Provisions related to the marking of permanently located facilities in the petroleum industry

Foreword

These provisions have been prepared by the Norwegian Coastal Administration (NCA) Head office in accordance with the Regulations of 29 April 2010 no. 634 relating to the design and equipping of facilities, etc. in the petroleum activities (the facilities regulations) Section 71 first paragraph.

The NCA's regulation of the marking of permanent located facilities in the petroleum activities cannot be sufficiently regulated through the Act of 17 April 2009 No. 19 relating to harbours and fairways (the Harbour Act), as such offshore units as a rule are established beyond territorial waters, which mainly comprice the scope of the act. It is mentioned that if such offshore units are established within territorial waters, the measure will require permission pursuant to the Harbour Act.

The NCA's provisions are directed towards those establishing and operating facilities in the petroleum activities and other users of the waters.

Established 20 December 2013

Norwegian Coastal Administration - Head Office

Maritime Safety Department

Note:

This document is an English translation of '*Kystverkets bestemmelser om merking av permanent plasserte innretninger i petroleumsvirksomheten*'. Should there be any discrepancy between the provisions in the Norwegian language and this translation, the wording in the Norwegian provisions shall have precedence.

Provisions related to the marking of permanently located facilities in the petroleum industry

Revisions:

No.	Date	Details	Approval
1	2018-1-22	Language, technical update etc.	ADI

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Provisions related to the marking of permanently located facilities in the petroleum industry

1 Introduction

The provisions apply to facilities which are subject to the facilities regulations. It follows from the regulations Section 71 that:

'Facilities shall be marked such that they can quickly be identified and such that other traffic in the area is notified. Marking of facilities shall be in accordance with the Norwegian Coastal Administration's provisions.

Anchor and marking buoys shall be marked in a corresponding manner.

All navigation marks placed in connection with the petroleum activities shall be in accordance with IALA rules and of a type that is accepted by the Norwegian Coastal Administration for such marking. When anchor points are placed outside the safety zone, the Petroleum Safety Authority Norway can require them to be marked with yellow anchor buoys with yellow reflectors, and if applicable, with yellow flashing lights.'

The provisions shall ensure that facilities may be detected at a distance that is sufficient in order for vessels to choose a safe course for passing and are otherwise visible to vessels in the area.

Requirements in the provisions may appear as functional requirements only, a combination of functional requirements and technical requirements or technical requirements only.

2 General

It is not possible to stipulate a passing distance between vessels and offshore units that will be safe under all conditions. With this reservation, for practical purposes one operates with three zones around a facility:

1 Passing zone: From 10 nautical miles to 3 nautical miles

2 Caution zone: From 3 nautical miles to 500 metres

1 Safety zone: From 500 metres to the offshore unit's outer edge[1]

The provisions are prepared on the basis that facilities ordinarily are portrayed on nautical charts, and that vessels follow passage plans that provide a safe passing distance.

3 Availability

Light signals, radar transponder (racon) and AIS Aid to navigation shall:

- have an availability of 99.8%, and
- be capable of functioning for at least 96 hours on an emergency energy, when no other energy sources are available.

Availability shall be calculated for a continuous period of 3 years.

4 Report to National coordinator for navigational warnings

If light signals, radar transponder (racon) or AIS Aid to navigation or other equipment for the guidance of mariners are not working this should, if an evaluation of risk deems it necessary, be reported to National coordinator for navigational warnings.

In the evaluation, it should be taken into account if it is other equipment that make the detection and identification of the facilities possible, if there are compensating measures such as guard ships in the area etc.

[1] The safety zone can, under certain circumstances be increased to 1000 metres.

5 Light signals

For the calculation of light intensity to fulfil the requirements for luminous range, IALA recommendations shall be followed. Calculations shall be based on that the atmospheric transmissivity, $T_M = 0.74$ (meteorological visibility 10 nautical miles).

If there exists documentation that the transmissivity is less than 0.74 ($T_M < 0.74$) the lesser transmissivity shall be used for the calculation of the luminous range.

Light signals should normally be switched on and off when the ambient light level is 50 - 100 lux and 150 - 200 lux respectively.

5.1 Main light signals

A facility shall be equipped with main light signals such that at least one light signal is visible from any direction when dark.

The following applies for the main light signals:

(a) Colour: White

(b) Character: Single letter signal 'U' (· · –)[2] with a 15 second period

(c) Luminous range: 10 nautical miles[3]

(d) Main light signals shall be synchronized, also with subsidiary light signals

In the character, a 'dash' shall have the duration of three 'dots' and the duration of dark between 'dots' and 'dashes' as one 'dot'. The duration of dark between consecutive light signals shall be no less than 8 seconds and no more than 12 seconds.[4]

The main light signal should preferably not be lower than 6 metres and not higher than 30 metres above mean highest astronomical tide (HAT). In special circumstances where the facility is such that the main light signal cannot be installed at 30 metres or lower, it may be installed at a height no higher than 35 metres.

5.2 Subsidiary light signals

A facility shall be equipped with subsidiary light signals that indicate its outer edge in the dark, with the exception of those outer edges that may already be marked by main lights pursuant to section. 5.1.

The following applies for subsidiary light signals:

(a) Colour: Red

(b) Character: As for main light signals

(c) Luminous range: 3 nautical miles

(d) The subsidiary light signals shall be synchronized, also with the main light signals

6 Radar transponder (racon)

A facility should be equipped with a radar transponder (racon) to ensure that it might be detected with radar where light signals or other navigational guidance is not considered

[2] In the 'International Code of Signals' the single-letter signal 'U' means 'You are running into danger'.

[3] The light range may be over 10 nautical miles.

[4] Example of Mo(U) light signal with a period of 15 seconds and 8 second duration of darkness between consecutive light signals 1 + 1 + 1 + 1 + 3 + 8 = 15 (Underlined numbers represent darkness.)

sufficient. This applies especially to loading buoys, platform substructures (steel truss and concrete constructions) and similar.

Radar transponders (racon) shall be capable of responding to marine radars in the 3 cm and 10 cm frequency bands. In the 10 cm frequency band, this requirement does not apply for NT (New Technology) radars.

Radar transponders shall have a code in the form of an appropriate letter of the Morse code and which starts with a 'dash'. In the code a 'dash' shall have the duration of three 'dots' and the duration between the transmission of 'dashes' and 'dots' shall be one 'dot'.

7 AIS Aid to navigation

A facility should be equipped with AIS Aid to Navigation[5] to ensure that it might be detected where light signals and other navigational guidance are not considered sufficient.

An AIS Aid to Navigation may be either physical or virtual:

- A physical AIS Aid to Navigation is an AIS message 21 'Aids-to-navigation report (AtoN)', which represents an Aid to Navigation that physically exists.
- A virtual AIS Aid to Navigation is an AIS message 21 'Aids-to-navigation report (AtoN)', which represents an Aid to Navigation that does not physically exist.

Access to and reporting in the AIS network

An AIS AtoN unit shall use 'random access TDMA' (RATDMA) for control of access to the network (cf. AIS VHF Data Link (VDL)).

Reporting to the network should be in Mode B with transmission of the same message first on channel 1 and then on channel 2 or vice versa, in rapid succession, nominally 4 seconds. Mode B gives highest probability for that all users on the AIS network receives the message.

AIS Aid to Navigation report

An AIS Aid to Navigation report shall be in the form of an 'Aids-to-navigation report (AtoN)' with type indication:

- 'Fixed structure offshore, such as oil platforms, wind farms';
- other type indications such as for example 'Special mark'.

Block number, eventually with letter, and name, shall designate facilities[6].

Example:

6406/2 KRISTIN

Maritime Mobile Service Identity

Establishing of AIS Aid to Navigation requires MMSI (Maritime Mobile Service Identity). Telenor Maritim Radio assigns such identity.

8 Identification panels

Facilities shall be equipped with panels with block number, eventually with letter(s), and name. These shall be arranged such that identification is possible from any direction.

[5] Cfr. IMO Circular MSC.1/Circ.1473 POLICY ON USE OF AIS AIDS TO NAVIGATION.
[6] The Norwegian Petroleum Directorate promulgates designation of permanently located facilites.

Numbers and letters shall be at least 1 metre high on a yellow background of retroreflective sheeting. The material shall satisfy requirements toward retroreflection and colour as class 1 material and corresponding yellow colour according to NS-EN 12899-1:2007 Fixed, vertical road traffic signs - Part 1: Fixed signs.

Identification panels shall be illuminated when dark.

9 Fixed and floating Aids to navigation

For any marking of objects in the waters, perimeter of a facility or similar, fixed and floating Aids to navigation may be used.[7]

10 Petroleum fields with facilities

In a petroleum field with further facilities, the marking can be adjusted to the circumstances, as far as it will not constitute a hinder to fulfilment of the purpose of the provisions.

11 Validity

These provisions apply from 1 January 2014, as revised of 1 January 2018, and replace previous provisions, including the then Coast Directorate letter of 7 December 2006.

Existing facilities must through maintenance of light signals etc., ensure that they comply with these provisions no later than 1 January 2019.

References

- NORWEGIAN REG 2010-04-29 no. 634: Regulations relating to the design and equipping of facilities, etc. in the petroleum activities (the facilities regulations).
- NORWEGIAN REG 2010-02-12 no. 158 Regulations relating to health, safety and the environment in the petroleum activities and at certain onshore facilities (the Framework Regulations) - CHAPTER VIII Offshore safety zones.
- NORWEGIAN REG 2012-12-19 no. 1329: Regulations relating to signs and navigation aids.
- Retningslinjer for utforming, tekniske krav til og plassering av navigasjonsinnretninger, Kystverkets hovedkontor, januar 2013.
- IALA Recommendation O-139 on the Marking of Man-Made Offshore Structures.
- IALA Recommendation A-126 on the Use of the Automatic Identification System.
- (AIS) in Marine Aids to Navigation Services.
- IALA Guideline No. 1035 to Availability and Reliability of Aids to Navigation.

In addition, reference is made to the recommendations, guidelines and standards of International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA), International Maritime Organization (IMO), International Telecommunications Union (ITU) and International Electrotechnical Commission (IEC), which may be necessary to interpret and meet the requirements set out in these provisions.

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[7] Cf. 'Retningslinjer for utforming, tekniske krav til og plassering av navigasjonsinnretninger', NCA and 'Maritime Buoyage System and other Aids to Navigation', IALA - AISM.