Microorganisms are ubiquitously present in petroleum reservoirs and the facilities that produce them. Pipelines, vessels, and other equipment used in upstream oil and gas operations provide a vast and predominantly anoxic environment for microorganisms to thrive. The biggest technical challenge resulting from microbial activity in these engineered environments is the impact on materials integrity. Oilfield microorganisms can affect materials integrity profoundly through a multitude of elusive (bio)chemical mechanisms, collectively referred to as microbiologically influenced corrosion (MIC). MIC is estimated to account for 20 to 30% of all corrosion-related costs in the oil and gas industry. This book is intended as a comprehensive reference for integrity engineers, production chemists, oilfield microbiologists, and scientists working in the field of petroleum microbiology or corrosion. Exhaustively researched by leaders from both industry and academia, this book discusses the latest technological and scientific advances as well as relevant case studies to convey to readers an understanding of MIC and its effective management.

Publisher's Note: Products purchased from Third Party sellers are not guaranteed by the publisher for quality, authenticity, or access to any online entitlements included with the product. The most complete corrosion control reference on the market—is thoroughly revised for the latest advances. This fully updated guide offers complete coverage of the latest corrosion-resistant materials, methods, and technologies. Written by a recognized expert on the subject, the book covers all aspects of corrosion damage, including detection, monitoring, prevention, and control. You will learn how to select materials and resolve design issues where corrosion is a factor. Handbook of Corrosion Engineering, Third Edition shows, step by step, how to understand, predict, evaluate, mitigate, and correct corrosion problems. This edition provides a new focus on the management of corrosion problems and draws on methodologies and examples from the 2016 IMPACT report. A new chapter discusses corrosion management across governments and
This report describes the annual total cost of metallic corrosion in the United States and preventive strategies for optimum corrosion management. The current study showed that technological changes have provided many new ways to prevent corrosion and there has been improved use of available corrosion management techniques. However, better corrosion management can be achieved using preventive strategies in non-technical and technical areas.

Marine pipelines for the transportation of oil and gas have become a safe and reliable part of the expanding infrastructure put in place for the development of the valuable resources below the world’s seas and oceans. The design of these pipelines is a relatively new technology and continues to evolve as the design of more cost effective pipelines becomes a priority and applications move into deeper waters and more hostile environments. This updated edition of a best selling title provides the reader with a scope and depth of detail related to the design of offshore pipelines and risers not seen before in a textbook format. With over 25 years experience, Professor Yong Bai has been able to assimilate the essence of the applied mechanics aspects of offshore pipeline system design in a form of value to students and designers alike. It represents an excellent source of up to date practices and knowledge to help equip those who wish to be part of the exciting future of this industry.

Some vols., 1920-1949, contain collections of papers according to subject.

The advancement of methods and technologies in the oil and gas industries calls for new insight into the corrosion problems these industries face daily. With the application of more precise instruments and laboratory techniques as well as the development of new scientific paradigms, corrosion professionals are also witnessing a new era in the way data are gathered and interpreted. Corrosion and Materials in the Oil and Gas Industries draws on state-of-the-art corrosion and materials technology as well as integrity management to offer guidance on dealing with aging and life extension in the oil and gas industries. Get Expert Insights on Corrosion Identification, Prevention, and Mitigation The book features contributions by engineers, scientists, and business managers from around the world, including major oil- and gas-producing and -exporting countries. Organized into four parts, the book first provides introductory and background information. The second part explains the properties of construction materials and the underlying
mechanisms of degradation, including a chapter on microbiologically influenced corrosion. The third part of the book delves into inspection and maintenance issues, examining material selection, corrosion prevention strategies, and the role of design. It also supplies models to help you estimate corrosion damage and select mitigation and monitoring techniques. The fourth part tackles corrosion hazards, safety and risk, and reliability. It also links corrosion mitigation and the management of asset integrity, highlighting the need for companies to maintain their infrastructure to remain competitive. Interpret Field Findings More Confidently and Discover Solutions to Your Corrosion Problems Throughout, this richly illustrated book combines theory with practical strategies and examples from industry. As infrastructure ages and is pushed beyond its original design life to meet increasing energy demands, it is essential that those responsible for managing the infrastructure have a thorough understanding of material degradation and corrosion. This book is an invaluable reference for anyone involved in corrosion management and materials selection, particularly in the oil and gas industries, whether upstream, midstream, or downstream.

The offshore industry continues to drive the oil and gas market into deeper drilling depths, more advanced subsea systems, and cross into multiple disciplines to further technology and equipment. Engineers and managers have learned that in order to keep up with the evolving market, they must have an all-inclusive solution reference. Subsea Engineering Handbook, Second Edition remains the go-to source for everything related to offshore oil and gas engineering. Enhanced with new information spanning control systems, equipment QRA, electric tree structures, and manifold designs, this reference is still the one product engineers rely on to understand all components of subsea technology. Packed with new chapters on subsea processing and boosting equipment as well as coverage on newer valves and actuators, this handbook explains subsea challenges and discussions in a well-organized manner for both new and veteran engineers to utilize throughout their careers. Subsea Engineering Handbook, Second Edition remains the critical road map to understand all subsea equipment and technology. Gain access to the entire spectrum of subsea engineering, including the very latest on equipment, safety, and flow assurance systems Sharpen your knowledge with new content coverage on subsea valves and actuators, multiphase flow loop design, tree and manifold design as well as subsea control Practice and learn with new real-world test examples and case studies

A collection of the papers presented at the 5th International Conference on Loss Prevention in the Oil and Gas Industry. The papers examine the critical issues which concern all those involved in the safe and cost-effective extraction and transportation of oil and gas.

Handbook of Multiphase Flow Assurance allows readers to progress in their understanding of basic phenomena and complex operating challenges. The book starts with the fundamentals, but then goes on to discuss phase behavior, fluid sampling, fluid flow properties and fluid characterization. It also covers flow assurance impedance, deliverability, stability and integrity issues, as well as hydraulic, thermal and risk analysis. The inclusion of case studies and references helps provide an industrial focus and practical application that makes the book a novel resource for flow assurance management and an introductory reference for engineers just entering the field of flow assurance. Starts with flow assurance fundamentals, but also includes more complex operating challenges Brings together cross-disciplinary discussions and solutions of flow assurance in a single text Offers case studies and reference guidelines for practical applications

Provides comprehensive coverage of corrosion inhibitors in the oil and gas industries Considering the high importance of corrosion inhibitor
development for the oil and gas sectors, this book provides a thorough overview of the most recent advancements in this field. It systematically addresses corrosion inhibitors for various applications in the oil and gas value chain, as well as the fundamentals of corrosion inhibition and interference of inhibitors with co-additives. Corrosion Inhibitors in the Oil and Gas Industries is presented in three parts. The first part on Fundamentals and Approaches focuses on principles and processes in the oil and gas industry, the types of corrosion encountered and their control methods, environmental factors affecting inhibition, material selection strategies, and economic aspects of corrosion. The second part on Choice of Inhibitors examines corrosion inhibitors for acidizing processes, inhibitors for sweet and sour corrosion, inhibitors in refinery operations, high-temperature corrosion inhibitors, inhibitors for challenging corrosive environments, inhibitors for microbiologically influenced corrosion, polymeric inhibitors, vapor phase inhibitors, and smart controlled release inhibitor systems. The last part on Interaction with Co-additives looks at industrial co-additives and their interference with corrosion inhibitors such as antiscalants, hydrate inhibitors, and sulfide scavengers.—Presents a well-structured and systematic overview of the fundamentals and factors affecting corrosion—Acts as a handy reference tool for scientists and engineers working with corrosion inhibitors for the oil and gas industries—Collectively presents all the information available on the development and application of corrosion inhibitors for the oil and gas industries—Offers a unique and specific focus on the oil and gas industries Corrosion Inhibitors in the Oil and Gas Industries is an excellent resource for scientists in industry as well as in academia working in the field of corrosion protection for the oil and gas sectors, and will appeal to materials scientists, electrochemists, chemists, and chemical engineers.

This book provides excellent techniques for detecting and evaluating biofilms: sticky films on materials that are formed by bacterial activity and produce a range of industrial and medical problems such as corrosion, sanitary problems, and infections. Accordingly, it is essential to control biofilms and to establish appropriate countermeasures, from both industrial and medical viewpoints. This book offers valuable, detailed information on these countermeasures. It also discusses the fundamentals of biofilms, relates various substrates to biofilms, and presents a variety of biofilm reactors. However, the most important feature of this book (unlike others on the market) is its clear focus on addressing the practical aspects from an engineering viewpoint. Therefore, it offers an excellent practical guide for engineers and researchers in various fields, and can also be used as a great academic textbook.

Some vols., 1920-1949, contain collections of papers according to subject.

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