

**Offshore Reliability Data Handbook**

**Offshore Risk Assessment is the first book to deal with quantified risk assessment (QRA) as applied specifically to offshore installations and operations. Risk assessment techniques have been used for some years in the offshore oil and gas industry, and their use is set to expand increasingly as the industry moves into new areas and faces new challenges in older regions. The book starts with a thorough discussion of risk analysis methodology. Subsequent chapters are devoted to analytical approaches to escalation, escape, evacuation and rescue analysis of safety and emergency systems. Separate chapters analyze the main hazards of offshore structures: Fire, explosion, collision and falling objects. Risk mitigation and control are then discussed, followed by an outline of an alternative approach to risk modelling that focuses especially on the risk of short-duration activities. Not only does the book describe the state of the art of QRA, it also identifies weaknesses and areas that need development. Readership: Besides being a comprehensive reference for academics and students of marine/offshore risk assessment and management, the book should also be owned by professionals in the industry, contractors, suppliers, consultants and regulatory authorities.**

**Gas and Oil Reliability Engineering: Modeling and Analysis, Second Edition, provides the latest tactics and processes that can be used in oil and gas markets to improve reliability knowledge and reduce costs to stay competitive, especially while oil prices are low. Updated with relevant analysis and case studies covering equipment for both onshore and offshore operations, this reference provides the engineer and manager with more information on lifetime data analysis (LDA), safety integrity levels (SILs), and asset management. New chapters on safety, more coverage on the latest software, and techniques such as ReBi (Reliability-Based Inspection), ReGBI (Reliability Growth-Based Inspection), RCM (Reliability Centered Maintenance), and LDA (Lifetime Data Analysis), and asset integrity management, make the book a critical resource that will arm engineers and managers with the basic reliability principles and standard concepts that are necessary to explain their use for reliability assurance for the oil and gas industry. Provides the latest tactics and processes that can be used in oil and gas markets to improve reliability knowledge and reduce costs Presents practical knowledge with over 20 new internationally-based case studies covering BOPs, offshore platforms, pipelines, valves, and subsea equipment from various locations, such as Australia, the Middle East, and Asia Contains expanded explanations of reliability skills with a new chapter on asset integrity management, relevant software, and techniques training, such as THERP, ASEP, RBI, FMEA, and RAM**

**Component failure rate data are a vital part of any reliability or safety study and highly relevant to the engineering community across many disciplines. This book gives a comprehensive account of the subject.**

**Guidelines for Process Equipment Reliability Data, with Data Tables**

**Reliability Data Bases**

**Principles, Modelling and Applications of QRA Studies**

**Handbook of Materials Failure Analysis with Case Studies from the Oil and Gas Industry**

**Safety Critical Systems Handbook**

A comprehensive and detailed reference guide on the integrity and safety of oil and gas pipelines, both onshore and offshore Covers a wide variety of topics, including design, pipe manufacture, pipeline welding, human factors, residual stresses, mechanical damage, fracture and corrosion, protection, inspection and monitoring, pipeline cleaning, direct assessment, repair, risk management, and abandonment Links modern and vintage practices to help integrity engineers better understand their system and apply up-to-date technology to older infrastructure Includes case histories with examples of solutions to complex problems related to pipeline integrity Includes chapters on stress-based and strain-based design, the latter being a novel type of design that has only recently been investigated by designer firms and regulators Provides information to help those who are responsible to establish procedures for ensuring pipeline integrity and safety

This book presents concepts, methods and techniques to examine symptoms of faults and failures of structures, systems and components and to monitor functional performance and structural integrity. The book is organized in five parts. Part A introduces the scope and application of technical diagnostics and gives a comprehensive overview of the physics of failure. Part B presents all relevant methods and techniques for diagnostics and monitoring: from stress, strain, vibration analysis, nondestructive evaluation, thermography and industrial radiology to computed tomography and subsurface microstructural analysis. Part C cores the principles and concepts of technical failure analysis, illustrates case studies, and outlines machinery diagnostics with an emphasis on tribological systems. Part D describes the application of structural health monitoring and performance control to plants and the technical infrastructure, including buildings, bridges, pipelines, electric power stations, offshore wind structures, and railway systems. And finally, Part E is an excursion on diagnostics in arts and culture. The book integrates knowledge of basic sciences and engineering disciplines with contributions from research institutions, academe, and industry, written by internationally known experts from various parts of the world, including Europe, Canada, India, Japan, and USA.

Practicing engineers in the offshore and reservoir engineering industry will find this timely volume filled with practical advice and expert information on current oil field development from oil exploration to production.

Proceedings of the 5th EuReData Conference, Heidelberg, Germany, April 9-11, 1986

ORED: Subsea equipment

Offshore Risk Assessment vol 2.

Offshore Risk Assessment

Subsea Pipeline Integrity and Risk Management

The book supplements Guidelines for Chemical Process Quantitative Risk Analysis by providing the failure rate data needed to perform a chemical process quantitative risk analysis.

ORED:Offshore Reliability Data HandbookORED: Topsiside equipmentOffshore Reliability Data Handbook1st EditionORED: OFFSHORE RELIABILITY DATA HANDBOOKOffshore and Onshore Reliability Data HandbookORED: Subsea equipmentORED: OFFSHORE RELIABILITY DATA HANDBOOKORED:Offshore Reliability Data HandbookOffshore Risk AssessmentPrinciples, Modelling and Applications of QRA

StuDieSpringer Science & Business Media

Reliability data collection and its use in risk and availability assessment is a subject of increasing importance. The founders of EuReData, and in particular, Arne Ullman, the originator and first Chairman of the Association, recognised the need for a body capable of acting as a catalyst and providing a unified approach to this subject. It is therefore a prevailing objective of the European Reliability Databank Association to initiate and support contact between experts, companies and institutions active in reliability engineering and research. Although the first and principle interest of EuReData is reliability data and data banks, the Association is aware that there are others to which these are tools that are used with others to establish and maintain reliability and safety. It is with this objective that EuReData regularly holds conferences and seminars covering a range of reliability topics. C.A.

Campbell H.J. Wiegander EuReData Chairman Organiser, Editor Contents CHAPTER 1: OVERVIEWS Data Situation and the Quality of Risk Assessment (FRG) A. Birkhofor, K. Koberlein (GRS) . . . . . 3 Reliability Engineering in Europe (CEC) G. Volta (JRC-Ispira) . . . . . 16 1984: A Year of Industrial Catastrophies.

Thermal Insulation Handbook for the Oil, Gas, and Petrochemical Industries

Offshore Reliability Data

NURGE/CR.

Handbook of Fire & Explosion Protection Engineering Principles for Oil, Gas, Chemical, & Related Facilities

*The ever increasing public demand and the setting-up of national and international legislation on safety assessment of potentially dangerous plants require that a correspondingly increased effort be devoted by regulatory bodies and industrial organisations to collect reliability data in order to produce safety analyses. Reliability data are also needed to assess availability of plants and services and to improve quality of production processes, in particular, to meet the needs of plant operators and/or designers regarding maintenance planning, production availability, etc. The need for an educational effort in the field of data acquisition and processing has been stressed within the framework of EuReData, an association of organisations operating reliability data banks. This association aims to promote data exchange and pooling of data between organisations and to encourage the adoption of compatible standards and basic definitions for a consistent exchange of reliability data. Such basic definitions are considered to be essential in order to improve data quality. To cover issues directly linked to the above areas ample space is devoted to the definition of failure events, common cause and human error data, feedback of operational and disturbance data, event data analysis, lifetime distributions, cumulative distribution functions, density functions, Bayesian inference methods, multivariate analysis, fuzzy sets and possibility theory, etc.*

*Subsea production systems, overview of subsea engineering, subsea field development, subsea distribution system,Flow assurance and system engineering, Susea structure and equipment. Subsea umbilical, risers and flowlines.*

*This utterly comprehensive work is thought to be the first to integrate the literature on the physics of the failure of complex systems such as hospitals, banks and transport networks. It has chapters on particular aspects of maintenance written by internationally-renowned researchers and practitioners. This book will interest maintenance engineers and managers in industry as well as researchers and graduate students in maintenance, industrial engineering and applied mathematics.*

*Complex System Maintenance Handbook*

*Modeling and Analysis*

*A Straight forward Guide to Functional Safety, IEC 61508 (2010 EDITION) and Related Standards, Including Process IEC 61511 and Machinery IEC 62061 and ISO 13849*

*Gas and Oil Reliability Engineering*

*Deepwater Foundations and Pipeline Geomechanics*

**The book is a guide for Layers of Protection Analysis (LOPA)practitioners. It explains the onion skin modeland in particular, how it relates to the use of LOPA and the needfor non-safety instrumented independent protection layers. Iprovides specific guidance on Independent Protection Layers (IPLs)that are not Safety Instrumented Systems (SIS). Using theLOPA methodology, companies typically take credit for riskreductions accomplished through non-SIS alternatives: i.e.administrative procedures, equipment design, etc. Itaddresses issues such as how to ensure the effectiveness andmaintain reliability for administrative controls or"inherently safe, passive" concepts. This book will address how the fields of Human ReliabilityAnalysis, Fault Tree Analysis, Inherent Safety, Audits andAssessments, Maintenance, and Emergency Response relate to LOPA andSIS. The book will separate IPL's into categories such as thefollowing: Inherent Safety eliminates a scenario or hazard Preventive/proactive prevents initiating event from occurring such as enhancedmaintenance Preventive/Active stops chain of events after initiating event occurs but beforean incident has occurred such as high level in a tank shutting off the pump. Mitigation (active or passive) minimizes impact once an incident has occurred such as closingback valves once LEL is detected in the dike (active) or the dikepreventing contamination of groundwater (passive).**

Proceedings of the ISPRA-Course Held at the Joint Research Centre, Ispra, Italy, October 21-25, 1985, in Collaboration with EuReData

The security and economic stability of many nations and multinational oil companies are highly dependent on the safe and uninterrupted operation of their oil, gas and chemical facilities. One of the most critical impacts that can occur to these operations are fires and explosions from accidental or political incidents. This publication is intended as a general engineering handbook and reference guideline for those personnel involved with fire and explosion protection aspects of critical hydrocarbon facilities. Design guidelines and specifications of major, small and independent oil companies as well as information from engineering firms and published industry references have been reviewed to assist in its preparation. Some of the latest published practices and research into fire and explosions have also been mentioned.

Wind Energy Engineering

Application of Risk Analysis to Offshore Oil and Gas Operations

Reliability Data Collection and Use in Risk and Availability Assessment

ORED: OFFSHORE RELIABILITY DATA HANDBOOK

Proceedings of an International Workshop

*Handbook of Offshore Oil and Gas Operations is an authoritative source providing extensive up-to-date coverage of the technology used in the exploration, drilling, production, and operations in an offshore setting. Offshore oil and gas activity is growing at an expansive rate and this must-have training guide covers the full spectrum including geology, types of platforms, exploration methods, production and enhanced recovery methods, pipelines, and environmental management and impact, specifically worldwide advances in study, control, and prevention of the industry's impact on the marine environment and its living resources. In addition, this book provides a go-to glossary for quick reference. Handbook of Offshore Oil and Gas Operations empowers oil and gas engineers and managers to understand and capture on one of the fastest growing markets in the energy sector today. Quickly become familiar with the oil and gas offshore industry, including deepwater operations Understand the full spectrum of the business, including environmental impacts and future challenges Gain knowledge and exposure on critical standards and real-world case studies*

*Offshore Engineering continues to develop and expand rapidly. While in the public eye its focus has shifted towards subsea and floating developments in ever deeper waters, bottom founded structures are still at the industry's heart. The fixed structure remains its dependable workhorse and even today newly installed fixed structures far outnumber subsea and floating applications. Additionally, the knowledge and technology that have (literally) pushed the boundaries of Offshore Engineering into ever more demanding environments and water depths have been largely pioneered by bottom founded structures. An engineer's central skill is to develop coherent and balanced models for the problems encountered. Regrettably, due to availability of ever more sophisticated computer applications this expertise is at risk of getting lost, and adopting computer outcomes without truly understanding the models and their limitations is naive, risky and unprofessional. Therefore, every engineer needs fundamental knowledge and understanding of underlying theories and technologies. This Handbook is intended to help offshore engineers acquire and sustain relevant expertise in some notoriously difficult subjects. It attempts to stimulate reflection and critical evaluation of the models used and the strengths and weaknesses of the solutions found. While dealing more specifically with bottom founded structures, the material is generally applicable to offshore structures of all types. The Handbook can be used as a textbook for Master's students and as a manual and reference guide for practising professionals.*

*Safety Critical Systems Handbook: A Straightforward Guide to Functional Safety, IEC 61508 (2010 Edition) and Related Standards, Including Process IEC 61511 and Machinery IEC 62061 AND ISO 13849, Third Edition, offers a practical guide to the functional safety standard IEC 61508. The book is organized into three parts. Part A discusses the concept of functional safety and the need to express targets by means of safety integrity levels. It places functional safety in context, along with risk assessment, likelihood of fatality, and the cost of conformance. It also explains the life-cycle approach, together with the basic outline of IEC 61508 (known as BS EN 61508 in the UK). Part B discusses functional safety standards for the process, oil, and gas industries; the machinery sector; and other industries such as rail, automotive, avionics, and medical electrical equipment. Part C presents case studies in the form of exercises and examples. These studies cover SIL targeting for a pressure let-down system, burner control system assessment, SIL targeting, a hypothetical proposal for a rail-train braking system, and hydroelectric dam and tidal gates. The only comprehensive guide to IEC 61508, updated to cover the 2010 amendments, that will ensure engineers are compliant with the latest process safety systems design and operation standards Helps readers understand the process required to apply safety critical systems standards Real-world approach helps users to interpret the standard, with case studies and best practice design examples throughout*

*Offshore Process Safety*

*Integrity and Safety Handbook*

*The Reliability Data Handbook*

*ORED: Topsiside equipment*

*Handbook of Technical Diagnostics*

Wind Energy Engineering. A Handbook for Onshore and Offshore Wind Turbines is the most advanced, up-to-date and research-focused text on all aspects of wind energy engineering. Wind energy is pivotal in global electricity generation and for achieving future essential energy demands and targets. In this fast moving field this must-have edition starts with an in-depth look at the present state level assessment of the advances in turbine technology and how the investment, planning, and economic infrastructure can support those innovations. Each chapter includes a research overview with a detailed analysis and new case studies looking at how recent research developments can be applied. Written by some of the most forward-thinking professionals in the field and giving a complete energy, this book is an invaluable reference into this cross-disciplinary field for engineers. Contains analysis of the latest high-level research and explores real world application potential in relation to the developments Uses system international (SI) units and imperial units throughout to appeal to global engineers Offers new case studies from a world expert in the field Covers the latest research

Thermal Insulation Handbook for the Oil and Gas Industries addresses relative design, materials, procedures, and standard installation necessities for various oil and gas infrastructure such as pipelines, subsea equipment, vessels, and tanks. With the continued increase in available natural gas ready to export — especially LNG — and the definition of "deepwater" changing every year, an understanding handbook helps oil and gas engineers ensure that their products are exporting safely and that the equipment's integrity is protected. Topics include: Design considerations and component selection, including newer materials such as cellular glass Methods to properly install the insulation material and notable inspection and safety considerations in accordance with applicable US and International standards Make sure that every scenario is considered and requirements for size, composition, and packaging are met effectively Understand all appropriate, new and existing, insulation material properties as well as installation requirements Gain practical knowledge on factors affecting insulation efficiency, rules of thumb, and links to real-world case studies Maximize flow assurance safely and economically

Methods in Chemical Process Safety, Volume Two, the latest release in a serial that publishes fully commissioned methods papers across the field of process safety, risk assessment, and management and loss prevention, aims to provide informative, visual and current content that appeals to both researchers and practitioners in process safety. This new release contains unique chapters on offshore safety, safety during well drilling and operation, safety during processing (top side), safety during transportation of natural resources (offshore pipeline), and regulatory context Helps acquaint the reader/researcher with the fundamentals of process safety Provides the most recent advancements and contributions on the topic from a practical point-of-view Presents users with the views/opinion from among the leading researchers and/or practitioners for each given topic

Practical Industrial Safety, Risk Assessment and Shutdown Systems

ORED: Oil and Gas Production Handbook: An Introduction to Oil and Gas Production

Handbook of Offshore Engineering

Handbook of Offshore Oil and Gas Operations

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

Handbook of Materials Failure Analysis: With Case Studies from the Oil and Gas Industry provides an updated understanding on why materials fail in specific situations, a vital element in developing and engineering new alternatives. This handbook covers analysis of materials failure in the oil and gas industry, where a single failed pipe can result in devastating consequences for people, wildlife, the environment, and the economy of a region. The book combines introductory sections on failure analysis with numerous real world case studies of pipelines and other types of materials failure in the oil and gas industry, including joint failure, leakage in crude oil storage tanks, failure of glass fibre reinforced epoxy pipes, and failure of stainless steel components in offshore platforms, amongst others. Introduces readers to modern analytical techniques in materials failure analysis Combines foundational knowledge with current research on the latest developments and innovations in the field Includes numerous compelling case studies of materials failure in oil and gas pipelines and drilling platforms

Offshore Risk Assessment was the first book to deal with quantified risk assessment (QRA) as applied specifically to offshore installations and operations. Risk assessment techniques have been used for more than three decades in the offshore oil and gas industry, and their use is set to expand increasingly as the industry moves into new areas and faces new challenges in older regions. This updated and expanded third edition has been informed by a major R&D program on offshore risk assessment in Norway and summarizes research from 2006 to the present day. Rooted with a thorough discussion of risk metrics and risk analysis methodology, subsequent chapters are devoted to analytical approaches to escalation, escape, evacuation and rescue analysis of safety and emergency systems. Separate chapters analyze the main hazards of offshore structures: fire, explosion, collision, and falling objects as well as structural and marine hazards. Risk mitigation and control are discussed, as well as an illustration of how the results from quantitative risk assessment studies should be presented. The third second edition has a stronger focus on the use of risk assessment techniques in the operation of offshore installations. Also decommissioning of installations is covered.

Not only does Offshore Risk Assessment describe the state of the art of QRA, it also identifies weaknesses and areas that need further development. This new edition also illustrates applications or quantitative risk analysis methodology to offshore petroleum applications. A comprehensive reference for academics and students of marine/offshore risk assessment and management, the book should also be owned by professionals in the industry, contractors, suppliers, consultants and regulatory authorities.

Oil and Gas Pipelines

1st Edition

Subsea Engineering Handbook

Offshore Reliability Data Handbook

This is a book for engineers that covers the hardware and software aspects of high-reliability safety systems, safety instrumentation and shutdown systems as well as risk assessment techniques and the wider spectrum of industrial safety. Rather than another book on the discipline of safety engineering, this is a thoroughly practical guide to the procedures and technology of safety in control and plant engineering. This highly practical book focuses on efficiently implementing and assessing hazard studies, designing and applying international safety practices and techniques, and ensuring high reliability in the safety and emergency shutdown of systems in your plant. This book will provide the reader with the most up-to-date standards for and information on each stage of the safety life cycle from the initial evaluation of hazards through to the detailed engineering and maintenance of safety instrumented systems. It will help them develop the ability to plan hazard and risk assessment studies, then design and implement and operate the safety systems and maintain and evaluate them to ensure high reliability. Finally it will give the reader the knowledge to help prevent the massive devastation and destruction that can be caused by today's highly technical computer controlled industrial environments. \* Helps readers develop the ability to plan hazard and risk assessment studies, then design, implement and operate the safety systems and maintain and evaluate them to ensure high reliability \* Gives the reader the knowledge to help prevent the massive devastation that can be caused by today's highly technical computer controlled industrial environments \* Rather than another book on the discipline of safety engineering, this is a thoroughly practical guide to the procedures and technology of safety in control and plant engineering

A Handbook for Onshore and Offshore Wind Turbines

Guidelines for Initiating Events and Independent Protection Layers in Layer of Protection Analysis

Part 1. General features of offshore structures and theoretical background

Handbook of Bottom Founded Offshore Structures

Offshore and Onshore Reliability Data Handbook