

WG5 Report

- Floating structures
- Stationkeeping
- TLPs
- Future plans



ISO 19904-1 Status

Floating offshore structures, Part 1: Monohulls, semi-submersibles and spars

- Standard was issued Nov 1, 2006
- No technical inquiries received to date

ISO 19901-7 Status

Stationkeeping systems for floating offshore structures and mobile offshore units

- Standard was issued in December 2005

- WG5/Panel has completed the final draft of the 1st minor revision:
 - incorporates relevant informative text from API RP 2SK 3rd Ed. on anchor design and analysis of vortex induced motions
 - updates guidance on synthetic rope mooring to be consistent with recent amendment to API RP 2SM
 - Includes updated Norwegian annex

ISO 19901-7 Revision Content

- Anchor design
 - Site investigation, drag anchors, driven piles, suction piles, plate anchors – drag embedded and suction embedded
 - Mostly informative with a few very minor changes to normative for clarification and consistency
 - References and text added to API source material to address a wider range of soil conditions for fluke and plate anchor design and installation (DNV RP E301 and RP E302)
- Vortex-induced motions
 - Addresses large diameter cylindrical hull shapes such as spars and semi-submersibles in high currents
 - Some material added to normative to cover basics of analysis methodology, remove references to API RP 2SK and provide appropriate links to the new informative annex subclause
 - More detailed guidance on analysis methods, model testing and design for mitigating VIM is covered in the new annex subclause

ISO 19901-7 Revision Content

- Synthetic fiber rope mooring
 - Minor updates and corrections to normative text to include recent industry experience
 - Torque properties highlighted
 - Definition of stiffness revised
 - Recognizes the effectiveness of filter barriers
 - Removes prohibition against rope touching seafloor
 - Provides more detail on minimum tension requirements
 - Notes that polyester rope not subject to creep elongation concern
 - Updates to corresponding informative clause
 - ISO standard made consistent with recent API RP 2SM amendment

- Norwegian annex
 - Clarification of definitions of wave/wind/current combinations for various design situations
 - Requirements not subject to panel review – only edited for consistency with ISO Directives

ISO 19901-7 Revision Content

Wind actions

- Panel recently identified a minor error in the original text under 7.4.4 Wind actions

Two analytical approaches are generally used to represent steady and low-frequency wind actions (see ISO 19904-1):

- a. the wind is treated as constant in direction and speed, which is taken as the 1 min average;*
- b. the wind is modelled by a steady component, based on the 1 h average velocity, plus a time-varying component calculated from a suitable empirical wind gust spectrum, see ISO 19901-1.*

The design wind speed should refer to an elevation of 10 m above still water level.

For ULS design of permanent moorings, approach b) shall be taken unless approach a) can be shown to be more conservative. However, for FLS, b) shall be used because the effect of time-varying wind actions on the floating structure can contribute to the magnitude of the low-frequency tension cycles.

Intended text:

For ULS design of permanent moorings, approach b) shall be taken; but approach a) can be used provided it can be shown to be more conservative.

ISO 19901-7 Status

Stationkeeping systems for floating offshore structures and mobile offshore units

In January 2008 SC7 agreed that standard should be updated under the “minor revision or amendment” process

- 2 month review by SC7 members
- Only one formal ISO vote – FDIS
- Vote only on the changes, not original text

Expect to send revision to Malcolm for distribution to SC7 before end of June

WG5 Future Plans

- Future revisions to ISO 19901-7
 - Update following completion of API RP 2SM
 - Keep synthetic fiber rope mooring as part of ISO 19901-7 or place in a separate standard?
 - Incorporate guidance on MODU mooring in hurricane/typhoon areas based on GOM experience

- Future revisions to ISO 19904-1
 - Updates following new ISO 19900 revision
 - Review new API RP 2FPS “wrapper” and incorporate changes as appropriate
 - Disconnectable FPSOs
 - Hurricane survival and design reassessment
 - Air gap for semisubmersibles and spars
 - Monohull structural design
 - Compartmentation
 - Import/export systems
 - SIM requirements
 - Clarifications and corrections
 - Tie structural design requirements more closely to ISO 18072-2 (ULS design of ships)?

API Update

RP 2T completed (almost)

- Expect publication by mid 2009

RP 2FPS

- Expect to forward text to API for ballot by end June

RP 2SK

- Hurricane commentary complete
- Plan to develop 4th Edition using ISO 19901-7 as the core document