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

Part 1: Jack-ups

*Industries du pétrole et du gaz naturel — Évaluation spécifique au
site d'unités mobiles en mer —*

Partie 1: Plates-formes auto-élevatrices



Reference number
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Contents

	Page
Foreword.....	v
Introduction.....	vii
1 Scope	1
2 Normative references	2
3 Terms and definitions	2
4 Symbols and abbreviated terms.....	13
4.1 Symbols	13
4.2 Abbreviated terms.....	15
5 Overall considerations	16
5.1 General	16
5.2 Assessment approach	16
5.3 Selection of limit states	19
5.4 Determination of assessment situations.....	20
5.5 Exposure levels	21
5.6 Analytical tools	25
6 Data to assemble for each site.....	25
6.1 Applicability.....	25
6.2 Jack-up data	25
6.3 Site and operational data.....	25
6.4 Metocean data	26
6.5 Geophysical and geotechnical data	27
6.6 Earthquake data	27
7 Actions	27
7.1 Applicability.....	27
7.2 General	28
7.3 Metocean actions.....	28
7.4 Functional actions.....	29
7.5 Displacement dependent effects	29
7.6 Dynamic effects.....	29
7.7 Earthquakes.....	29
7.8 Other actions	29
8 Structural modelling	30
8.1 Applicability.....	30
8.2 Overall considerations	30
8.3 Modelling the leg	31
8.4 Modelling the hull	31
8.5 Modelling the leg-to-hull connection.....	32
8.6 Modelling the spudcan and foundation	32
8.7 Mass modelling	33
8.8 Application of actions	34
9 Foundations	37
9.1 Applicability.....	37
9.2 General	37
9.3 Geotechnical analysis of independent leg foundations	37
9.4 Other considerations	41

This is a preview of "ISO 19905-1:2016". [Click here to purchase the full version from the ANSI store.](#)

10	Structural response	43
10.1	Applicability	43
10.2	General considerations.....	43
10.3	Types of analyses and associated methods.....	43
10.4	Common parameters.....	44
10.5	Storm analysis	46
10.6	Fatigue analysis.....	48
10.7	Earthquake analysis	48
10.8	Accidental situations	49
10.9	Alternative analysis methods	49
11	Long-term applications.....	50
11.1	Applicability	50
11.2	Assessment data.....	50
11.3	Special requirements	51
11.4	Survey requirements.....	51
12	Structural strength.....	52
12.1	Applicability	52
12.2	Classification of member cross-sections.....	53
12.3	Section properties of non-circular prismatic members.....	54
12.4	Effects of axial force on bending moment.....	55
12.5	Strength of tubular members	55
12.6	Strength of non-circular prismatic members.....	55
12.7	Assessment of joints	55
13	Acceptance criteria	55
13.1	Applicability	55
13.2	General formulation of the assessment check	56
13.3	Leg strength assessment	57
13.4	Spudcan strength assessment.....	57
13.5	Holding system strength assessment.....	57
13.6	Hull elevation assessment	58
13.7	Leg length reserve assessment.....	58
13.8	Overturning stability assessment	58
13.9	Foundation integrity assessment.....	59
13.10	Interaction with adjacent infrastructure.....	60
13.11	Temperatures	60
Annex A (informative) Additional information and guidance		61
Annex B (normative) Summary of partial action and partial resistance factors		249
Annex C (informative) Additional information on structural modelling and response analysis		251
Annex D (informative) Foundations — Recommendations for the acquisition of site-specific geotechnical data.....		261
Annex E (informative) Foundations — Additional information and alternative approaches		267
Annex F (informative) Informative annex on Clause A.12 — Structural strength.....		280
Annex G (informative) Contents list for typical site-specific assessment report.....		295
Annex H (informative) Regional information.....		302
Bibliography		311

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is 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 19905-1:2012), which has been technically revised.

ISO 19905 consists of the following parts, under the general title *Petroleum and natural gas industries — Site-specific assessment of mobile offshore units*:

- *Part 1: Jack-ups*
- *Part 2: Jack-ups commentary and detailed sample calculation* [Technical Report]

The following parts are under preparation:

- *Part 3: Floating units*

ISO 19905 is one of a series of International Standards for offshore structures. The full series comprises the following:

- ISO 19900, *Petroleum and natural gas industries — General requirements for offshore structures*
- ISO 19901 (all parts), *Petroleum and natural gas industries — Specific requirements for offshore structures*

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- ISO 19902, *Petroleum and natural gas industries — Fixed steel offshore structures*
- ISO 19903, *Petroleum and natural gas industries — Fixed concrete offshore structures*
- ISO 19904-1, *Petroleum and natural gas industries — Floating offshore structures — Part 1: Monohulls, semi-submersibles and spars*
- ISO/TR 19905-2, *Petroleum and natural gas industries — Site-specific assessment of mobile offshore units — Part 2: Jack-ups commentary and detailed sample calculation*
- ISO 19905-3, *Petroleum and natural gas industries — Site-specific assessment of mobile offshore units — Part 3: Floating units*
- ISO 19906, *Petroleum and natural gas industries — Arctic offshore structures*

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Introduction

The series of International Standards applicable to types of offshore structure, ISO 19900 to ISO 19906, addresses design requirements and assessments for all offshore structures used by the petroleum and natural gas industries worldwide. Through their application, the intention is to achieve reliability levels appropriate for manned and unmanned offshore structures, whatever the type of structure and the nature or combination of the materials used.

It is important to recognize that structural integrity is an overall concept comprising models for describing actions, structural analyses, design or assessment rules, safety elements, workmanship, quality control procedures and national requirements, all of which are mutually dependent. The modification of one aspect of design or assessment in isolation can disturb the balance of reliability inherent in the overall concept or structural system. The implications involved in modifications, therefore, need to be considered in relation to the overall reliability of offshore structural systems.

The series of International Standards applicable to types of offshore structure is intended to provide a wide latitude in the choice of structural configurations, materials and techniques, without hindering innovation. Sound engineering judgement is therefore necessary in the use of these International Standards.

This part of ISO 19905, which has been developed from the Society of Naval Architects and Marine Engineers (SNAME) Technical & Research Bulletin 5-5A (2002), states the general principles and basic requirements for the site-specific assessment of mobile jack-ups; it is intended to be used for assessment and not for design.

NOTE For the exposure level 1(L1) assessment and, where appropriate, the exposure level 2 (L2) assessment prior to evacuation being effected, this part of ISO 19905 requires the use of 50 year independent or 100 year joint probability metocean extremes, together with associated partial action factors. It is based on extensive benchmarking and best practice in the international community.

Site-specific assessment is normally carried out when an existing jack-up unit is to be installed at a specific site. The assessment is not intended to provide a full evaluation of the jack-up; it assumes that aspects not addressed herein have been addressed using other practices and standards at the design stage. In some instances, the original design of all or part of the structure could be in accordance with other standards in the ISO 19900 series, and in some cases, different practices or standards could have been applied.

The purpose of the site assessment is to demonstrate the adequacy of the jack-up and its foundations for the assessment situations and defined limit states, taking into account the consequences of failure. It is important that the results of a site-specific assessment 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 structural reliability equivalent, or superior, to that implicit in this part of ISO 19905.

Annex A provides background to and guidance on the use of this part of ISO 19905. The clause numbering in Annex A is the same as in the normative text in order to facilitate cross-referencing. ISO/TR 19905-2 provides additional background to some clauses and a detailed sample 'go-by' calculation.

Annex B summarizes the partial factors. Supplementary information is presented in Annexes C to H.

To meet certain needs of industry for linking software to specific elements in this part of ISO 19905, a special numbering system has been permitted for figures, tables, formulae and bibliographic references.

In International Standards, the following verbal forms are used:

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- “shall” and “shall not” are used to indicate requirements strictly to be followed in order to conform to the document and from which no deviation is permitted;
- “should” and “should not” are used to indicate that, among several possibilities, one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required, or that (in the negative form) a certain possibility or course of action is deprecated but not prohibited;
- “may” is used to indicate a course of action permissible within the limits of the document;
- “can” and “cannot” are used for statements of possibility and capability, whether material, physical or causal.