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Incorporating corrigendum March 2023

BSI Standards Publication

Petroleum and natural gas industries — Site-specific assessment of mobile offshore units

Part 3: Floating units

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National foreword

This British Standard is the UK implementation of EN ISO 19905-3:2022. It is identical to ISO 19905-3:2021. It supersedes BS ISO 19905-3:2021, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/525/12, Design of offshore structures.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Industries du pétrole et du gaz naturel - Évaluation spécifique au site d'unités mobiles en mer - Partie 3: Unités flottantes (ISO 19905-3:2021)

Erdöl- und Erdgasindustrie - Beurteilung von mobilen Offshore-Einheiten bezüglich ihres Einsatzgebietes - Teil 3: Schwimmende Einheiten (ISO 19905-3:2021)

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The text of ISO 19905-3:2021 has been prepared by Technical Committee ISO/TC 67 "Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 19905-3:2022 by Technical Committee CEN/TC 12 "Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries" the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2022, and conflicting national standards shall be withdrawn at the latest by December 2022.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 19905-3:2019.

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The text of ISO 19905-3:2021 has been approved by CEN as EN ISO 19905-3:2022 without any modification.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*, Subcommittee SC 7, *Offshore structures*.

This second edition cancels and replaces the first edition (ISO 19905-3:2017), which has been technically revised.

The main changes compared to the previous edition are as follows:

— removed definitions of drift off and drive off in Clause 3 and consolidated under loss of position;

— Table 1 in Clause 5 removed and reference made to ISO 19900;

— FLS removed from 8.1.2 and 8.1.3;

— air gap requirements modified in 8.2;

— ISO 35104 referenced in 10.4;

— editorial revision.

A list of all parts in the ISO 19905 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The International Standards on offshore structures prepared by TC 67 (i.e. ISO 19900, the ISO 19901 series, ISO 19902, ISO 19903, ISO 19904-1, the ISO 19905 series, ISO 19906) constitute a common basis addressing design requirements and assessments of all types of offshore structures used by the petroleum and natural gas industries worldwide.

NOTE These are sometimes referred to as the ISO 19900 series on offshore structures.

Through their application, the intention is to achieve adequate structural integrity and performance based on reliability levels appropriate for manned and unmanned offshore structures, whatever the nature or combination of the materials used.

Structural integrity is an overall concept comprising: models for describing actions; structural analyses; design or assessment rules; safety elements; workmanship; quality management; and national requirements, all of which are mutually dependent. The modification of any of these elements in isolation can cause an imbalance or inconsistency, with possible impact on the reliability inherent in the offshore structure. The implications involved in modifying one element, therefore, are considered in relation to all the elements and the overall reliability of the offshore structure.

The International Standards on offshore structures prepared by TC 67 are intended to provide latitude in the choice of structural configurations, materials and techniques and to allow for innovative solutions. Sound engineering judgement is, therefore, necessary in the use of these documents.

This document states the general principles and basic requirements for the site-specific assessment of mobile floating units. The technical information used in the assessment primarily resides in documents referenced herein. This document is intended to be used for assessment and not for design.

Site-specific assessment is normally carried out when an existing mobile floating unit is to be installed at a specific site. The assessment is not intended to provide a full evaluation of the unit; it is assumed that aspects not addressed herein have been addressed at the design stage using other practices and standards.

The purpose of the site-specific assessment is to demonstrate the adequacy of the mobile floating unit, its stationkeeping system and any connected systems for the applicable assessment situations and defined limit states, taking into account the consequences of failure. The results of a site-specific assessment should be appropriately recorded and communicated to those persons required to know or act on the conclusions and recommendations. Alternative approaches to the site-specific assessment can be used provided that they have been shown to give a level of reliability equivalent, or superior, to that implicit in this document.

In this document, the following verbal forms are used:

— “shall” indicates a requirement;

— “should” indicates a recommendation;

— “can” indicates a possibility or a capability;

— “may” indicates a permission.

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Petroleum and natural gas industries — Site-specific assessment of mobile offshore units —

Part 3: Floating units

1 Scope

This document specifies requirements and recommendations for the site-specific assessment of mobile floating units for use in the petroleum and natural gas industries. It addresses the installed phase, at a specific site, of manned non-evacuated, manned evacuated and unmanned mobile floating units.

This document addresses mobile floating units that are monohull (e.g. ship-shaped vessels or barges); column-stabilized, commonly referred to as semi-submersibles; or other hull forms (e.g. cylindrical/conical shaped). It is not applicable to tension leg platforms. Stationkeeping can be provided by a mooring system, a thruster assisted mooring system, or dynamic positioning. The function of the unit can be broad, including drilling, floatel, tender assist, etc. In situations where hydrocarbons are being produced, there can be additional requirements.

This document does not address all site considerations, and certain specific locations can require additional assessment.

This document is applicable only to mobile floating units that are structurally sound and adequately maintained, which is normally demonstrated through holding a valid RCS classification certificate.

This document does not address design, transportation to and from site, or installation and removal from site.

This document sets out the requirements for site-specific assessments, but generally relies on other documents to supply the details of how the assessments are to be undertaken. In general:

— ISO 19901-7 is referenced for the assessment of the stationkeeping system;

— ISO 19904-1 is referenced to determine the effects of the metocean actions on the unit;

— ISO 19906 is referenced for arctic and cold regions;

— the hull structure and air gap are assessed by use of a comparison between the site-specific metocean conditions and its design conditions, as set out in the RCS approved operations manual;

— ISO 13624-1 and ISO/TR 13624-2[1] are referenced for the assessment of the marine drilling riser of mobile floating drilling units. Equivalent alternative methodologies can be used;

— IMCA M 220 is referenced for developing an activity specific operating guidelines. Agreed alternative methodologies can be used.

NOTE RCS rules and the IMO MODU code[13] provide guidance for design and general operation of mobile floating units.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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ISO 13624-1, *Petroleum and natural gas industries — Drilling and production equipment — Part 1: Design and operation of marine drilling riser equipment*

ISO 19900, *Petroleum and natural gas industries — General requirements for offshore structures*

ISO 19901-1, *Petroleum and natural gas industries — Specific requirements for offshore structures — Part 1: Metocean design and operating considerations*

ISO 19901-7, *Petroleum and natural gas industries — Specific requirements for offshore structures — Part 7: Stationkeeping systems for floating offshore structures and mobile offshore units*

ISO 19904-1, *Petroleum and natural gas industries — Floating offshore structures — Part 1: Ship-shaped, semi-submersible, spar and shallow-draught cylindrical structures*

ISO 19906:2019, *Petroleum and natural gas industries — Arctic offshore structures*

ISO 35104, *Petroleum and natural gas industries — Arctic operations — Ice management*

International Marine Contractors Association, "Guidance on Operational Activity Planning", IMCA M 220

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19900, ISO 19901-1, ISO 19901-7, ISO 19904-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
activity specific operating guidelines
ASOG
document that sets out the activities that need to be undertaken at specific *alert level thresholds* (3.4) for specified changes in conditions

Note 1 to entry: These guidelines are in a document that sets out high level actions to be undertaken at specific alert level thresholds.

Note 2 to entry: The ASOG for drilling operations is often called the well specific operating guideline document (WSOG).

Note 3 to entry: An example ASOG for DP (dynamic positioning) and moored units is given in Annex A.

3.2
air gap
distance between the highest water elevation and the lowest exposed part of the primary deck structure and permanent equipment not designed to withstand associated environmental action effects

[SOURCE: ISO 19900:2019, 3.5, modified — "structure" and "action effects" not defined herein, "and permanent equipment" added and "for defined return period" deleted.]

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