

Draft Regulations on towing arrangement and transit of mobile offshore units

Laid down by the Norwegian Maritime Authority on ddmmyyyy under the Act of 16 February 2007 No. 9 relating to Ship Safety and Security (Ship Safety and Security Act) sections 2, 6, 9, 11, 14 and 21, 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 reference: EEA Agreement Annex II chapter XIX point 1 (Directive 98/34/EC as amended by Directive 98/48/EC).

Chapter 1 Scope of application

Section 1 *Scope of application*

- (1) These Regulations apply to Norwegian mobile offshore units.
- (2) *These Regulations do not apply to permanently anchored units as specified in Regulations of 10 July 2009 No. 998 on positioning and anchoring systems on mobile offshore units (Anchoring Regulations 09) section 14 fourth paragraph (c).*

Chapter 2 Self propulsion and towing force

Section 2 *Necessary forces during transit*

- (1) A mobile offshore unit shall have sufficient force either by *self propulsion, towing force or combined self propulsion and towing force* to keep the unit in a fixed position during the following conditions:
 - a) 20 m/s wind;
 - b) 1 m/s current;
 - c) a significant wave height of 5 m (H_s);
 - d) zero up-crossing wave period (T_z) between 6 and 9 seconds.
- (2) *During transit in territorial waters, the unit shall under the same environmental design conditions as described in DNV GL OS-H101, Section 3C, or an equivalent standard, be able to:*
 - a) maintain a minimum speed of 2 knots
 - b) be kept in a fixed position if any errors occur in any part of the propulsion system.

Chapter 3 Towing arrangement and emergency anchor arrangement

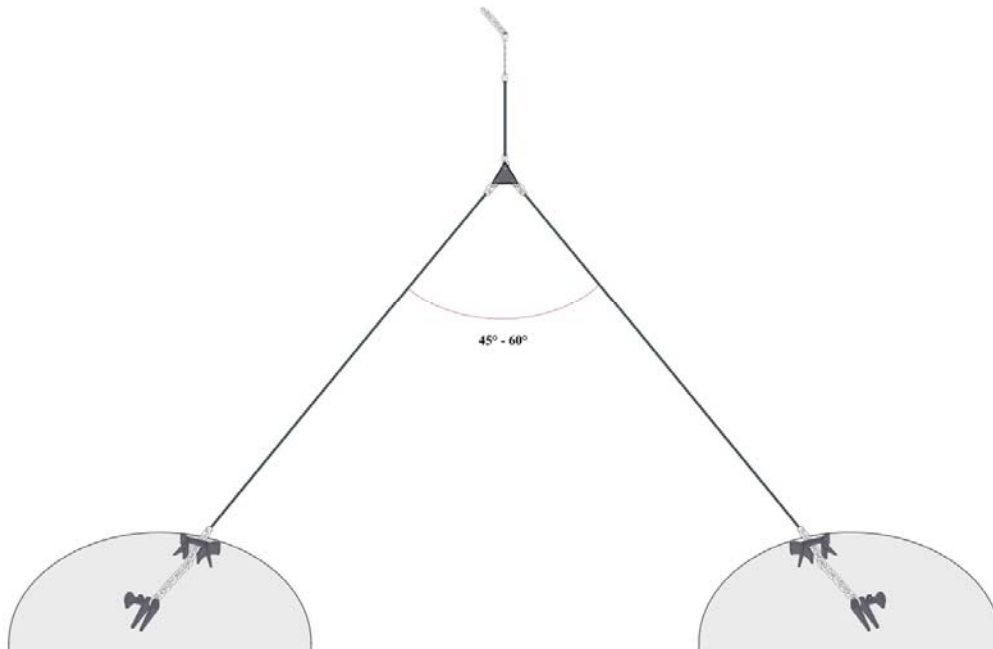
Section 3 *Types of towing arrangements*

- (1) Mobile offshore units shall be provided with:
 - a) a main towing arrangement;
 - b) an emergency towing arrangement;
 - c) a narrow water towing arrangement;
 - d) *emergency anchor arrangement.*
- (2) *A main towing arrangement and emergency anchor arrangement is not required when the mobile offshore unit is certified for independent navigation and by self propulsion complies with the requirements of section 2.*

Section 4 *Main towing arrangement*

- (1) A main towing arrangement shall consist of:
 - a) at least two attachments to the unit sufficiently spaced to have control during the towing operation;
 - b) *one or more* towing connections;
 - c) one weak link per towing connection, with a suitable chain in the end to place in the shark-jaw of the towing vessel. *Weak link means the part of the towing connection which is intended to collapse first in case of overloading.*

- d) shackles for connections.
- (2) The following spare material shall be on board during the towing operation:
 - a) a complete towing connection;
 - b) two weak links including shackles for the mounting arrangement.
- (3) If *only* one towing vessel is used, a bridle with a flounder plate shall be used. The upper angle of the bridle shall be between 45° and 60°, as illustrated below:



Section 5 *Emergency towing arrangement*

- (1) An emergency towing arrangement shall consist of
 - a) a towing connection with a suitable chain in the end to place in the shark-jaw of the towing vessel
 - b) shackles for connections.
- (2) *The emergency towing arrangement shall be possible to arrange for one towing vessel. A mobile offshore unit need not comply with this requirement if the unit is certified or the building contract has been placed before 1 January 2016.*
- (3) *During transit it shall be possible to connect the emergency towing arrangement to the towing vessel after loss of main and emergency power.*

Section 6 *Narrow water towing arrangement*

A narrow water towing arrangement shall consist of fastening points to towing lines suitable for connection to an assistance vessel when required by the coastal State.

Section 7 *Emergency anchor arrangement*

- (1) *The emergency anchor arrangement shall be dimensioned at least equal to emergency towing arrangement cf. section 9.*
- (2) *All components in the anchor arrangement shall have a factory (test) certificate from the manufacturer.*
- (3) *After loss of main and emergency power, it shall be possible to perform a controlled drop of the emergency anchor with a brake system or similar.*

Chapter 4 Design and dimensioning of the main and emergency towing arrangement

Section 8 *Design of the towing arrangement*

- (1) The tow connection shall consist of a chain or a combination of chain and wire. Where the tow connection is subject to heavy wear and tear, a chain shall be used.
- (2) Wire ropes in towing connections shall be fitted with terminations, with solid thimbles or steel socket, suitable for towing operations.
- (3) *The position, construction and arrangement of the attachments shall be such that it is easy and quick to change the towing equipment in calm waters.*
- (4) All movable equipment which is part of the towing arrangement shall have a *factory (test) certificate from the manufacturer.*
- (5) The tow connection shall be of sufficient length *so that connection to the towing vessel can be executed* at a distance of minimum 40 metres from the unit, as illustrated below:

Section 9 *Dimensioning of towing arrangement*

- (1) The towing design load (F_D) for the towing arrangement shall at least be equal to the requirements for towing force pursuant to section 2.
- (2) The propulsion power of a mobile offshore unit shall not be included in the dimensioning of the emergency towing arrangement.
- (3) *The weak link shall have a breaking load of at least three times F_D .*
- (4) *Other towing equipment shall have a breaking load of at least 30% higher than the breaking load of the weak link. If the breaking load of the weak link is clearly defined, the percentage may be lower.*
- (5) Triplates shall be dimensioned to ensure that the yield point is not exceeded when subjected to a load equal to the breaking load of the towing equipment.
- (6) The shackles for connection shall have a breaking strength that exceeds the breaking strength of the strongest part of the tow connection.
- (7) Towing attachments, hawseholes, etc. shall be dimensioned with a utilization factor of 0.9, and associated supporting structure with a factor of 0.8, against the material's limit of yield strength in relation to the breaking load pursuant to the fourth paragraph. Strength analyses shall be made for the most unfavourable direction of the towing line's strength.

Section 10 *Additional requirements for the main towing arrangement*

- (1) A weak link shall be placed at *the end of the towing equipment which is connected to the towing vessel.*
- (2) In the event of a break in the main towing arrangement, it shall be possible to quickly establish a new tow connection in a safe manner.
- (3) The retrieving arrangement shall be dimensioned to retrieve the combined load of the unit's towing equipment and the length of the towing line to be used. Maximum distance between the unit and the towing vessel, and maximum ocean depths during towing operations, shall be included in the dimensioning.

Chapter 5 Planned transit

Section 11 *Requirements for transit*

- (1) Transit moves shall take place in such a way that it causes the least possible encumbrance and danger to other activities, and special regard shall be had to fishing and shipping.

(2) Weather restricted operations or unrestricted operations shall be performed without exceeding the unit's design criteria.

(3) Weather restricted operations and unrestricted operations mean:

a) «*weather restricted operations*»: Operations with reliable weather forecasts, where the operation's

reference period (T_R) is less than 96 hours and the planned operation period based on a conservative schedule for the operation (T_{POP}) is less than 72 hours.

$$T_R = T_{POP} + T_C$$

where

T_R starts at the time of the last weather forecast before the operation commences,

T_C = Estimated maximum contingency time. T_C shall be added to cover general uncertainty in T_{POP} , and possible contingency situations that will require additional time to complete the operation.

b) «*unrestricted operations*»: Operations where either T_R is of longer duration than 96 hours or T_{POP} is

of longer duration than 72 hours or where the weather forecasts are unreliable.

(4) Before the start of a weather restricted operation:

a) an updated weather forecast for each 12 hour period of the waters in question shall be obtained;

b) the weather window shall be three times the planned operation time. Alternatively, the risk-based method specified in

DNV GL OS-H-101 section 4 may be applied to estimate the weather window. A standard with an equivalent level of safety may be applied. When using a risk-based method, the weather window shall not be less than 1.5 times the planned operation time.

(5) Environmental criteria for unrestricted operations shall be based on extreme value statistics for the areas in question. *The environmental criteria can be reduced when the active use of the long term weather forecast can predict any extreme weather conditions within the defined T_R .*

Extreme value statistics means environmental conditions with a 10-year return period for towing operations lasting up to 30 days and a 100-year return period for operations lasting more than 30 days.

(6) Unrestricted operations shall not be carried out if environmental conditions which may pose a risk to life, property and the environment are predicted.

Section 12 *Additional requirements for self-elevating units during transit*

(1) During towing, the legs of an self-elevating unit shall be secured in a position accepted by the MOU classification society.

(2) Before the start of a weather restricted operation:

a) safe jack-up locations along the tow route shall be established to ensure that the distance between possible emergency jack-up locations is not more than 12 hours;

b) the deck cargo shall have a permanent location;

c) the deck cargo shall be accounted for in the design and operation criteria;

d) the deck cargo shall be secured in order to withstand environmental loads that may occur during the towing operation, and heeling caused by damage to the unit, *cf. section 21 of the Regulations of 20 December 1991 No. 878 on stability, watertight subdivision and watertight/weathertight closing means on mobile offshore units.*

(3) Deck cargo shall not be carried *during an* unrestricted operation. *There shall only be* personnel on board for periods when this is necessary for the execution of the towing operation.

Chapter 6 Risk assessment and procedure

Section 14 *Risk assessment*

(1) Prior to each transit, the company shall carry out a risk assessment which shall at least include:

- a) *the personnel necessary for carrying out the operation;*
- b) the number of towing vessels *needed assessed against* the consequence of a single error, e.g. line breakage or breakdown of the engines;
- c) *the condition of the towing vessel and specifications, including towing equipment and arrangement;*
- d) *the towing vessel's force restriction in order to protect against overloading of the towing arrangement;*
- e) weather conditions in relation to design criteria;
- f) the reliability of the weather forecast;
- g) *the need for and the use of impact-absorbing equipment;*
- h) safe distance to towing vessel during hook-up;
- i) *stability;*
- j) *seafastening;*
- k) planned tow route, including port of refuge and bunkering station;
- l) *necessary ballasting during the towing operation;*
- m) *assessment of vulnerability and criticality of the ballast system;*
- n) any additional measures during towing in coastal waters or in areas with other installations *and upon departure and arrival;*
- o) contingency plan in case the operation criteria are exceeded;
- p) availability of towing force;
- q) *the amount of oil and chemicals on board assessed against any environmental consequence in the event of a discharge.*

(2) For self-elevating units, the risk assessment shall also include:

- a) seabed conditions *on jack-up locations;*
- b) pre-loading *during jacking up operations, including accept criteria for minimum and maximum permitted submersion of legs on the seabed;*
- c) safe jack-up locations along *the* planned tow route.

Section 15 *Procedure for the planning and performance of transits*

(1) The unit shall have a procedure for the planning and *performance* of transits, which shall at least include:

- a) *how towing or transits shall be performed;*
- b) *what to check before and during transit, i.a.:*
weather forecast, seafastening, weathertight and watertight closing;
- c) relevant structural restrictions and operational limitations, *i.a.* wave height, wave period, wind, current, deck cargo, draught and temperature;
- d) *diagrams showing wind forces as function of wind velocity, current forces as function of current velocity and wave drift forces in relation to significant wave height and period;*
- e) stability data;
- f) general arrangement;
- g) specification of thrust, including level of redundancy, provided by the unit's own propulsion machinery (if fitted);
- h) ballast system;
- i) required personnel and competence;

- j) safety equipment;
 - k) the towing design load (F_D) for the towing equipment and arrangement, including the emergency towing system;
 - l) *methods* for establishing a new towing connection;
 - m) *measures during* critical events, e.g. line breakage, breakdown of the engines, extreme weather;
 - n) anchor particulars (if fitted) and the use thereof.
- (2) *For self-elevating units, the procedure also include securing of legs and inspection of leg wells.*

Chapter 7 Concluding provisions

Section 16 *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 17 *Transitional provision*

Mobile offshore units may as an alternative to the requirements of sections 2 to 12 comply with Appendix I until the next certificate issue, if the building contract has been placed or the unit is certified before 1 January 2016.

Section 18 *Entry into force*

- (1) These Regulations enter into force on *1 January 2016*. As from the same date, Regulations of 17 December 1986 No. 2319 on field moves and towing of mobile offshore units and concerning towing system and mooring of supply ships at such units are repealed.