SLOVENSKI STANDARD
oSIST prEN ISO 19901-5:2014

01-januar-2014

Industrija za predelavo nafte in zemeljskega plina - Posebne zahteve za naftne ploščadi - 5. del: Nadzor teže med projektiranjem in gradnjo (ISO/DIS 19901-1:2013)

Petroleum and natural gas industries - Specific requirements for offshore structures - Part 5: Weight control during engineering and construction (ISO/DIS 19901-5:2013)

Erdöl- und Erdgasindustrie - Besondere Anforderungen an Offshore-Bauwerke - Teil 5: Gewichtskontrolle während der Auslegung und Konstruktion (ISO/DIS 19901-5:2013)

Industries du pétrole et du gaz naturel - Exigences spécifiques relatives aux structures en mer - Partie 5: Contrôle des poids durant la conception et la fabrication (ISO/DIS 19901-5:2013)

Ta slovenski standard je istoveten z: **prEN ISO 19901-5**

ICS:

75.180.10	Oprema za raziskovanje in odkopavanje	Exploratory and extraction equipment

oSIST prEN ISO 19901-5:2014 **en**

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Petroleum and natural gas industries — Specific requirements for offshore structures —

Part 1:
Metocean design and operating considerations

Industries du pétrole et du gaz naturel — Exigences spécifiques relatives aux structures en mer — Partie 1: Dispositions océano-météorologiques pour la conception et l'exploitation

[Revision of first edition (ISO 19901-1:2005)]

ICS: 75.180.10

ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

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Contents

Page

Foreword

— Part 1: *Metocean design and operating considerations*

— Part 2: *Seismic design procedures and criteria*

— Part 3: *Topsides structure*

— Part 4: *Geotechnical and foundation design considerations*

— Part 5: *Weight control during engineering and construction*

— Part 6: *Marine operations*

— Part 7: *Stationkeeping systems for floating offshore structures and mobile offshore units*

The following part is under preparation:

— Part 8: *Marine soil investigations.*

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 19901-1 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/third/... edition cancels and replaces the first/second/... edition (), [clause(s) / subclause(s) / table(s) / figure(s) / annex(es)] of which [has / have] been technically revised.

ISO 19901 consists of the following parts, under the general title *Petroleum and natural gas industries — Specific requirements for offshore structures*:

— 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*

— 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 19905-1, *Petroleum and natural gas industries — Site-specific assessment of mobile offshore units — Part 1: Jack-ups*

— ISO/TR 19905-2, *Petroleum and natural gas industries — Site-specific assessment of mobile offshore units — Part 2: Jack-ups commentary*

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

Introduction

The series of International Standards applicable to types of offshore structure, ISO 19900 to ISO 19906, constitutes a common basis covering those aspects that address design requirements and assessments of 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 rules, safety elements, workmanship, quality control procedures and national requirements, all of which are mutually dependent. The modification of one aspect of design 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 all 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.

The overall concept of structural integrity is described above. Some additional considerations apply for metocean design and operating conditions. The term “metocean” is short for “meteorological and oceanographic” and refers to the discipline concerned with the establishment of relevant environmental conditions for the design and operation of offshore structures. A major consideration in the design and operation of such a structure is the determination of actions on, and the behaviour of, the structure as a result of winds, waves and currents.

Environmental conditions vary widely around the world. For the majority of offshore locations there are little numerical data from historic conditions; comprehensive data often only start being collected when there is a specific need, for example, when exploration for hydrocarbons is being considered. Despite the usually short duration for which data are available, designers of offshore structures need estimates of extreme and abnormal environmental conditions (with an individual or joint probability of the order of 1×10^{-2}/year and 1×10^{-3} to 1×10^{-4}/year, respectively).

Even for areas like the Gulf of Mexico, offshore Indonesia and the North Sea, where there are up to 30 years of fairly reliable measurements available, the data are insufficient for rigorous statistical determination of appropriate extreme and abnormal environmental conditions. The determination of relevant design parameters has therefore to rely on the interpretation of the available data by experts, together with an assessment of any other information, such as prevailing weather systems, ocean wave creation and regional and local bathymetry, coupled with consideration of data from comparable locations. It is hence important to employ experts from both the metocean and structural communities in the determination of design parameters for offshore structures, particularly since setting of appropriate environmental conditions depends on the chosen option for the offshore structure.

This part of ISO 19901 provides procedures and guidance for the determination of environmental conditions and their relevant parameters. Requirements for the determination of the actions on, and the behaviour of, a structure in these environmental conditions are given in ISO 19901-3, ISO 19901-6, ISO 19901-7, ISO 19902, ISO 19903, ISO 19904-1, ISO 19905-1 and ISO 19906.

Some background to, and guidance on, the use of this part of ISO 19901 is provided in informative Annex A. The clause numbering in Annex A is the same as in the main text to facilitate cross-referencing.

Regional information, where available, is provided in the Regional Annexes B through H. This information has been developed by experts from the region or country concerned to supplement the guidance provided in this

part of ISO 19901. Each Regional Annex provides regional or national data on environmental conditions for the area concerned.

Petroleum and natural gas industries — Specific requirements for offshore structures — Part 1: Metocean design and operating considerations

1 Scope

This part of ISO 19901 gives general requirements for the determination and use of meteorological and oceanographic (metocean) conditions for the design, construction and operation of offshore structures of all types used in the petroleum and natural gas industries.

The requirements are divided into two broad types:

— those that relate to the determination of environmental conditions in general, together with the metocean parameters that are required to adequately describe them;

— those that relate to the characterization and use of metocean parameters for the design, the construction activities or the operation of offshore structures.

The environmental conditions and metocean parameters discussed are

— extreme and abnor mal values of metocean parameters that recur with given return periods that are considerably longer than the design service life of the structure,

— long-term distributions of metocean parameters, in the form of cumulative, conditional, marginal or joint statistics of metocean parameters, and

— normal environmental conditions that are expected to occur frequently during the design service life of the structure.

Metocean parameters are applicable to

— the determination of actions and action effects for the design of new structures,

— the determination of actions and action effects for the assessment of existing structures,

— the site-specific assessment of mobile offshore units,

— the determination of limiting environmental conditions, weather windows, actions and ac tion effects for pre-service and post-service situations (i.e. fabrication, transportation and installation or decommissioning and removal of a structure), and

— the operation of the platform, where appropriate.

NOTE Specific metocean requirements for site-specific assessment of jack-ups are contained in ISO 19905-1, for arctic structures in ISO 19906 and for topsides structures in ISO 19901-3.