Proposed Regulation amending various regulations relating to mobile offshore units

Legal basis: Laid down by the Norwegian Maritime Authority on dd.mm.2026 under the Act of 16 February 2007 No. 9 relating to ship safety and security (Ship Safety and Security Act) sections 2, 6, 7, 8, 9, 11, 14, 21, 22, 28, 28a, 29, 42 and 45, cf. Formal Delegation of 16 February 2007 No. 171, Formal Delegation of 31 May 2007 No. 590 and Formal Delegation of 19 August 2013 No. 1002.

I

Regulations of 4 September 1987 No. 856 on the construction of mobile offshore units are amended as follows:

The introductory legal basis should read:

Legal basis: Laid down by the Norwegian Maritime Authority on 4 September 1987 under the Act of 9 June 1903 No. 7 relating to Public Control of the Seaworthiness of Ships, etc. Legal basis amended to Act of 16 February 2007 No. 9 relating to ship safety and security (Ship Safety and Security Act) sections *2*, *6*, 7, 8, 9, 11, 14, 21, 28a and 45, cf. Formal Delegation of 16 February 2007 No. 171, Formal Delegation of 31 May 2007 No. 590 and Formal Delegation of 19 August 2013 No. 1002.

Section 1 item 2 should read:

2. *Recognised classification society*: *A classification society* with which the Ministry has entered into an agreement *in accordance with* section 41 of the Ship Safety and Security Act.

Section 1 item 3 should read:

3. *MOU classification society:* A recognised *classification society* with which there is a supplementary agreement for *carrying out supervision* of mobile offshore units. The MOU *classification societies are*:

1. American Bureau of Shipping (ABS)
2. DNV
3. Lloyd's Register of Shipping (LR).

Section 1 item 4 shall read:

4. *Functional loads:* Constant static *loads* (aggregate *weight* of structure and *fixed* equipment), *movable* static *loads* (weight of equipment, etc.), *variable* static *loads* (weight of supplies, ballast, etc.) and *dynamic loads* (loads from cranes, etc.).

Section 1 item 5 should read:

5. *Environmental loads:* Waves, wind, current and *water level*.

Section 1 item 6 is repealed.

Existing section 1 items 7 to 11 are renumbered as section 1 items 6 to 10.

Section 1 item 10 should read:

10. *Certified:*

a. In respect of equipment and materials: Equipment which satisfies the requirements specified or materials complying with a recognised standard and certified, approved or type-approved by:

- a Notified Body;
- an accredited certifying body;
- a recognised classification society;
- other public or private institution recognised by the Norwegian Maritime Authority; or
- the *Administration of a Contracting Government to the International Convention for the Safety of Life at Sea (SOLAS)*.

b. In respect of the execution of work: Personnel who according to regulatory requirements are required to hold special qualifications for performing specific tasks, and who are certified by:

- a recognised classification society;
- an accredited certifying body; or
- other public or private institution recognised by the Norwegian Maritime Authority.

Section 1 item 11 should read:

11. Lithium-ion battery: Battery cabinets containing lithium-ion cells, including necessary heat exchangers and piping systems for cooling, internal electrical circuits and electronics.

Section 1 new item 12 should read:

12. Battery system: The battery system as a whole, including lithium-ion batteries, the converter controlling charging and discharging of the battery system, as well as the water tanks and pumps for water-cooling systems.

Section 1 new item 13 should read:

13. Battery Management System (BMS): A system that monitors and controls battery performance to ensure safe and efficient operation. Examples of functions performed by a battery management system include cell monitoring, balancing, estimation of state of charge (SoC) and state

of health (SoH), temperature management, communication, fault detection, diagnostics and charge control.

Section 1 new item 14 should read:

14. SCH 160: Refers to Schedule 160, which is a standardised designation for pipe wall thickness in accordance with the standards ASME B36.10M and ASME B36.19M.

Section 1 new item 15 should read:

15. Inert gas: A gas that does not chemically react with other substances and does not support combustion. Inert gas is used to reduce the oxygen concentration within a space so that fire is suppressed and explosion cannot occur.

Section 4 items 2 and 3 should read:

2. For units being built for classification with an MOU classification society, drawings, specifications, information, and other relevant documentation concerning those matters (control areas) that are delegated shall be submitted to the relevant MOU classification society. The MOU classification society shall report to the Norwegian Maritime Authority in accordance with the terms of the agreement between the two parties.

3. For units which are not classed by an MOU classification society, the company shall be able to document a safety standard that is equivalent to that of units holding such class.

Section 6 item 1.1 should read:

1.1. The unit shall be constructed in such a manner as to withstand the *environmental loads* expected in the *areas* in which it is intended to operate. The unit shall be of sufficient strength to withstand the *least favourable* combination of *maximum environmental and functional loads* that may occur simultaneously.

Section 6 item 1.2 should read:

1.2. When dimensioning load-bearing structures, simultaneous environmental loads with an annual probability of 10^{-2} for wind and waves and an annual probability of 10^{-1} for current shall, as a minimum, be used. As an alternative to load combinations with a given probability, responses with the same probability may be used. *For self-elevating units, calculations shall also be performed for accident limit states, in which environmental loads with an annual probability of exceedance shall be combined in accordance with the table below, with the load and material factors reduced to 1.0:*

Accident limit states		*Wind*	*Waves (a)*	*Current (b)*	*Water level (c)*
	1	10^{-4}	10^{-2}	10^{-1}	$MWL+S_{10}^{-4}$
	2	10^{-2}	10^{-4}	10^{-1}	$MWL+S_{10}^{-4}$
(a) If the contour line approach is used, the worst combination of significant wave height (Hs)					

and peak period (Tp) for the specified probability shall be applied.

(b) For current, a 1-hour mean shall be used.

(c) MWL = mean water level; MWL + S = mean water level including the effect of storm surge with the given probability.

The material factor for buckling of shell structures shall account for the reduction in slenderness, as specified in the following table:

Material factor for buckling of shell structures for loads according to limit states 1 and 2.			
Type of construction	*$\lambda \leq 0.5$*	*$0.5 < \lambda < 1.0$*	*$\lambda \geq 1.0$*
Shells of single curvature	*1.00*	*$(0.85 + 0.60\,\lambda)/1.15$*	*1.26*

λ = *reduced slenderness parameter, defined as the square root of (f_y/f_E)*

f_y = *specified minimum yield stress*

f_E = *specified elastic buckling stress for the buckling mode*

Section 6 item 2.2 should read:

2.2 The calculations shall be carried out in accordance with the design criteria and calculation methods in force, as set out in the rules of the relevant *MOU classification society*. The calculations shall take into account the following:

Section 6 item 2.2.1 should read:

2.2.1. The calculations shall be carried out for the relevant *loading conditions*.

Section 6 item 2.2.4 should read:

2.2.4. *Self-elevating units shall have* a safety factor of 1.5 against capsizing (the ratio between stabilising and overturning moments), *and in addition have a safety factor of 1.0 against capsizing under accident limit states*. When calculating the overturning moment, the *least favourable* combination of *environmental loads according to item 1.2* and *functional loads* shall be considered. The moments shall be calculated about the edge of the foundation for the legs that bear the maximum stress.

Section 6 item 2.2.5 should read:

2.2.5 In selecting steel materials for hull and legs, the temperature conditions that may occur shall be taken into account. In constructions subject to severe stresses, such as legs, steel with high resistance to brittle fracture, certified by a recognised *classification society*, shall be used.

Section 6 item 2.2.6 should read:

2.2.6. Where *material fatigue* may occur due to variable *loads*, this shall be taken into account in the design process.

Section 6 item 2.2.9 should read:

2.2.9 *Calculations shall be carried out* to determine the *maximum* wave height and corresponding wave period, or similar criteria, that the unit is designed to withstand during jacking down, short hauls (less than 12 hours between positions where it is safe and possible to jack up the unit) and long hauls, and under which maximum conditions jacking-up must be commenced in order to avoid damage to the unit. Similar calculations shall be carried out for *semi-submersible* units to determine the maximum conditions under which the unit can be towed or sailed before submersion must occur.

Practical information on the limitations established by these calculations shall be included in the operation manual for use on board. Where it is practicable to implement measures to reduce the risk of damage to the unit during towing or sailing, for instance by adjusting speed and/or course, lowering the legs, etc., the relevant practical information shall be included in the operation manual.

Section 6 item 2.2.10 should read:

2.2.10. All cargo decks shall be designed for a specified maxim*um* deck *load* in tonnes per square metre, in addition to *loads* from constant static *loads*. The operation manual shall include practical information on the maxim*um* permissible deck *load*s.

Section 6.5.1 should read:

5.1. *The elevating system shall be so arranged that failure of any single component cannot result in unintended lowering of the unit.*

Section 6 item 5.2 should read:

5.2. *The elevating system shall be constructed such that the relative position between the legs and the unit can be safely maintained in the event of a loss of power to the jacking system (e.g. electrical, hydraulic or pneumatic).*

Section 6 item 5.3 should read:

5.3. *The elevating system shall be designed so that each leg can be preloaded with a load greater than expected under all weather and operational conditions in the jacked-up position.*

Existing section 6.5.3 is renumbered as section 6.5.4.

Section 6 b should read:

Section 6 b Machinery systems

1. Machinery, associated systems and components shall comply with the rules of an MOU classification society applicable to mobile offshore units. This includes:

- machinery, associated systems and individual components in general;
- main and auxiliary machinery;
- propulsion machinery and steering arrangement;
- boilers, pressure vessels, thermal oil installations and incinerators;
- pumps and piping related to the machinery systems and the hull; and
- ventilation of machinery spaces containing combustion machinery.

2. Machinery installations in hazardous areas shall comply with chapter 6.7 of the MODU Code (*2009*).

3. The requirements of this section do not apply to battery systems or electrochemical capacitor systems with a capacity of 20 kWh or more room.

New section 6 c should read:

Section 6 c. Battery systems or electrochemical capacitor systems

1. *Battery systems and electrochemical capacitor systems with a capacity of 20 kWh or more per room shall be designed, constructed, certified, installed and tested in accordance with the rules of an MOU classification society for battery systems. In addition, they shall comply with the requirements set out in items 2 to 12 of this section and in section 6 a. For mobile offshore units on which such systems have been installed before [dd.mm.2026] (entry into force of these amendments), the requirements of this section shall apply only when the battery system or electrochemical capacitor system is replaced beyond normal maintenance.*

2. Lithium-ion cells shall be contained within enclosed modules or cabinets fitted with an integrated off-gas duct designed to prevent flames and detectable gases from spreading into the battery room in the event of an internal failure of a single cell. The off-gas ducts shall:

a. be designed to prevent water ingress from causing damage to the batteries;
b. be designed to prevent hydrocarbon gases from external sources from reaching ignition sources in the batteries;
c. have gas-tight steel ducts with a minimum wall thickness of 3 mm from the battery room to the location of outlets and inlets. The thickness of steel ducts may be reduced where the ducts are located within the extract ventilation of the battery room. A gas-tight non-return damper shall be installed at the penetration from the battery room;
d. not pass through accommodation spaces, service spaces or control stations;
e. discharge off-gas to areas where personnel will not be exposed to toxic gases and at a safe distance from other ventilation inlets;
f. have outlets, and any inlets, located above the limits requiring weathertight means of closure, cf. section 18.3 (b) of the Regulations of 20 December 1991 No. 878 on stability, watertight subdivision and watertight/weathertight means of closure on mobile offshore units;

g. where the system has inlets, be fitted with gas-tight non-return dampers separating the inlet ducts from the outlet section. The inlet shall not be located in hazardous areas;

h. be fitted with grilles on inlets and outlets, with openings not exceeding 13 mm.

3. Lithium-ion batteries shall be installed in dedicated battery rooms. The BMS may also be installed within the battery room. Battery rooms shall:

a. be located and arranged so that the consequences of an incident in the batteries or adjacent spaces remain within the acceptance criteria of the Regulations of 22 December 1993 No. 1239 on risk analyses for mobile offshore units. The room shall not be located:

i. within the damage area, cf. sections 25, 26 and 27 of the Stability Regulations;

ii. adjacent to the outer shell of buoyant volume, unless the watertight integrity is designed to withstand the maximum explosion pressure;

b. *have bulkheads and decks with the strength of watertight structures with a minimum static design pressure of 20 kPa, and be gas-tight with respect to adjacent spaces. The door, locking mechanism and hinges shall be designed to ensure that they do not compromise the integrity of the bulkhead;*

c. be fitted with a self-closing door that triggers an alarm in a continuously manned control room if the door does not lock within 120 seconds. The door shall not have a leakage rate exceeding 0.5 [$m^3/(m^2 \cdot h)$] at 50 Pa differential pressure. There shall be no direct access to the battery room from accommodation spaces, service spaces or control stations;

d. be insulated to fire class of A-60 in bulkheads and decks. Where the battery room is adjacent to void spaces, cofferdams or water tanks forming part of the unit's structure, the fire insulation may be reduced to fire class A-0 on these boundaries;

e. have a dedicated drainage system designed for hazardous areas, with drains at all corners to remove water from the extinguishing system. If relevant according to the arrangement of the drainage system, it shall be operable from the continuously manned control room and locally near the activation valves of fixed freshwater fire-fighting systems. Equipment located within 1.5 metres of the ventilation of the drainage tank shall be certified for hazardous areas Zone 2. As a minimum, the temperature class shall be T2 and the gas group IIC. The ventilation of the drainage tank shall be located so that personnel are not exposed to toxic gases;

f. have no piping systems installed unrelated to the battery room. Drainage from spaces directly above the battery room is permitted if the drainage and associated pipes are fully welded, corrosion-protected, self-draining and in compliance with SCH160;

g. not contain fire hydrants;

h. not contain ventilation ducts passing through to other spaces;

i. be arranged for safe venting of flammable gases using inert gas following incidents involving the battery system.

4. The battery room shall be equipped with a gas detection system capable of detecting hazardous gases from lithium-ion batteries. In addition, detectors shall be installed in extract ducts from the battery room. The gas detection system shall be designed in accordance with section 25 of the Regulations of 31 January 1984 No. 227 on precautionary measures against fire and explosion on mobile offshore units, but adapted to the relevant gases from lithium-ion batteries. As a minimum, it shall be capable of monitoring carbon monoxide (CO) and hydrogen (H_2).

5. All equipment in the upper part of the battery room, from the ceiling down to 0.4 m below the lowest insulated part of the ceiling, shall be certified for use in hazardous area Zone 2. The equipment shall have, as a minimum, a temperature class of T2 and a gas group of IIC. All other equipment in the room, except lithium-ion batteries and the BMS, shall either be of equivalent explosion-proof standard or automatically disconnected upon gas detection in the battery room, provided that the equipment is not safety-critical.

6. The battery room shall be equipped with an IR CCTV system providing coverage of the entire room. The camera system shall be capable of being monitored from a continuously manned control room. The system shall automatically display live images from the battery room in the event of BMS fault alarms, elevated room temperature, fire detection or gas detection. Camera surveillance shall be indicated by signage outside the battery room.

7. The battery room shall be equipped with the following fire-extinguishing systems:

a. fixed freshwater fire-extinguishing system

i. complying with the requirements of section 10 of the Regulations of 31 January 1984 No. 227 on precautionary measures against fire and explosion on mobile offshore units;

ii. with sufficient freshwater available for at least ten hours of continuous operation. If the system relies on replenishment from a tank that also supplies other systems, a low-level alarm shall be installed on the tank to ensure adequate water reserves for the minimum operating time. An alarm shall be arranged in the continuously manned control room before the system is switched over to seawater.

b. inert gas extinguishing system

i. complying with the requirements of section 10 (2) of the Regulations of 31 January 1984 No. 227 on precautionary measures against fire and explosion on mobile offshore units;

ii. designed to discharge two shots at 100% capacity in independent cylinders;

iii. where the first shot shall be automatically discharged upon detection of fire or gas by two detectors;

iv. protected against the accumulation of static electricity within the nozzles during discharge;

v. with an automatic release function capable of being deactivated, and a clearly visible warning light in the continuously manned control room indicating when the system is deactivated;

vi. where the secondary release shall be manually activated upon confirmed gas or smoke in the room, as soon as the room is confirmed evacuated and doors are closed. The secondary release shall be arranged for controlled discharge and be operable from a manned control room.

8. The ventilation system for the battery room shall:

- *a. be independent of other ventilation systems and maintain environmental conditions that are not harmful to the battery;*
- *b. be designed to prevent local accumulation of gas;*
- *c. be certified for use in hazardous area Zone 2. This also applies to equipment placed within 4.0 m of the outlet. The temperature class and gas group of such equipment shall, as a minimum, be T2 and IIC;*
- *d. be automatically shut gas-tight upon detection of gas or smoke in the ventilation system or in the battery room. Any pressure build-up in the battery room shall be directed into extract*

ducts through pressure-relief dampers so that the overpressure in the room does not exceed 50 Pa;

e. *be capable of being manually shut off both outside the battery room and from a manned control room;*

f. *not have any inlets in hazardous areas and shall direct extract air to areas where personnel cannot be exposed to toxic gases;*

g. *have inlets and outlets protected against water ingress and positioned sufficiently high so that watertight means of closure are not required, cf. section 18.3 (b) of the Stability Regulations;*

h. *have gas-tight ventilation ducts:*

i. that do not pass through accommodation spaces, service spaces or control stations;

ii. constructed of steel, with a minimum thickness of 3 mm for ducts up to 300 mm in diameter or width, and at least 5 mm for ducts with a diameter or width of 760 mm or greater. For duct sizes between 300 and 760 mm, the thickness shall be interpolated;

iii. arranged so that condensation or water ingress from damage to the ducts cannot reach the lithium-ion battery; and

iv. fitted with grilles having openings of 13 mm or less at external inlets and outlets.

9. A procedure for the safe ventilation of the battery room using inert gas following any incident involving the battery system shall be established.

10. Other systems, apart from the lithium-ion battery and the BMS, which together constitute the battery system, shall not be placed in the battery room.

11. Visual and audible alarms shall be installed in the battery room and in adjacent rooms. These alarms shall be automatically activated upon detection of fire or gas in the battery room.

12. From a continuously manned control room, it shall be possible to monitor the room temperature, humidity and status of the battery room ventilation system. If ventilation fans exist for the integrated off-gas ducts, the status of these fans shall also be capable of being monitored. An alarm shall be provided in the continuously manned control room in the event of high battery room temperature, a malfunction in the battery room ventilation system or a malfunction in the ventilation fans for the integrated off-gas ducts. The monitoring and alarm systems shall be independent of the battery system.

Section 10 item 1.2 should read:

1.2. Self-elevating units.

In the elevated condition, the distance between the *underside of the hull* and the maximum wave crest shall be positive *under the environmental conditions given by the accident limit state 2 in the table in section 6 item 1.2.*

Section 11 third paragraph ninth indent should read:

- *Floodlights, status lights and* helideck perimeter lighting, *lighting of the windsock and associated obstruction lights*.

Section 11 twelfth paragraph should read:

12. Where the emergency source of power is a generator, it shall be capable of automatically starting and connecting to the emergency switchboard in the event of failure of the main source of electrical power. This shall take place as quickly and safely as possible, and in any case within 45 seconds.

Section 11 thirteenth paragraph should read:

13. Where a generator is used as an emergency power source, a transitional source of electrical power shall be installed. The transitional source shall consist of accumulator batteries and be capable of supplying electrical power for at least 30 minutes without recharging and without the voltage dropping below 12% of the battery's nominal voltage. The company's risk analyses, as described in sections 15 and 16 of the Regulations of 22 December 1993 No. 1239 on risk analyses for mobile units, shall specify which loads are to be supplied by the transitional source.

Existing section 11 twelfth to fourteenth paragraphs are renumbered to section 11 fourteenth to sixteenth paragraphs.

Section 13 should read:

Section 13 *Marking and navigational aids*

1. The unit shall be marked with the *name of the unit.* The marking shall *be arranged in such a way that the unit can be readily identified from both vessels and aircraft.* The marking shall be clearly visible both in daylight and in darkness. Letters and numerals shall be at least 1 metre in height.

2. The unit shall be equipped with:

2.1. *One* or more white lights so arranged that at least *one* is visible from all directions. *The lights shall be located between 6 and 30 metres above sea level. If this is not possible, they can be placed higher, but as close to 30 metres as possible.* On a dark night with good visibility, the lights shall be visible at a distance of at least 15 nautical miles. A back-up system with a nominal range of at least 10 nautical miles shall *also be provided*. The lights shall *display the Morse code letter* "U" every 15 seconds. The lenses of the lights shall be designed so that the light, in addition to being visible at the mentioned distance, is also visible in the immediate vicinity of the unit.

2.2. A separate *battery power source that is continuously charged and has sufficient capacity to operate the backup U-light system referred to in item 2.1 for at least four days.* The battery source of power shall come into operation automatically. The above-mentioned *light systems shall be capable of operating unattended if the installation is evacuated*.

3. Units shall be equipped with lights in accordance with the International Regulations for Preventing Collisions at Sea (COLREEG)

4. Equipment referred to in *item 2.1 shall* be certified. Equipment referred to in item 3 shall be type-approved by a notified body and marked in accordance with the *Regulations of 30 August 2016 No. 1042 on marine equipment*.

Section 21 item 1.1 should read:

1.1. They shall be built of steel or other equivalent material with regard to strength and fire resistance. Containers with lifting arrangements shall, with regard to strength, be designed for the *loads* that may occur in offshore handling. The dynamic additional *loads* may alternatively be taken into consideration by using standard containers with workloads accordingly reduced (reduced load utilisation).

II

Regulations of 22 December 1993 No. 1239 on risk analyses for mobile offshore units are amended as follows:

Section 24 items 1 subparagraphs g and h should read:

1. g. Fires in enclosed spaces:

- fire in accommodation spaces
- fire in machinery spaces
- *fire in battery rooms*
- *fire in spaces containing electrochemical capacitor systems*
- fire in service spaces.

1. h. Explosions in machinery spaces, *battery rooms*, *spaces containing electrochemical capacitor systems* and other equipment rooms.

III

Regulations of 31 January 1984 No. 227 on precautionary measures against fire and explosion on mobile offshore units are amended as follows:

Section 22 fifth and sixth paragraphs should read:

5. The detection system shall be divided into loops. There shall be separate loops for accommodation spaces, for machinery spaces of category A and for hazardous areas. *Loops serving battery rooms or spaces containing electrochemical capacitor systems shall not be connected to loops serving accommodation spaces or hazardous areas*.

6. All areas in machinery spaces of category A, emergency generator rooms, *battery rooms and spaces containing electrochemical capacitor systems* shall be effectively monitored by suitable detectors. Areas particularly exposed to fire, such as those near engines, generators and oil-fired boilers, shall be provided with additional detector coverage. The detector installation shall be based

on two different detector principles, one of which shall be sensitive to combustion gases (smoke detectors). In accommodation spaces, the detector installation shall consist of smoke detectors.

IV

This Regulation enters into force immediately.