ICS 75.180.10
CCS E 94

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 35989.1-2018

Petroleum and natural gas industries -- Floating offshore structures -- Part 1: Monohulls, semi-submersibles and spars

Issued on: February 6, 2018 **Implemented on: September 1, 2018**

Issued by: State Administration for Market Regulation, China National Standardization Administration

Table of Contents

Foreword

GB/T 35989 "Oil and Natural Gas Industry Floating Structure" is divided into two parts.

--- Part 1. Monohull, semi-submersible platform and deep draft column platform;

--- Part 2. Tension leg platform (TLP).

This part is the first part of GB/T 35989.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part uses the translation method equivalent to ISO .19904-1.2006 "Oil and natural gas industry offshore floating structure Part 1. Monomer

Boat, semi-submersible platform and deep draft platform.

This part is proposed and managed by the National Oil and Gas Standardization Technical Committee (SAC/TC355).

This section drafted by. CNOOC Research Institute.

1 Scope

This part of GB/T 35989 specifies the design of offshore floating structures used by offshore oil for drilling, production, storage and external transmission functions.

Calculate and evaluate technical requirements.

This section applies to three types of steel floating structures of monohull, semi-submersible platform and deep draft column platform.

2 Normative references

The following documents are indispensable for the application of this document. For dated

references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 20660-2006 Requirements and guidelines for fire, explosion control and mitigation measures for offshore production units in the oil and gas industry

(ISO 13702.1999, IDT)

GB/T 23511-2009 General requirements for marine structures in the oil and gas industry (ISO .19900.2002, IDT)

ISO .19901-1.2005 Particular requirements for the marine structure of the oil and gas industry - Part 1

(Petroleum and naturalgasindustries- Specificrequirementsforoffshorestructures-Part 1.

Metoceandesignandoperatingconsiderations)

Petroleum and natural gas industries -- Particular requirements for marine structures - Part 7

Structure positioning system (Petroleum and naturalgasindustries-Specificrequirementsforoffshorestruc-

tures-Part 7.Stationkeepingsystemsforfloatingoffshorestructuresandmobileoffshoreunits)

ISO .19902.2007 Oil and gas industry fixed marine steel structure (Petroleum and naturalgasindustries-

Fixedsteeloffshorestructures)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Abnormal abnormal

Exceeding the normal design conditions, it is different from the minimum probability event.

3.2

Accident accidental

The structure or its affiliates are subject to accidents or abnormalities.

For example. impact, fire, explosion, partial failure or the pressure difference in the design disappears (eg buoyancy).

3.3

Action action

Structural external loads (direct effects) or factors that can cause deformation or acceleration factors (indirect effects).

For example, manufacturing errors, installation, seating, temperature changes, or humidity changes can cause structural deformation.

Note. Earthquake effects usually produce acceleration.

3.4

Action combination actioncombination

In the structural design check, a combination of different effects simultaneously applied to the structure in a specific limit state.

3.5

Action effect

The effect produced by the action of the structural members.

For example. internal forces, bending moments, stresses, strains, rigid body displacements or elastic deformations.

3.6

Air gap airgap

The gap between the highest point of the water surface in an extreme marine environment and the lowest point in the design that is not subject to the structure of the wave impact.

3.7

Basic parameter basicvariable

One of a series of parameters that characterize physical properties such as action, environmental impact, geometry, material properties, and soil properties.

3.8

Eigenvalue

A value inherent to a particular underlying variable, effect, or strength model that is not affected by other influencing factors.

Note. For a function and its corresponding characteristics, the eigenvalue is usually related to the period.

3.9

Design criteria designcriteria

Under each extreme operating condition, describe the formula or criteria that are required to meet the conditions.

3.10

Design form designformat

A mathematical expression for checking to verify that the limit state is not exceeded.

Note. In this section, the working stress method (WSD) and the partial coefficient method can be used.

3.11

Design service lifedesignservicelife

The expected life of a structural or structural component, provided that it can be implemented. Within this period, the structure can be allowed to enter

Maintenance, but no major repairs are required.

3.12

Design condition designation

A set of physical conditions in the structural design that do not exceed the limit state during a certain recurrence period.

3.13

Design value designvalue

The value of the underlying variables, effects, or strength models used in the design verification process.

Note 1. For the limit state (ULS) design check method based on the partial coefficient form, the design value of the strength variable or model can be divided by its typical value by the partial system.

The number is obtained and the design value of the action can be obtained by multiplying its typical value by the partial coefficient.

Note 2. For the fatigue limit state (FLS) based on the partial coefficient form, the normal operating limit state (SLS) or the accidental limit state (ALS) design checker

Method, all the partial coefficients take 1 and the design value is equal to the typical value.

Note 3. For any calibration method based on the working stress method, all the partial coefficients are taken as 1, and the design value is equal to the typical value. Approximate overall safety