

1. Record Nr.	UNINA9910779993403321
Autore	Guo Boyun
Titolo	Offshore pipelines : design, installation, and maintenance / / Boyun Guo, University of Louisiana at Lafayette [and three others]
Pubbl/distr/stampa	Waltham, Mass., : Gulf Professional Publishing, c2014 Waltham, MA : , : Gulf Professional Publishing, , 2014
ISBN	0-12-398492-0
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (xiv, 384 pages) : illustrations (some color)
Collana	Gale eBooks
Altri autori (Persone)	GuoBoyun
Disciplina	665.544
Soggetti	Petroleum pipelines - Design and construction Gas pipelines - Design and construction Offshore structures - Design and construction
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 at the end of each chapters and index.
Nota di contenuto	Front Cover; Offshore Pipelines; Copyright Page; Contents; Preface; 1 Introduction; 1.1 Overview; 1.2 Pipeline Design; 1.3 Pipeline Installation; 1.4 Pipeline Operations; References; I: Pipeline Design; 2 General Design Information; 2.1 Introduction; 2.2 Design Data; 2.2.1 Reservoir Performance; 2.2.1.1 Reservoir Pressure and Temperature; 2.2.1.2 Reservoir Formations; 2.2.1.3 Production Profiles; 2.2.2 Fluid and Water Compositions; 2.2.3 Fluid PVT Properties; 2.2.4 Solid Production; 2.2.5 Seafloor Bathymetry/Geotechnical Survey Data; 2.2.6 Oceanographic Data; 2.2.7 Other Data; References 3 Diameter and Wall Thickness3.1 Introduction; 3.2 Design Procedure; 3.3 Design Codes; 3.3.1 Pipeline Design for Internal Pressure; 3.3.2 Pipeline Design for External Pressure; 3.3.2.1 Propagation Criterion; 3.3.2.2 Collapse Criterion; 3.3.3 Corrosion Allowance; 3.3.4 Check for Hydrotest Condition; References; 4 Hydrodynamic Stability of Pipelines; 4.1 Introduction; 4.2 Analysis Procedure; 4.3 Methodology; 4.3.1 Definitions of Environmental Criteria; 4.3.1.1 Design Waves; 4.3.1.2 Wave Refraction; 4.3.1.3 Wave Shoaling; 4.3.1.4 Soil Friction Factor; 4.3.2 Hydrodynamic Coefficient Selection 4.3.2.1 Steady Current Only4.3.2.2 Waves Acting Alone; 4.3.2.3 Waves and Currents Acting Simultaneously; 4.3.3 Hydrodynamic Force

Calculation; 4.3.4 Hydrodynamic Stability Assessment; 4.4 Partially Buried Pipelines; References; Further Reading; 5 Pipeline Span; 5.1 Introduction; 5.2 Problem Description; 5.2.1 Free Span; 5.2.2 In-Line Oscillations; 5.2.3 Cross-Flow Oscillations; 5.2.4 Galloping; 5.3 Design Considerations; 5.3.1 Dynamic Stresses; 5.3.2 Vortex-Shedding Frequency; 5.3.3 Pipeline Natural Frequency; 5.3.4 Reduced Velocity; 5.3.5 Stability Parameter; 5.3.6 Critical Span Length

5.4 Design Criteria 5.4.1 General Considerations; 5.4.2 Current Velocity Selection; 5.4.3 End Condition Selection; 5.4.4 Design Parameters; 5.4.5 Design Steps; 5.4.6 Example Calculation; 5.5 Fatigue Analysis Guideline; References; Further Reading; 6 Operating Stresses; 6.1 Introduction; 6.2 Operating Forces; 6.2.1 Internal Pressure Stresses; 6.2.1.1 Thin-Wall Pipe; 6.2.1.2 Thick-Wall Pipe; 6.2.2 Thermal Expansion Stresses; 6.2.3 Combined Pressure and Temperature; 6.2.3.1 Equations for Thin-Wall Pipe; 6.2.3.2 Equations for Thick-Wall Pipe; 6.2.3.3 Soil Friction; 6.2.3.4 End Constraint

6.3 Stress-Analysis-Based Design 6.3.1 Analysis Procedure; 6.3.2 Code Requirements; 6.3.2.1 Hoop Stress; 6.3.2.2 Longitudinal Stress; 6.3.2.3 Combined Stress; 6.3.3 Example Calculation; References; 7 Pipeline Riser Design; 7.1 Introduction; 7.2 Design Procedure; 7.3 Load Cases; 7.3.1 Functional Loads; 7.3.2 Environmental Loads; 7.3.3 Installation Loads; 7.4 Wall Thickness; 7.5 Allowable Stress Criteria; 7.6 Dynamic and Fatigue Analysis; 7.7 Corrosion Control Consideration; 7.8 Riser Bends; 7.9 Riser Clamps; 7.9.1 Design Overview; 7.9.1.1 Basic Clamp Types; 7.9.1.2 Adjustable Clamp Designs

7.9.1.3 Stub Piece Connection Clamp Design

---

#### Sommario/riassunto

The development of oil and gas fields offshore requires specialized pipeline equipment. The structures must be strong enough to withstand the harshest environments, and ensure that production is not interrupted and remains economically feasible. However, recent events in the Gulf of Mexico have placed a new importance on maintenance and reliability. This new section; Condition Based Maintenance (CBM), introduces the subject of maintenance to Offshore Pipelines: Design, Installation, Commissioning, 2nd Edition. Two of the main objectives of CBM is maximizing reliability while preventing

---