

# Oreda Offshore Reliability Data Handbook

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**OREDA** - SINTEF Technology and Society (Trondheim). 2009

Practical Industrial Safety, Risk Assessment and Shutdown Systems - Dave Macdonald 2003-11-25

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

Reliability Data Collection and Use in Risk and Availability Assessment - Viviana Colombari 2012-12-06

International cooperation on reliability and accident data collection and processing, exchange of experience on actual uses of data and reliability engineering techniques is a major step in realising safer and more efficient industrial systems. This book provides an updated presentation of the activities in this field on a worldwide basis.

**OREDA** - OREDA (Project) 1984

**OREDA : OFFSHORE RELIABILITY DATA HANDBOOK** - OREDA AUTOR 2002

**OREDA** - OREDA. 2009

Safety and Reliability – Safe Societies in a Changing World - Stein Haugen 2018-06-15

Safety and Reliability – Safe Societies in a Changing World collects the papers presented at the 28th European Safety and Reliability Conference, ESREL 2018 in Trondheim, Norway, June 17-21, 2018. The contributions cover a wide range of methodologies and application areas for safety and reliability that contribute to safe societies in a changing world. These methodologies and applications include: - foundations of risk and reliability assessment and management - mathematical methods in reliability and safety - risk assessment - risk management - system reliability - uncertainty analysis - digitalization and big data - prognostics and system health management - occupational safety - accident and incident modeling - maintenance modeling and applications - simulation for safety and reliability analysis - dynamic risk and barrier management

- organizational factors and safety culture - human factors and human reliability - resilience engineering - structural reliability - natural hazards - security - economic analysis in risk management Safety and Reliability – Safe Societies in a Changing World will be invaluable to academics and professionals working in a wide range of industrial and governmental sectors: offshore oil and gas, nuclear engineering, aeronautics and aerospace, marine transport and engineering, railways, road transport, automotive engineering, civil engineering, critical infrastructures, electrical and electronic engineering, energy production and distribution, environmental engineering, information technology and telecommunications, insurance and finance, manufacturing, marine transport, mechanical engineering, security and protection, and policy making.

*Handbook of Performability Engineering* - Krishna B. Misra 2008-08-24 Dependability and cost effectiveness are primarily seen as instruments for conducting international trade in the free market environment. These factors cannot be considered in isolation of each other. This handbook considers all aspects of performability engineering. The book provides a holistic view of the entire life cycle of activities of the product, along with the associated cost of environmental preservation at each stage, while maximizing the performance.

**Safety Critical Systems Handbook** - David J. Smith 2010-11-11 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

Uncertainty in Risk Assessment, Risk Management, and Decision Making - V.T. Covello 2013-03-08

The subject of this volume--uncertainties in risk assessment and management--reflects an important theme in health, safety, and environmental decision making. Most technological hazards are characterized by substantial uncertainty. Recent examples include nuclear waste disposal, acid rain, asbestos in schools, carcinogens in food, and hazardous waste. Dealing with such uncertainty is arguably the most difficult and challenging task facing risk assessors and managers today. Four primary sources of uncertainty in risk assessment and management can be identified: (1) uncertainties about definitions; (2) uncertainties about scientific facts; (3) uncertainties about risk perceptions and attitudes; and (4) uncertainties about values. Uncertainties about definitions derive primarily from disagreements about the meaning and

interpretation of key concepts, such as probability. Uncertainties about scientific facts derive primarily from disagreements about failure modes, the probability and magnitude of adverse health or environmental consequences, cause and effect relationships, dose-response relationships, and exposure patterns. Uncertainties about risk perceptions and attitudes derive primarily from disagreements about what constitutes a significant or acceptable level of risk. Uncertainties about values derive primarily from disagreements about the desirability or worth of alternative risk management actions or consequences. The papers in this volume address each of these sources of uncertainty from a variety of perspectives. Reflecting the broad scope of risk assessment and risk management research, the papers include contributions from safety engineers, epidemiologists, toxicologists, chemists, biostatisticians, biologists, decision analysts, economists, psychologists, political scientists, sociologists, ethicists, and lawyers.

*Gas and Oil Reliability Engineering* - Eduardo Calixto 2016-06-22

*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 RAMS.

**On the process of maintenance decision-making in the offshore operational environment of the oil and gas industry** - Mario

Marcondes Machado 2022-07-08

The overall objective of this research is to develop a decision support framework for preventive maintenance program implementations in the offshore operational environment of the oil and gas industry. The author investigates the problems surrounding the maintenance decision-making process, which elements are systematically identified and categorized, including organizational aspects. The interface with operations is considered in order to promote integration between maintenance and production schedules. The research sub-jacent objectives have been to identify, among major oil and gas offshore operators, the state-of-practices regarding the maintenance decision-making process and identify, in the literature, the main techniques used for maintenance decisions and optimization in order to propose alternatives for supporting future implementations. Through a Systems Engineering approach, assisted by a literature review, interviews with experts (in Norway and in Brazil), an on-line survey and case studies, the results of this research complement a toolkit for maintenance engineers and managers aiming to facilitate information sharing and interdisciplinary cooperation in the operational environment. Among the results: A concept map for the maintenance decision-making process ontology; A plan for PM program implementations; The suggested cross-sector solution: the minimum equipment list; A Markovian dependability nomogram; and A Markov decision model application.

**Safety Equipment Reliability Handbook** - Exida.com L.L.C. 2005-01-01

**Guidelines for Initiating Events and Independent Protection**

**Layers in Layer of Protection Analysis** - CCPS (Center for Chemical Process Safety) 2015-02-03

The book is a guide for Layers of Protection Analysis (LOPA) practitioners. It explains the onion skin model and in particular, how it relates to the use of LOPA and the need for non-safety instrumented independent protection layers. It provides specific guidance on Independent Protection Layers (IPLs) that are not Safety Instrumented

Systems (SIS). Using the LOPA methodology, companies typically take credit for risk reductions accomplished through non-SIS alternatives; i.e. administrative procedures, equipment design, etc. It addresses issues such as how to ensure the effectiveness and maintain reliability for administrative controls or "inherently safer, passive" concepts. This book will address how the fields of Human Reliability Analysis, Fault Tree Analysis, Inherent Safety, Audits and Assessments, Maintenance, and Emergency Response relate to LOPA and SIS. The book will separate IPL's into categories such as the following: Inherent Safety eliminates a scenario or fundamentally reduces a hazard Preventive/Proactive prevents initiating event from occurring such as enhanced maintenance Preventive/Active stops chain of events after initiating event occurs but before an 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 closing block valves once LEL is detected in the dike (active) or the dike preventing contamination of groundwater (passive).

**Application of Risk Analysis to Offshore Oil and Gas Operations** - Felix Y. Yokel 1985

Reliability Engineering and Risk Analysis - Mohammad Modarres 2016-11-25

This undergraduate and graduate textbook provides a practical and comprehensive overview of reliability and risk analysis techniques. Written for engineering students and practicing engineers, the book is multi-disciplinary in scope. The new edition has new topics in classical confidence interval estimation; Bayesian uncertainty analysis; models for physics-of-failure approach to life estimation; extended discussions on the generalized renewal process and optimal maintenance; and further modifications, updates, and discussions. The book includes examples to clarify technical subjects and many end of chapter exercises. PowerPoint slides and a Solutions Manual are also available.

*The Reliability Data Handbook* - T. R. Moss 2004

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.

**Maintenance Strategy** - Anthony Kelly 1997-10

Devising optimal strategy for maintaining industrial plant can be a difficult task of daunting complexity. This book aims to provide the plant engineer with a comprehensive approach for tackling this problem, that is, for deciding maintenance objectives, formulating equipment life plans and plant maintenance schedules, and others.

*Guidelines for Chemical Process Quantitative Risk Analysis* - CCPS (Center for Chemical Process Safety) 1999-10-15

Chemical process quantitative risk analysis (CPQRA) as applied to the CPI was first fully described in the first edition of this CCPS Guidelines book. This second edition is packed with information reflecting advances in this evolving methodology, and includes worked examples on a CD-ROM. CPQRA is used to identify incident scenarios and evaluate their risk by defining the probability of failure, the various consequences and the potential impact of those consequences. It is an invaluable methodology to evaluate these when qualitative analysis cannot provide adequate understanding and when more information is needed for risk management. This technique provides a means to evaluate acute hazards and alternative risk reduction strategies, and identify areas for cost-effective risk reduction. There are no simple answers when complex issues are concerned, but CPQRA2 offers a cogent, well-illustrated guide to applying these risk-analysis techniques, particularly to risk control studies. Special Details: Includes CD-ROM with example problems worked using Excel and Quattro Pro. For use with Windows 95, 98, and NT.

Reliability Engineering - Massimo Lazzaroni 2011-08-31

This book gives a practical guide for designers and users in Information and Communication Technology context. In particular, in the first Section, the definition of the fundamental terms according to the international standards are given. Then, some theoretical concepts and reliability models are presented in Chapters 2 and 3: the aim is to evaluate performance for components and systems and reliability growth. Chapter 4, by introducing the laboratory tests, puts in evidence the reliability concept from the experimental point of view. In ICT context, the failure rate for a given system can be evaluated by means of specific reliability prediction handbooks; this aspect is considered in Chapter 5, with practical applications. In Chapters 6, 7 and 8, the more complex aspects regarding both the Maintainability, Availability and Dependability are taken into account; in particular, some fundamental

techniques such as FMECA (Failure Mode, Effects, and Criticality Analysis) and FTA (Fault Tree Analysis) are presented with examples for repairable systems.

#### **Offshore Process Safety** - 2018-06-18

Methods in Chemical Process Safety, Volume Two, the latest release in a series 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, offshore platform safety, human factors in offshore operation, marine 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/opinions of experts in each topic. Includes a selection of the author(s) of each chapter from among the leading researchers and/or practitioners for each given topic.

#### **Guidelines for Initiating Events and Independent Protection Layers in Layer of Protection Analysis** - CCPS (Center for Chemical Process Safety) 2015-02-02

The book is a guide for Layers of Protection Analysis (LOPA) practitioners. It explains the onion skin model and in particular, how it relates to the use of LOPA and the need for non-safety instrumented independent protection layers. It provides specific guidance on Independent Protection Layers (IPLs) that are not Safety Instrumented Systems (SIS). Using the LOPA methodology, companies typically take credit for risk reductions accomplished through non-SIS alternatives; i.e. administrative procedures, equipment design, etc. It addresses issues such as how to ensure the effectiveness and maintain reliability for administrative controls or "inherently safer, passive" concepts. This book will address how the fields of Human Reliability Analysis, Fault Tree Analysis, Inherent Safety, Audits and Assessments, Maintenance, and Emergency Response relate to LOPA and SIS. The book will separate IPL's into categories such as the following: Inherent Safety eliminates a scenario or fundamentally reduces a hazard. Preventive/Proactive prevents initiating event from occurring such as enhanced maintenance. Preventive/Active stops chain of events after initiating event occurs but before an 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 closing block valves once LEL is detected in the dike (active) or the dike preventing contamination of groundwater (passive).

#### **Production Availability and Reliability** - Alain Leroy 2018-04-16

The objective of the book is to provide all the elements to evaluate the performance of production availability and reliability of a system, to integrate them and to manage them in its life cycle. By the examples provided (case studies) the main target audience is that of the petroleum industries (where I spent most of my professional years). Although the greatest rigor is applied in the presentation, and justification, concepts, methods and data this book is geared towards the user.

#### **Reliability of Safety-Critical Systems** - Marvin Rausand 2014-03-03

Presents the theory and methodology for reliability assessments of safety-critical functions through examples from a wide range of applications. Reliability of Safety-Critical Systems: Theory and Applications provides a comprehensive introduction to reliability assessments of safety-related systems based on electrical, electronic, and programmable electronic (E/E/PE) technology. With a focus on the design and development phases of safety-critical systems, the book presents theory and methods required to document compliance with IEC 61508 and the associated sector-specific standards. Combining theory and practical applications, Reliability of Safety-Critical Systems: Theory and Applications implements key safety-related strategies and methods to meet quantitative safety integrity requirements. In addition, the book details a variety of reliability analysis methods that are needed during all stages of a safety-critical system, beginning with specification and design and advancing to operations, maintenance, and modification control. The key categories of safety life-cycle phases are featured, including strategies for the allocation of reliability performance requirements; assessment methods in relation to design; and reliability quantification in relation to operation and maintenance. Issues and benefits that arise from complex modern technology developments are featured, as well as: Real-world examples from large industry facilities with major accident potential and products owned by

the general public such as cars and tools. Plentiful worked examples throughout that provide readers with a deeper understanding of the core concepts and aid in the analysis and solution of common issues when assessing all facets of safety-critical systems. Approaches that work on a wide scope of applications and can be applied to the analysis of any safety-critical system. A brief appendix of probability theory for reference. With an emphasis on how safety-critical functions are introduced into systems and facilities to prevent or mitigate the impact of an accident, this book is an excellent guide for professionals, consultants, and operators of safety-critical systems who carry out practical, risk, and reliability assessments of safety-critical systems. Reliability of Safety-Critical Systems: Theory and Applications is also a useful textbook for courses in reliability assessment of safety-critical systems and reliability engineering at the graduate-level, as well as for consulting companies offering short courses in reliability assessment of safety-critical systems.

#### **SFPE Handbook of Fire Protection Engineering** - Morgan J. Hurley 2015-10-07

Revised and significantly expanded, the fifth edition of this classic work offers both new and substantially updated information. As the definitive reference on fire protection engineering, this book provides thorough treatment of the current best practices in fire protection engineering and performance-based fire safety. Over 130 eminent fire engineers and researchers contributed chapters to the book, representing universities and professional organizations around the world. It remains the indispensable source for reliable coverage of fire safety engineering fundamentals, fire dynamics, hazard calculations, fire risk analysis, modeling and more. With seventeen new chapters and over 1,800 figures, the this new edition contains: Step-by-step equations that explain engineering calculations. Comprehensive revision of the coverage of human behavior in fire, including several new chapters on egress system design, occupant evacuation scenarios, combustion toxicity and data for human behavior analysis. Revised fundamental chapters for a stronger sense of context. Added chapters on fire protection system selection and design, including selection of fire safety systems, system activation and controls and CO2 extinguishing systems. Recent advances in fire resistance design. Addition of new chapters on industrial fire protection, including vapor clouds, effects of thermal radiation on people, BLEVEs, dust explosions and gas and vapor explosions. New chapters on fire load density, curtain walls, wildland fires and vehicle tunnels. Essential reference appendices on conversion factors, thermophysical property data, fuel properties and combustion data, configuration factors and piping properties. "Three-volume set; not available separately". **Complex System Maintenance Handbook** - Khairy Ahmed Helmy Kobbacy 2008-04-15

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.

#### **Reliability Data Bases** - Aniello Amendola 1987-07-31

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

#### **Guidelines for Safe Automation of Chemical Processes** - CCPS (Center for Chemical Process Safety) 2017-01-06

This book provides designers and operators of chemical process facilities with a general philosophy and approach to safe automation, including independent layers of safety. An expanded edition, this book includes a revision of original concepts as well as chapters that address new topics such as use of wireless automation and Safety Instrumented Systems. This book also provides an extensive bibliography to related publications and topic-specific information.

#### **Offshore Risk Assessment Vol. 2** - Jan-Erik Vinnem 2019-09-11

This is the first textbook to address quantified risk assessment (QRA) as specifically applied to offshore installations and operations. As the second part of the two-volume updated and expanded fourth edition, it adds a new focus on the recent development of Normally Unattended Installations (NUIs), which are essentially autonomous installations that combine digitalization, big data, drones and machine learning, and can be supported by W2W (walk-to-work) vessels. These minimalistic installations with no helideck and very limited safety systems will require a new approach to risk assessment and emergency planning, especially during manned periods involving W2W vessels. Separate chapters



approaches in insurance and finance sectors; dynamic reliability and probabilistic safety assessment; Bayesian and statistical methods, reliability data and testing; organizational factors and safety culture; software reliability and safety; probabilistic methods applied to power systems; socio-technical-economic systems; advanced safety assessment methodologies: extended Probabilistic Safety Assessment; reliability; availability; maintainability and safety in railways: theory & practice; big data risk analysis and management, and model-based reliability and safety engineering. Safety and Reliability - Theory and Applications will

be of interest to professionals and academics working in a wide range of industrial and governmental sectors including: Aeronautics and Aerospace, Automotive Engineering, Civil Engineering, Electrical and Electronic Engineering, Energy Production and Distribution, Environmental Engineering, Information Technology and Telecommunications, Critical Infrastructures, Insurance and Finance, Manufacturing, Marine Industry, Mechanical Engineering, Natural Hazards, Nuclear Engineering, Offshore Oil and Gas, Security and Protection, Transportation, and Policy Making.