1. Record Nr. UNINA9911004778003321

Titolo	Spar platforms : technology and analysis methods / / edited by Moo-Hyun Kim
Pubbl/distr/stampa	Reston, Va., : American Society of Civil Engineers, c2012
ISBN	0-7844-7677-2
Descrizione fisica	1 online resource (240 p.)
Altri autori (Persone)	KimMu-hyon
Disciplina	622/.33819
Soggetti	Drilling platforms Offshore oil well drilling Underwater drilling
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Part 1 History and Concept: Chapter 1 Spar Floating Drilling, Production, and Storage System: History and Evolution; Part 2 Mooring and Anchor Design: Chapter 2 Taut-Leg Mooring System and Anchoring for Spars; Part 3 Global Motion Analysis and Numerical Model: Chapter 3 Hull/Mooring/Riser Coupled Spar Motion Analysis: Sensitivity against Methodological/Environmental/Empirical Parameters; Chapter 4 Spar Hull/Mooring/Riser Coupled Dynamic Analysis, VIM Effects, and Mathieu Instability; Chapter 5 Coupled Analysis of a Spar Using Slender-Body Formulas; Chapter 6 Spar Analysis, Comparison, and Theory: Morison Formula versus Diffraction Theory; Part 4 Vortex Induced Motion: Chapter 7 Spar Vortex Induced Motion Considerations for Design; Part 5 Model Testing and Field Data: Chapter 8 Deepwater Spar Model Testing: Considerations for Planning a Physical Model Test Program; Chapter 9 Comprehensive Full-Scale Data Comparison for the Horn Mountain Spar
Sommario/riassunto	Sponsored by the Ocean and Offshore Engineering Committee of the Coasts, Oceans, Ports, and Rivers Institute of ASCE. Spar Platforms: Technology and Analysis Methods examines the design, analysis, and use of spar platforms for offshore oil production. Since the first spar platform, the Oryx Neptune, was installed in the Gulf of Mexico in 1996, spars have evolved into a proven, reliable technology for oil drilling and production in deep and remote areas. Three spar concepts

are in use today: the classic spar, the truss spar, and the cell spar. Although the technology and analysis methods are considered mature, technical challenges remain, including understanding and suppressing vortex-induced motion and improving survivability in category 4 and 5 hurricanes. This volume surveys the history of spar development and presents detailed design modeling aspects of spar hull, mooring, and anchoring systems. Two methodologies—the diffraction method and the Morrison formula—that can be used to analyze spar motions are demonstrated and assessed. Design considerations for vortex-induced motion of spars are weighed, along with possible remedies. In addition, testing methods for spar models in wave basins are considered, and full-scale field data is compared with the results of several numerical analysis tools. Ocean and coastal engineers, those involved in the design and construction of offshore structures, and petroleum engineers will find the book a useful supplement to existing specifications for spar platforms.