and have a safety factor of not less than 5 in relation to the ultimate strength of the material. Alternatively, a recognised classification society's rules for foundations for deck machinery, towing arrangements and lifting appliances may be applied.
  - b. The towing hook shall be mounted in such a way that it can move freely in the horizontal and vertical sectors in which the towline can move.
  - c. Towing arrangements shall be fitted with a reliable and appropriate emergency release mechanism. Emergency release of the towing arrangement shall be possible and safe from all points from which the vessel can be manoeuvred, and from a safe place on deck in the immediate vicinity of the towing arrangement.
  - d. Emergency release shall be possible irrespective of the heeling of the vessel and the angle or direction of the towing arrangement drag, etc.
  - e. All movable equipment included in the towing arrangement, such as shackles, rings, wires, hawsers, etc. shall be certified.
- (2) The towing equipment shall be so arranged as to make it possible to maintain control of the tow, even under poor weather conditions. Furthermore, the tow connection shall be so arranged that it is protected from wear due to movement of the tow, and be so arranged that the effect of shock loads is reduced.
- (3) Vessels may operate with a towing winch as an alternative to the towing hook in line with the requirements of Regulations of 19 December 2014 No. 1853 on the construction and supervision of small cargo ships.
- (4) When towing in a trade area greater than trade area 2, a complete spare tow connection shall be available on board and be so arranged that it is readily available for use under all weather conditions during towing operations.

### **Section 9. Stability**

- (1) The following conditions shall be calculated by means of an approved computer program, preferably the same program used for the vessel's other stability calculations:
  - a. departure from port, fully equipped for an oil recovery operation, including oil booms and other equipment on deck, if any, and 100 % fuel;
  - b. towing with the ship's maximum towing force (bollard pull), 100 % fuel and stores and any equipment on deck in addition to the item being towed;
  - c. towing with the ship's maximum towing force (bollard pull), 10 % fuel and stores and any equipment on deck in addition to the item being towed;

- d. arrival at port, fully equipped for an oil recovery operation, including oil booms and other equipment on deck, if any, and a maximum of 10 % fuel;
  - e. loading conditions representing the least favourable stability steps during filling/drainage of the cargo spaces or tanks and any water ballast tanks.
- (2) For vessels using a crane for the operation of oil recovery equipment it shall be documented by calculations that the vessel will not heel more than the angle for which cranes and derrick booms are designed, however not exceeding 10° in the most unfavourable loading condition when taking into account the maximum heeling moment the crane is able to apply to the vessel.
- (3) For vessels only intended for towing equipment where a weak link in the tow connection is used, the towing force referred to in the first paragraph (b) and (c) may be limited to the ultimate strength of the weak link plus 30 %.
- (4) For vessels not intended for towing, conditions in accordance with the first paragraph (b) and (c) may be omitted.
- (5) For vessels not intended for interim storage of oil emulsion in the vessel's cargo spaces or tanks, conditions in accordance with the first paragraph (e) may be omitted.
- (6) Stability criteria:
- a. For conditions that must be prepared in accordance with the first paragraph (a) and (d), the following criteria shall be met:
    1. The area below the righting lever curve (GZ curve) shall be at least 0.055 metre radians calculated up to an angle of heel of 30 degrees, and at least 0.09 metre radians calculated up to 40 degrees or the angle of flooding if that angle is less than 40 degrees. In addition, the area below the GZ curve between the heeling angles of 30 and 40 degrees, or between 30 degrees and the angle of flooding if that angle is less than 40 degrees, shall be at least 0.03 metre radians.
    2. The righting lever (GZ) shall be at least 0.20 metres at an angle of heel of 30 degrees or more.
    3. The angle of heel at which the righting arm value is greatest ( $GZ_{max}$ ) should be more than 30 degrees and shall never be less than 25 degrees.
    4. The initial metacentric height (GM) shall be at least 0.15 metres.
  - b. When the ship due to its shape fails to comply with the fifth paragraph (a) item 3, the fifth paragraph (a) items 1 and 3 can be replaced by the following:
    1. The area below the GZ curve shall be at least 0.07 metre radians calculated to an angle of heel of 15 degrees when the maximum righting arm ( $GZ_{max}$ ) occurs at 15 degrees, and 0.055 metre radians up to 30 degrees when  $GZ_{max}$  occurs at 30 degrees or more. When  $GZ_{max}$  occurs between 15 and 30 degrees, the area requirement below the GZ curve up to the angle where  $GZ_{max}$  occurs shall be determined by this formula:
 

Minimum area =  $0.055 + 0.001 (30 \text{ degrees} - \theta_{max})$ , where  $\theta_{max}$  is the angle where  $GZ_{max}$  occurs. In addition, the area below the GZ curve between 30 and 40 degrees, or between 30 degrees and the angle of flooding if the latter is less than 40 degrees, shall be not less than 0.03 metre radians.
    2. The angle of heel where  $GZ_{max}$  occurs shall not be less than 15 degrees.
  - c. For the towing conditions referred to in the first paragraph (b) and (c), it shall also be taken into account that when a ship carrying out towing operations is exposed to a transverse force equal to the ship's maximum towing force multiplied by 0.65, the area between the righting arm curve (GZ curve) and the heeling arm curve calculated from the first point of intersection to the angle which occurs first of 40 degrees, the angle of  $GZ_{max}$  or the angle of flooding, shall be equal to or greater than 0.010 metre radians. The vertical arm of the heeling moment shall be taken from the centre of the propeller(s) to the fastening point of the hawser.
  - d. For vessels of less than 15 metres in length, the stability criteria in the Nordic Boat Standard for commercial vessels, 1990, may be used.

(7) Approval of stability:

For vessels that are not subject to requirements for certification, the stability calculations shall be verified by an approved company or a recognised classification society. For vessels for which vessel instructions are required, the stability calculations shall be verified by an approved company. For vessels other than the above, the stability calculations shall be approved by the Norwegian Maritime Authority.

(8) Inclining test / light ship data

- a. Light ship data shall be determined based on an inclining test.
- b. For vessels with a valid vessel instruction or trading certificate and with approved stability based on an approved/accepted inclining test, this test can be applied.
- c. If vessels with a valid vessel instruction or trading certificate and with approved stability, must be rearranged in connection with oil recovery operations in such a way that light ship data must be corrected, accurate records of the included equipment and its weight and location shall be made. Such information shall be available for the vessel's master and must be available for inspection.

(9) Stability manual

- a. A general illustrated description of the conditions affecting the vessel's stability shall be prepared. The manual shall describe the effect of at least the following conditions:
  1. cargo location
  2. use of lifting gear, crane or similar equipment
  3. free liquid surfaces in tanks
  4. ice accretion
  5. flooding through open means of closure
  6. reserve buoyancy
  7. changes in trim and draught
  8. water on deck
  9. following seas
  10. towing operations.
- b. The manual shall furthermore contain examples of how loading conditions are set up and calculated and how stability is checked against the KG limit curve. At least one, not completed, form for the calculation of loading conditions shall be included.

## **Section 10. *Taking aboard oil emulsion***

(1) Oil emulsion taken aboard must have a flashpoint of more than 60 °C.

(2) Vessels issued with an oil recovery certificate may take aboard oil emulsion in external, closed tanks on deck, provided that the vessel's stability is approved for cargo on deck.

(3) Vessels intended to take aboard oil emulsion in the vessel's cargo spaces or tanks shall meet the following requirements:

- a. The cargo spaces or tanks shall be approved for the carriage of liquid cargo according to the vessels' ordinary trading certificate or vessel instructions.
- b. The stability requirements in section 9 fifth paragraph (a) shall (additionally) be satisfied for the loading condition in section 9 first paragraph (e).
- c. Areas on board the vessel where oil recovery equipment will be operated shall be adequately illuminated.
- d. Signs shall be posted prohibiting the use of naked flames.
- e. The working decks shall be suitable for use during oil recovery operations.
- f. The fire control and safety plan shall include existing and new fire-extinguishing equipment on board.
- g. The vessel shall have pump and pipe systems for the transfer of oil emulsion on board.
- h. The area of operation and air pipes to the tanks shall be arranged as far away as possible from the accommodation spaces.

- i. Hatches and pumps shall be provided with coamings or similar devices in order to minimise the discharge of oil emulsion related to operation.
  - j. The cargo spaces shall have an arrangement with an interior diameter of at least 50 mm to enable sounding on open deck.
  - k. The air pipes shall have an area of at least 125 % of the area of the filling pipe.
- (4) Before the vessel can resume its normal operations, the cargo spaces or tanks serving as interim storage areas on board must be satisfactory cleaned and approved by a third party company.
- (5) For vessels without their own pump and piping systems, hatches to cargo spaces or tanks may be so arranged as to facilitate the use of portable equipment for the transfer of oil emulsion. Hatches and penetrations shall be provided with the following:
- a. A connection shall be provided for loading oil emulsion.
  - b. The air pipes shall have an area of at least 125 % of the area of the filling pipe.
  - c. Sounding pipes shall have an internal diameter of at least 50 mm.
  - d. Connections shall be provided with a valve to maintain the watertight integrity.
  - e. Hatches shall be capable of being closed immediately in the event of danger.
  - f. the strength of a new/reconstructed hatch shall satisfy the requirements applicable to the vessel type in question;
  - g. The hatch shall have coamings of a height of at least 100 mm to prevent oil spill on deck.
- (6) A drawing shall be provided with a diagram of the piping system on board showing the following:
- a. outside diameter and pipe thickness
  - b. material type used for pipes, valves and flanges
  - c. pump type and capacity
  - d. type of vibration/expansion element
  - e. design pressure, where the pressure exceeds 7 bar
  - f. design temperature if it exceeds 60 °C
  - g. fire rating, degree of conductivity, maximum pressure and maximum temperature of plastic pipes.

### **Section 11. *Safety management system and operations manual***

- (1) The safety management system shall cover the use of vessels in connection with oil recovery operations.
- (2) The vessel shall have an appropriate and succinct operations manual for oil recovery operations. The manual shall also describe the safe operation of the vessel before entering a gas area, and steps to be taken prior to and during operations. Furthermore, risks relating to personnel and the use of protective equipment shall be described. The manual shall describe the clean and dirty zones on board. There shall be an entry in the manual stating that it is approved by the person in charge of oil recovery plans or oil recovery operations.
- (3) In addition, the operation manual for vessels intended for interim storage of oil emulsion in the vessel's cargo spaces shall describe:
- a. tank arrangement
  - b. unloading system
  - c. use of gas meter
  - d. mounting of equipment brought aboard
  - e. installation of new piping systems and closure of necessary piping
  - f. procedures for preventing overfilling of cargo spaces or tanks
  - g. cleaning procedure.

## **Chapter 3. Requirements for crew, etc.**

### **Section 12. *Qualification requirements***

The master of vessels that are not subject to section 3 of the Regulations on qualifications and certificates for seafarers, shall at least meet the requirements for masters of fishing vessels of 10.67 metres in overall length and upwards. Alternatively, the Master's Certificate for Pleasure Craft in accordance with section 29 of Regulations of 22 December 2011 No. 1523 on qualifications and certificates for seafarers is accepted for vessels of less than 15 metres in overall length which are not fishing vessels.

### **Section 13. *Health, safety and environment***

It is the responsibility of the master to ensure that the vessel is divided into clean and dirty zones to avoid injury to persons and damage to the environment. Personnel who will perform tasks related to the vessel's oil recovery activities shall receive training to be able to safely operate oil recovery equipment. The training shall be documented, and it shall be clearly stated which subjects the training has covered. Training pursuant to this provision shall be repeated at intervals not exceeding 5 years.

## **Chapter 4. Survey and inspection**

### **Section 14. *(Repealed)***

### **Section 15. *(Repealed)***

## **Chapter 5. Concluding provisions**

### **Section 16. *Transitional arrangements***

From the entry into force of these Regulations and until 1 January 2013, it will, in the event of an oil recovery operation where there is a need to use vessels for which a certificate is required pursuant to these Regulations, be accepted that the team in charge of the operation ensures that the vessel meets the requirements deemed necessary to safeguard life, health, property and the environment, provided that there is not a sufficient number of certified vessels, and the inspection shall be carried out based on a report form prescribed by the Norwegian Maritime Authority.

### **Section 17. *Entry into force***

This Regulation enters into force immediately.