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Altri autori (Persone)	GuoBoyun
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	front cover; table of contents; Preface; List of Symbols; Unit Conversion Factors; 1 Introduction; 1.1 Overview; 1.2 Pipeline Design; 1.3 Pipeline Installation; 1.4 Pipeline Operations; Chapter 1 References; Part 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 & Temperature; 2.2.1.2 Reservoir Formations; 2.2.1.3 Production Profiles; 2.2.2 Fluid & 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 DataChapter 2 References; 3 Diameter and Wall Thickness; 3.1 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; Chapter 3 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 Only; 4.3.2.2 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; Chapter 4 References; 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; Chapter 5 References; 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; Chapter 6 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

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## Sommario/riassunto

There are very few books on the market that cover offshore petroleum engineering, and there are none at all on offshore pipelines. Over a third of the growth in drilling worldwide is expected to come from offshore. The development of offshore pipelines is an extremely hot topic in the energy industry. This book is the most up-to-date reference for the engineers and developers challenged with bringing the oil and gas onshore.\* Pipeline design engineers will learn how to design low-cost pipelines allowing long-term operability and safety.\* Pipeline operation engineers and

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