Subsea Pipeline Engineering

Aspect '94
Corrosion Protection for the Oil and Gas Industry
Papers presented at Aspect ’90, a conference organized by the Society for Underwater Technology and held in Aberdeen, Scotland, May 30–31, 1990
Subsea Pipeline Design and Engineering
Offshore Pipeline & Subsea Engineering
Deepwater Foundations and Pipeline Geomechanics
The Offshore Pipeline Construction Industry
1985 Program Summary, Evaluation and Recommendations
Aspect ’94
Offshore Operation Facilities
Offshore Pipelines
Subsea and Pipeline Engineering
Subsea Engineering Handbook
Offshore Pipelines
Offshore Operations and Engineering
ASPECT '96
Advances in Subsea Pipeline Engineering and Technology
Design, Construction, Maintenance, Integrity, and Repair
Piping and Pipeline Engineering
Advances in Subsea Pipeline Engineering and

Technology
Analysis and Practical Applications
Marine Structural Design
Advances in Subsea Pipeline Engineering and Technology
Equipment and Procedures
Composite Materials in Piping Applications
Pipelines and Risers
Design, Construction and Maintenance
Pipelines, Subsea Equipment, and Structures
Design and Installation of Marine Pipelines
Advances in Subsea Pipeline Engineering and Technology
Design, Analysis and Optimization of Subsea and Onshore Pipelines from FRP Materials
Advances in Subsea Pipeline Engineering and Technology : Papers Presented at a Conference Organized by the Society for Underwater Technology and Held in Aberdeen, Soctland, 1994
Deepwater Flexible Risers and Pipelines
Subsea Pipeline Design, Analysis, and Installation
Piping and Pipeline Engineering
Subsea Pipelines and Risers
Handbook of Offshore Engineering (2-volume set)
Subsea Pipeline Engineering
Subsea Pipeline Integrity and Risk Management

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COLBY MATHEWS

Aspect '94 John Wiley & Sons
Papers Presented at

Aspect '90, a Conference organized by the Society for Underwater Technology and held on May 30-31, 1990, Aberdeen, Scotland *Corrosion Protection for the Oil and Gas Industry* J. Ross Publishing
Subsea production systems, overview of subsea engineering, subsea field development, subsea distribution system.Flow assurance and system engineering. Susea structure and equiment. Subsea umbilical, risers and flowlines.
Papers presented at Aspect ’90, a conference organized by the Society for Underwater Technology and held in Aberdeen, Scotland, May 30–31, 1990 CRC Press
Offshore Structures: Design, Construction and Maintenance, Second Edition covers all types of offshore structures and platforms employed worldwide. As the ultimate reference for selecting, operating and maintaining offshore structures, this book provides a roadmap for designing structures which will stand up even in the harshest environments. Subsea pipeline design and installation is also covered in this edition, as is the selection of the proper type of offshore structure, the design procedure for the fixed offshore structure, nonlinear analysis (Push over) as a new technique to design and assess the existing structure, and

more. With this book in hand, engineers will have the most up-to-date methods for performing a structural lifecycle analysis, implementing maintenance plans for topsides and jackets and using non-destructive testing. Provides a one-stop guide to offshore structure design and analysis Presents easy-to-understand methods for structural lifecycle analysis Contains expert advice for designing offshore platforms for all types of environments

Subsea Pipeline Design and Engineering

Elsevier Science Limited

Authored by two of the world's most respected authorities in subsea pipeline engineering, this definitive reference book covers the entire spectrum of subjects in the discipline, from route selection and planning to design, construction, installation, materials and corrosion, inspection, welding, repair, risk assessment, and applicable design codes and standards. Particular attention is also devoted to the important specialized subjects of hydraulics, strength, stability, fracture, and buckling.

Offshore Pipeline & Subsea Engineering

Gulf Professional Publishing

The preparation of this book was motivated by recent developments in research and engineering and new design codes. It aims to educate more pipeline engineers and provide materials for on-job training on the

use of new design codes and guides.

Deepwater Foundations and Pipeline Geomechanics
Pennwell Corporation
The development of oil and gas fields offshore requires specialized pipeline equipment. The structures must be strong enough to with stand 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. A new section; Condition Based Maintenance (CBM), introduces the subject of maintenance, written by Tian Ran Lin, Queensland University of Technology, and Yong Sun, CSIRO Earth Science and Resource Engineering. Two of the main objectives of CBM is maximizing reliability while preventing major or minor equipment malfunction and minimizing maintenance costs. In this new section, the authors deal with the multi-objective condition based maintenance optimization problem. CBM provides two major advantages: (1) an efficient approach for weighting maintenance objectives, and (2) a method for specifying physical methods for achieving those objectives. Maintenance cost and reliability objectives are calculated based on proportional hazards model and a

control limit CBM replacement policy. Written primarily for engineers and management personnel working on offshore and deepwater oil and gas pipelines, this book covers the fundamentals needed to design, Install, and commission pipeline projects. This new section along with a thorough update of the existing chapters represents a 30% increase in information over the previous edition. Covers offshore maintenance and maintenance support system Provides the fundamentals needed to design, Install, and commission pipeline project Methods and tools to deliver cost effective maintenance cost and system reliability New section on Condition-Based Maintenance written by Tian Ran Lin, Queensland University of Technology, and Yong Sun, CSIRO Earth Science and Resource Engineering (yong.sun@csiro.au)

The Offshore Pipeline Construction Industry Gulf Professional Publishing

Subsea repairs and inspection are costly for petroleum and pipeline engineers and proper training is needed to focus on ensuring system strength and integrity. Subsea Pipeline Integrity and Risk Management is the perfect companion for new engineers who need to be aware of the state-of-the-art techniques. This handbook offers a

"hands-on" problem-solving approach to integrity management, leak detection, and reliability applications such as risk analysis. Wide-ranging and easy-to-use, the book is packed with data tables, illustrations, and calculations, with a focus on pipeline corrosion, flexible pipes, and subsea repair. Reliability-based models also provide a decision making tool for day-to-day use. Subsea Pipeline Integrity and Risk Management gives the engineer the power and knowledge to protect offshore pipeline investments safely and effectively. Includes material selection for linepipe, especially selection of standard carbon steel linepipe Covers assessment of various types of corrosion processes and definition of anti-corrosion design against internal as well as external corrosion Gives process and flow assurance for pipeline systems including pipeline integrity management

1985 Program Summary, Evaluation and Recommendations

Gulf Professional Publishing

"The main objective of the 1985 Conceptual Engineering Program was to identify preferred scenario(s) of pipeline construction techniques, equipment and schedule for further development. The objective was also to identify scenario(s) for which the cost and duration estimates of offshore field construction would be

significantly lower than estimates given in previous studies. Supporting objectives included: preliminary selection of the pipeline route; evaluation of construction techniques; update of field construction cost and duration estimates; and establishment of preliminary level design criteria. ... Based on an evaluation of several construction scenarios, offshore trunk line field construction can reasonably be expected to be completed in a period of two years at a cost of approximately 1985 CDN $290 million. This compares to a four year field duration and (an escalated) cost of 1985 CDN $420 million estimated in a 1983/84 R.J. Brown and Associates [RJBA] study. Both cost estimates exclude the cost of intrafield flowlines and do not include any allowance for contingency. Achievements of 1985 Program which lead to such significant cost and schedule reductions, include: selection of a direct route to North Point east of Pullen Island, illustrated in the key map, which is shorter and has less distance in water less than 6 metres in depth (in which summer dredging proved very expensive in the RJBA base case study); selection of more productive dredging equipment for trenching in water depths greater than 6 metres; and selection of winter pipeline

construction methods in water depths less than 6 metres (compared to only 2.5 metres in the RJBA study). The 1985 Program also yielded an improved methodology for determining trench depths required to protect the pipeline against ice scour damage; confirmation that site specific surveys and other field programs are required in support of preliminary engineering; and recognition of the need for a subsea pipeline operating philosophy, including equipment and techniques for inspection, maintenance and repair. A separate report will provide preliminary level design criteria. Two pipeline construction scenarios are recommended for further development. One scenario is characterized by summer construction with the use of new non-existing equipment. This equipment represents modest extensions of existing technology. A large cutter suction dredge working alone or in combination with a small nodular cutter suction dredge mounted on an ice strengthened barge would accomplish the trenching. Installation of the pipeline would use the bottom tow technique, the tow vessel being a shallow draft icebreaking class tug. Some degree of ice management support would be required. Both the tug and barge have potential to be utilized

for long-term operational duties. The second recommended scenario is based on existing equipment for summer construction. Trenching would require two conventional cutter suction dredges, one being modified with a ladder extension for deep water operation. Pipeline installation would employ a conventional laybarge spread. Construction costs using this scenario would be significantly lower than costs with the new equipment scenario. A greater level of ice management support would be required however. Existing equipment would have little potential application for long-term operational duties and limited applicability for efficient installation of intrafield flowlines. The final construction scenario may be a combination of the two recommended scenarios. Final equipment selection requires further investigation of technical concerns and contractual options" -- ASTIS [online] database.

Aspect ’94 DEStech Publications, Inc

Dr C P Ellinas

Advanced Mechanics & Engineering Ltd Major advances have been achieved in recent years in subsea pipeline design and installation. Inspection, maintenance and repair have also received much attention. The development of marginal fields has brought with it special problems, which have

necessitated novel methods and solutions. In the meanwhile interest in the development of deepwater fields continues with the development of new technology. This Conference has placed emphasis in addressing developments in pipeline technology under four main headings: pipeline/seabed interaction; flexible pipelines; pipeline design, fabrication and installation; deepwater applications. Advances in North Sea technology over the last few years have been concerned mostly with marginal fields, small diameter pipelines and new materials, which are well covered in the first three topics. Economic development of marginal fields requires processing of oil and gas to take place not at the wellhead but at existing facilities, usually some distance away. Hydrocarbons are thus often transported at high pressure and temperature in small diameter pipelines, which need to be protected through trenching. However, such operational practice has brought to the fore a problem that in the past was of little concern namely, upheaval buckling.

Offshore Operation Facilities Butterworth-Heinemann

Taking a big-picture approach, Piping and Pipeline Engineering: Design, Construction, Maintenance, Integrity, and Repair elucidates the fundamental steps to any successful

piping and pipeline engineering project, whether it is routine maintenance or a new multi-million dollar project. The author explores the qualitative details, calculations, and techniques that are essential in supporting competent decisions. He pairs coverage of real world practice with the underlying technical principles in materials, design, construction, inspection, testing, and maintenance. Discover the seven essential principles that will help establish a balance between production, cost, safety, and integrity of piping systems and pipelines The book includes coverage of codes and standards, design analysis, welding and inspection, corrosion mechanisms, fitness-for-service and failure analysis, and an overview of valve selection and application. It features the technical basis of piping and pipeline code design rules for normal operating conditions and occasional loads and addresses the fundamental principles of materials, design, fabrication, testing and corrosion, and their effect on system integrity.

Offshore Pipelines

John Wiley & Sons

Marine Structural Design, Second Edition, is a wide-ranging, practical guide to marine structural analysis and design, describing in detail the application of modern structural engineering principles to marine and offshore structures. Organized

in five parts, the book covers basic structural design principles, strength, fatigue and fracture, and reliability and risk assessment, providing all the knowledge needed for limit-state design and re-assessment of existing structures. Updates to this edition include new chapters on structural health monitoring and risk-based decision-making, arctic marine structural development, and the addition of new LNG ship topics, including composite materials and structures, uncertainty analysis, and green ship concepts. Provides the structural design principles, background theory, and know-how needed for marine and offshore structural design by analysis Covers strength, fatigue and fracture, reliability, and risk assessment together in one resource, emphasizing practical considerations and applications Updates to this edition include new chapters on structural health monitoring and risk-based decision making, and new content on arctic marine structural design

Subsea and Pipeline Engineering Gulf Professional Publishing

As deepwater wells are drilled to greater depths, pipeline engineers and designers are confronted with new problems such as water depth, weather conditions, ocean currents, equipment reliability, and well accessibility. Subsea Pipeline Design, Analysis and

Installation is based on the authors' 30 years of experience in offshore. The authors provide rigorous coverage of the entire spectrum of subjects in the discipline, from pipe installation and routing selection and planning to design, construction, and installation of pipelines in some of the harshest underwater environments around the world. All-inclusive, this must-have handbook covers the latest breakthroughs in subjects such as corrosion prevention, pipeline inspection, and welding, while offering an easy-to-understand guide to new design codes currently followed in the United States, United Kingdom, Norway, and other countries. Gain expert coverage of international design codes Understand how to design pipelines and risers for today's deepwater oil and gas Master critical equipment such as subsea control systems and pressure piping

Subsea Engineering Handbook Springer Science & Business Media

Taking a big-picture approach, Piping and Pipeline Engineering: Design, Construction, Maintenance, Integrity, and Repair elucidates the fundamental steps to any successful piping and pipeline engineering project, whether it is routine maintenance or a new multi-million dollar project. The author explores the qualitative details, calculations, and t

Offshore Pipelines

Subsea Pipeline Engineering Corrosion Protection for the Oil and Gas Industry: Pipelines, Subsea Equipment, and Structures summarizes the main causes of corrosion and requirements for materials protection, selection of corrosion-resistant materials and coating materials commonly used for corrosion protection, and the limitations to their use, application, and repair. This book focuses on the protection of steels against corrosion in an aqueous environment, either immersed in seawater or buried. It also includes guidelines for the design of cathodic protection systems and reviews of cathodic protection methods, materials, installation, and monitoring. It is concerned primarily with the external and internal corrosion protection of onshore pipelines and subsea pipelines, but reference is also made to the protection of other equipment, subsea structures, risers, and shore approaches. Two case studies, design examples, and the author’s own experiences as a pipeline integrity engineer are featured in this book. Readers will develop a high quality and in-depth understanding of the corrosion protection methods available and apply them to solve corrosion engineering problems. This book is aimed at students, practicing engineers, and scientists as an introduction to

corrosion protection for the oil and gas industry, as well as to overcoming corrosion issues.

Offshore Operations and Engineering

Elsevier

Subsea Pipeline EngineeringPennwell Corporation

ASPECT '96 Springer Science & Business Media

This book provides a comprehensive understanding of each aspect of offshore operations including conventional methods of operations, emerging technologies, legislations, health, safety and environment impact of offshore operations. The book starts by coverage of notable offshore fields across the globe and the statistics of present oil production, covering all types of platforms available along with their structural details. Further, it discusses production, storage and transportation, production equipment, safety systems, automation, storage facilities and transportation. Book ends with common legislation acts and comparison of different legislation acts of major oil/gas producing nations. The book is aimed at professionals and researchers in petroleum engineering, offshore technology, subsea engineering, and Explores the engineering, technology, system, environmental, operational and legislation aspects of offshore productions systems Covers most of the subsea engineering material in

a concise manner
Includes legislation of major oil and gas producing nations pertaining to offshore operations (oil and gas)
Incorporates case studies of major offshore operations (oil and gas) accidents and lessons learnt
Discusses environment impact of offshore operations
Advances in Subsea Pipeline Engineering and Technology Wiley-Blackwell
Edited by the Society for Underwater Technology, this text covers advances in subsea pipeline engineering and technology. Topics covered include changes in the industry, high pressure/high temperature, design, construction/installation and operations and maintenance.
Design, Construction, Maintenance, Integrity, and Repair CRC Press
The technology, processes, materials, and theories surrounding pipeline construction, application, and troubleshooting are constantly changing, and this new series, Advances in Pipes and Pipelines, has been created to meet the needs of engineers and scientists to keep them up to date and informed of all of these advances. This second volume in the series focuses on flexible pipelines, risers, and umbilicals, offering the engineer the most thorough coverage of the state-of-the-art available. The authors of this work have

written numerous books and papers on these subjects and are some of the most influential authors on flexible pipes in the world, contributing much of the literature on this subject to the industry. This new volume is a presentation of some of the most cutting-edge technological advances in technical publishing. The first volume in this series, published by Wiley-Scrivener, is Flexible Pipes, available at www.wiley.com. Laying the foundation for the series, it is a groundbreaking work, written by some of the world's foremost authorities on pipes and pipelines. Continuing in this series, the editors have compiled the second volume, equally as groundbreaking, expanding the scope to pipelines, risers, and umbilicals. This is the most comprehensive and in-depth series on pipelines, covering not just the various materials and their aspects that make them different, but every process that goes into their installation, operation, and design. This is the future of pipelines, and it is an important breakthrough. A must-have for the veteran engineer and student alike, this volume is an important new advancement in the energy industry, a strong link in the chain of the world's energy production.

Piping and Pipeline Engineering Gulf Professional Publishing This comprehensive handbook on

submarine pipeline systems covers a broad spectrum of topics from planning and site investigations, procurement and design, to installation and commissioning. It considers guidelines for the choice of design parameters, calculation methods and construction procedures. It is based on limit state design with partial safety coefficients.

Advances in Subsea Pipeline Engineering and Technology CRC Press

Aspect '94 is the most up-to-date and comprehensive assessment of the present and future of the pipeline systems industry. It comprises papers from leading experts in all areas of pipeline engineering and technology. As this book shows, the last few years have seen great strides forward in the field of subsea pipelines. Deepwater pipelines, long distance pipelines and complex systems transporting hydrocarbons and fluids to and from marginal field subsea wellheads and templates are all being implemented without significant problems. The pace of progress continues to accelerate in the subsea industry, and the scope to make further improvements is constantly being explored. Operators, consultants, suppliers and contractors are all researching, developing and testing new techniques and ideas.

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