

## Gas And Oil Reliability Engineering Modeling And Analysis

Industry underestimates the extent to which behaviour at work is influenced by the design of the working environment. Designing for Human Reliability argues that greater awareness of the contribution of design to human error can significantly enhance HSE performance and improve return on investment. Illustrated with many examples, Designing for Human Reliability explores why work systems are designed and implemented such that "design-induced human error" becomes more-or-less inevitable. McLeod demonstrates how well understood psychological processes can lead people to make decisions and to take actions that otherwise seem impossible to understand. Designing for Human Reliability sets out thirteen key elements to deliver the levels of human reliability expected to achieve the return on investment sought when decisions are made to invest in projects. And it demonstrates how investigation of the human contribution to incidents can be improved by focusing on what companies expected and intended when they chose to rely on human performance as a barrier, or control, against incidents. Recognise some 'hard truths' of human performance and learn about the importance of applying the principles of Human Factors Engineering on capital projects Learn from analysis of real-world incidents how differences between 'fast' and 'slow' styles of thinking can lead to human error in industrial processes Learn how controls and barrier against major incidents that rely on human performance can be strengthened throughout the design and development of assets and equipment

This book presents a risk management framework designed to achieve better decisions and more desirable outcomes. It presents an in-depth discussion of some fundamental principles of risk management related to the use of expected values, uncertainty handling, and risk acceptance criteria. Several examples from the offshore petroleum industry are included to illustrate the use of the framework, but it can also be applied in other areas.

Facility Integrity Management: Effective Principles and Practices for the Oil, Gas and Petrochemical Industries presents the information needed to completely understand common failures in the facility integrity management process. By understanding this more comprehensive approach, companies will be able to better identify shortcomings within their respective system that they did not realize existed. To introduce this method, the book provides managers and engineers with a model that ensures major process incidents are avoided, aging facilities are kept in a safe and reliable state and are operating at maximum levels, and any gaps within the integrity management system are identified and addressed, such as the all too common fragmented reliability programs. The book approaches oil and gas facility management from a universal perspective, effectively charting out existing oil and gas facilities and their associated work processes, including maintenance, operations, and reliability, and then reconstructs them in order to optimize the way integrity is managed, creating a synergy across the various elements. Easy to read, packed with practical applications applied to real process plant scenarios such as key concepts, process flow charts, handy checklists, real-world case studies and a dictionary, provides a high quality guide for a breakdown free facility, maximizing productivity and return to shareholders. Helps readers gain a practical and industry specific approach to facility integrity management supported with real-world case studies from oil, gas, and petrochemical facility locations Presents a facility integrity excellence model, a holistic approach for oil and gas companies to drive towards integrity assurance unit monitoring, creating a failure-free environment Identifies and addresses failure of facility processes and equipment before the onset of performance degradation, keeping equipment maintenance costs low and reliability high

Complex high-technology devices are in growing use in industry, service sectors, and everyday life. Their reliability and maintenance is of utmost importance in view of their cost and critical functions. This book focuses on this theme and is intended to serve as a graduate-level textbook and reference book for scientists and academics in the field. The chapters are grouped into five complementary parts that cover the most important aspects of reliability and maintenance: stochastic models of reliability and maintenance, decision models involving optimal replacement and repair, stochastic methods in software engineering, computational methods and simulation, and maintenance management systems. This wide range of topics provides the reader with a complete picture in a self-contained volume.

Thoroughly updated, the second edition of Effective Maintenance Management provides clear rationale and comprehensive procedures for maintenance in industry. Author Vee Narayan has given us a unique guide, written in clear prose that practicing maintenance engineers, supervisors and managers can easily absorb, digest and apply. Effective Maintenance Management delivers 12 chapters in 300 pages in this hardcover volume. Narayan examines the role of maintenance as a methodology for minimizing risk related to safety and environmental concerns in industry. Also examined is adverse publicity from maintenance-preventable accidents, loss of profitability and maintenance-centric tools for risk reduction. The author employs specific situational descriptions to help readers select those tools as they fit the need. In industry, gaps can appear between industrial engineering for production, reliability and plant maintenance. Effective Maintenance Management works to bridge those gaps via effective management of the maintenance function. The result enables production-oriented businesses to maximize assets while achieving safety and profitability.

We all know that safety should be an integral part of the systems that we build and operate. The public demands that they are protected from accidents, yet industry and government do not always know how to reach this common goal. This book gives engineers and managers working in companies and governments around the world a pragmatic and reasonable approach to system safety and risk assessment techniques. It explains in easy-to-understand language how to design workable safety management systems and implement tested solutions immediately. The book is intended for working engineers who know that they need to build safe systems, but aren't sure where to start. To make it

easy to get started quickly, it includes numerous real-life engineering examples. The book's many practical tips and best practices explain not only how to prevent accidents, but also how to build safety into systems at a sensible price. The book also includes numerous case studies from real disasters that describe what went wrong and the lessons learned. See What's New in the Second Edition: New chapter on developing government safety oversight programs and regulations, including designing and setting up a new safety regulatory body, developing safety regulatory oversight functions and governance, developing safety regulations, and how to avoid common mistakes in government oversight Significantly expanded chapter on safety management systems, with many practical applications from around the world and information about designing and building robust safety management systems, auditing them, gaining internal support, and creating a safety culture New and expanded case studies and "Notes from Nick's Files" (examples of practical applications from the author's extensive experience) Increased international focus on world-leading practices from multiple industries with practical examples, common mistakes to avoid, and new thinking about how to build sustainable safety management systems New material on safety culture, developing leading safety performance indicators, safety maturity model, auditing safety management systems, and setting up a safety knowledge management system

This three-volume work presents the proceedings from the 19th International Ship and Offshore Structures Congress held in Cascais, Portugal on 7th to 10th September 2015. The International Ship and Offshore Structures Congress (ISSC) is a forum for the exchange of information by experts undertaking and applying marine structural research. The aim of

An Insightful Guide to Avoiding Offshore Oil- and Gas-Industry Disaster Designing, constructing, operating, and maintaining offshore oil and gas industry equipment and systems can sometimes result in accidents, injuries, and other serious problems. Safety and Reliability in the Oil and Gas Industry: A Practical Approach focuses on oil and gas industry equipment reliability, offers useful and up-to-date information on the subject, and covers in a single volume the most common safety and reliability engineering issues in the oil and gas industry. The book introduces the latest developments in the area, and provides relevant methods and approaches. It also presents important aspects of various case studies on major accidents in the oil and gas industry, and considers human factors that contribute to accidents and fatalities in the area of oil and gas. Additionally, this book describes: Mathematical concepts Oil and gas industry equipment reliability characteristics Accident data and analysis Mathematical models used for performing safety and reliability-related analyses in the industry Safety and Reliability in the Oil and Gas Industry: A Practical Approach covers important aspects of safety in the offshore oil and gas industry. A reference designed with engineering professionals in mind, this book can also be used in oil- and gas-industry-related courses, and serves as a guide for anyone concerned with safety and reliability in the area of oil and gas.

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

The authors use their decades of experience and draw upon real-world examples to demonstrate that the application of their techniques provides a basis for equipment management, uptime maximization, and reduced maintenance costs. The text explores reliability assessment techniques such as Failure Mode, Effect Analysis, and Fault Tree Analysis of commonly encountered rotating machinery. These are all highly effective techniques that the engineer can apply to maximize uptime and thereby maximize production and profitability. \*Provides the tools to drastically improve machinery productivity and performance \*Bridges the gap between the theory of "reliability engineering" and the practical day-to-day measures that lead to machinery uptime \*Authoritative reference for maximizing the uptime of process equipment

This book aims to give the readers a background about the reliability and safety engineering methods as well as discuss the importance of physical asset optimization and asset management during the operational phase applied for railway industry. The book starts describing the basic concept of reliability and safety engineering, RAMS and LCC program and process. In addition, the big challenges of the RAMS and LCC program implementation as well as the reliability pitfalls are also listed in the first chapter. The further chapters describe in detail the most importance methods applied in the RAMS and LCC program such as Failure Mode and Effect Analysis (FMEA), Reliability Centred Maintenance (RCM), Quantitative Accelerated Life Test (QALT), High Accelerated Life Test (HALT), Life Time Data Analysis (LDA), Reliability, Availability, Maintainability Analysis (RAM), Human Reliability Analysis (HRA), Integrated Logistic Support (ILS), risk analysis methods and asset management. In each chapter some case studies are presented to clarify the theoretical concepts. I hope you enjoy it and its enable you to put in practice some of the methods described here in your daily professional activities in railway industry.

The Planning Committee on Connector Reliability for Offshore Oil and Natural Gas Operations held the Workshop on Bolting Reliability for Offshore Oil and Natural Gas Operations in Washington, D.C., on April 10-11, 2017. The workshop was designed to advance and develop a comprehensive awareness of the outstanding issues associated with fastener material failures and equipment reliability issues. Speakers and participants were also encouraged to discuss possible paths for ameliorating risks associated with fasteners used for subsea critical equipment in oil and gas operations. This publication summarizes the presentations and discussions from the workshop.

Rules of Thumb for Maintenance and Reliability Engineers will give the engineer the "have to have" information. It will help instill knowledge on a daily basis, to do his or her job and to

maintain and assure reliable equipment to help reduce costs. This book will be an easy reference for engineers and managers needing immediate solutions to everyday problems. Most civil, mechanical, and electrical engineers will face issues relating to maintenance and reliability, at some point in their jobs. This will become their “go to” book. Not an oversized handbook or a theoretical treatise, but a handy collection of graphs, charts, calculations, tables, curves, and explanations, basic “rules of thumb” that any engineer working with equipment will need for basic maintenance and reliability of that equipment. • Access to quick information which will help in day to day and long term engineering solutions in reliability and maintenance • Listing of short articles to help assist engineers in resolving problems they face • Written by two of the top experts in the country

Safety and Reliability of Complex Engineered Systems contains the Proceedings of the 25th European Safety and Reliability Conference, ESREL 2015, held 7-10 September 2015 in Zurich, Switzerland. It includes about 570 papers accepted for presentation at the conference. These contributions focus on theories and methods in the area of risk, safety and Performance Management for the Oil, Gas, and Process Industries: A Systems Approach is a practical guide on the business cycle and techniques to undertake step, episodic, and breakthrough improvement in performance to optimize operating costs. Like many industries, the oil, gas, and process industries are coming under increasing pressure to cut costs due to ongoing construction of larger, more integrated units, as well as the application of increasingly stringent environmental policies. Focusing on the ‘value adder’ or ‘revenue generator’ core system and the company direction statement, this book describes a systems approach which assures significant sustainable improvements in the business and operational performance specific to the oil, gas, and process industries. The book will enable the reader to: utilize best practice principles of good governance for long term performance enhancement; identify the most significant performance indicators for overall business improvement; apply strategies to ensure that targets are met in agreed upon time frames. Describes a systems approach which assures significant sustainable improvements in the business and operational performance specific to the oil, gas, and process industries Helps readers set appropriate and realistic short-term/ long-term targets with a pre-built facility health checker Elucidates the relationship between PSM, OHS, and Asset Integrity with an increased emphasis on behavior-based safety Discusses specific oil and gas industry issues and examples such as refinery and gas plant performance initiatives and hydrocarbon accounting

This is the most comprehensive dictionary of maintenance and reliability terms ever compiled, covering the process, manufacturing, and other related industries, every major area of engineering used in industry, and more. The over 15,000 entries are all alphabetically arranged and include special features to encourage usage and understanding. They are supplemented by hundreds of figures and tables that clearly demonstrate the principles & concepts behind important process control, instrumentation, reliability, machinery, asset management, lubrication, corrosion, and much much more. With contributions by leading researchers in the field: Zaki Yamani Bin Zakaria Department, Chemical Engineering, Faculty Universiti Teknologi Malaysia, Malaysia Prof. Jelenka B. Savkovic-Stevanovic, Chemical Engineering Dept, University of Belgrade, Serbia Jim Drago, PE, Garlock an EnPro Industries family of companies, USA Robert Perez, President of Pumpcalcs, USA Luiz Alberto Verri, Independent Consultatnt, Verri Veritatis Consultoria, Brasil Matt Tones, Garlock an EnPro Industries family of companies, USA Dr. Reza Javaherdashti, formerly with Qatar University, Doha-Qatar Prof. Semra Bilgic, Faculty of Sciences, Department of Physical Chemistry, Ankara University, Turkey Dr. Mazura Jusoh , Chemical Engineering Department, Universiti Teknologi Malaysia Jayesh Ramesh Tekchandaney, Unique Mixers and Furnaces Pvt. Ltd. Dr. Henry Tan, Senior Lecturer in Safety & Reliability Engineering, and Subsea Engineering, School of Engineering, University of Aberdeen Fiddoson Fiddo, School of Engineering, University of Aberdeen Prof. Roy Johnsen, NTNU, Norway Prof. N. Sitaram , Thermal Turbomachines Laboratory, Department of Mechanical Engineering, IIT Madras, Chennai India Ghazaleh Mohammadali, IranOilGas Network Members' Services Greg Livelli, ABB Instrumentation, Warminster, Pennsylvania, USA Gas Processors Suppliers Association (GPSA)

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.

Nuclear Radioactive Materials in the Oil and Gas Industry comprehensively discusses the TENORMs generated from various types of oil and gas processes and their associated adverse human health effects, effective TENORM waste management strategies, and the quantitative risk analysis. The book thoroughly investigates current knowledge, addressing the three main gaps identified in available studies: 1) Exposure to radioactivity, 2) High volume waste as a source of radiation exposure, and 3) A lack of uniform, international safety regulations. This book offers researchers, scientists and graduate and undergraduate students a comprehensive and well-researched reference that covers fundamental concepts, problem identification and solutions development. It is an ideal, comprehensive guideline for professionals involved in the oil and gas and nuclear industries who are concerned about radiological issues. Demystifies NORM and TENORM concepts and redefines TENORM from technical and nuclear scientific perspectives Addresses statistically representative data of quantitative risk assessment and dynamic accident modeling Stresses the need for legislation and consistency of safety standards relating to radiological risks posed by TENORM on health and the environment

Describes the potential environmental impacts of the Proposed Final 2012-2017 Outer Continental Shelf (OCS) Oil and Gas Leasing Program (PFP), which establishes a schedule that is used as a basis for considering where and when oil and gas leasing might be appropriate over a 5-year period.

Petrogav International provides courses for participants that intend to work on onshore oil and gas fields. Training courses are taught by professionals from the oil and gas industry with current knowledge and more than 25 years of field experience. The participants will get all the necessary competencies to work on the onshore oil and gas fields. It is intended also for non-drilling and non-production personnel who work in drilling, exploration and production industry. This includes marine and logistics personnel, accounting, administrative and support staff, environmental professionals, etc. This course provides a non-technical overview of the phases, operations and terminology used on onshore oil and gas fields. It is intended also for non-production personnel who work in the onshore drilling, exploration and production industry. This includes marine and logistics personnel, accounting, administrative and support staff, environmental professionals, etc. No prior experience or knowledge of drilling operations is required. This course will provide participants a better understanding of the issues faced in all aspects of oil and gas field operations, with a particular focus on the unique aspects of onshore production operations.

This evidence-based book serves as a clinical manual as well as a reference guide for the diagnosis and management of common nutritional issues in relation to gastrointestinal disease. Chapters cover nutrition assessment; macro- and micronutrient absorption; malabsorption; food allergies; prebiotics and dietary fiber; probiotics and intestinal microflora; nutrition and GI cancer; nutritional management of reflux; nutrition in IBS and IBD; nutrition in acute and chronic pancreatitis; enteral nutrition; parenteral nutrition; medical and endoscopic therapy of obesity; surgical therapy of obesity; pharmacologic nutrition,

and nutritional counseling.

Prevention of Valve Fugitive Emissions in the Oil and Gas Industry delivers a critical reference for oil and gas engineers and managers to get up-to-speed on all factors surrounding valve fugitive emissions. New technology is included on monitoring, with special attention given to valve seals which are typically the biggest emitting factor on the valve. Proper testing requirements to mitigate future leaks are also covered. Rounding out with international standards, laws and specifications to apply to projects around the world, this book gives today's engineers updated knowledge on how to lower emissions on today's equipment. Helps readers understand the sources and key factors that contribute to fugitive emissions and leakage from oil and gas valves Teaches ways to select proper seals and perform valve testing to mitigate future emissions Includes international standards, laws and specifications to help readers stay compliant and environmentally responsible

Prevention of Actuator Emissions in the Oil and Gas Industry delivers a critical reference for oil and gas engineers and managers to get up-to-speed on all the factors in actuator fugitive emissions. Packed with a selection process, the benefits of switching to an electric system, and the technology around open and closed loop hydraulic systems helps today's engineer understand all their options. Rounding with a detailed explanation around High Integrity Pressure Protection Systems (HIPPS), this book gives provides the knowledge necessary to lower emissions on today's equipment. Gives readers all they need to understand all the sources and key factors contributing to fugitive emissions and leakage from oil and gas actuators Teaches how to select environmentally friendly actuators, particularly all electric systems Introduces the High Integrity Pressure Protection System (HIPPS) and the ways it reduces flaring

Risk, Reliability and Safety contains papers describing innovations in theory and practice contributed to the scientific programme of the European Safety and Reliability conference (ESREL 2016), held at the University of Strathclyde in Glasgow, Scotland (25—29 September 2016). Authors include scientists, academics, practitioners, regulators and other key individuals with expertise and experience relevant to specific areas. Papers include domain specific applications as well as general modelling methods. Papers cover evaluation of contemporary solutions, exploration of future challenges, and exposition of concepts, methods and processes. Topics include human factors, occupational health and safety, dynamic and systems reliability modelling, maintenance optimisation, uncertainty analysis, resilience assessment, risk and crisis management.

Concise and easy to understand, this is the first book to apply reliability value improvement practices and process enterprises lifecycle analysis to the oil and gas industry. With this book in hand, engineers also gain a powerful guide to the most important methods used by software modeling tools which aid in the planning and execution of an effective reliability target for equipment, equipment development, inspection and maintenance programs, system performance analysis, also human factors and safety assessment.

Reliability, Maintainability and Risk has been updated to ensure that it remains the leading reliability textbook and cementing the book's reputation for staying one step ahead of the competition. This 6th edition incorporates brand new material on the accuracy of reliability prediction and common cause failure based on the author's PhD research work. David J. Smith approaches these subjects from an entirely original and unique viewpoint, emphasising that the need to demonstrate that safety-related systems have been assessed against target integrity levels is now commonplace in most industries, and the material contained in this book will address these growing needs. Reliability, Maintainability and Risk has now been established for over 20 years. It deals with all aspects of reliability, maintainability and safety-related failures in a simple and straightforward style, explaining technical terms and jargon and handling the imitations of reliability parameters. It pre-supposes no prior knowledge of the subject - the author deals with numerical data making realistic predictions using the minimum of mathematics. David J. Smith has written seven successful works on reliability, quality, maintainability, software and statistics and is past Chairman of the Safety and Reliability Society. He has been directly concerned with this branch of engineering in the telecommunications, electronics and oil and gas industries for over 25 years. He is well known for his many courses and workshops on reliability engineering and software quality and is in a unique position to provide much-needed information on a burgeoning subject area. Readers will be getting brand new and original information that they cannot get from any other title on the subject of Reliability, Maintainability and Risk. Author is well known and has an excellent track record in this area. He is regarded as highly "readable" and his writing concise and straightforward.

Offshore Operation Facilities: Equipment and Procedures provides new engineers with the knowledge and methods that will assist them in maximizing efficiency while minimizing cost and helps them prepare for the many operational variables involved in offshore operations. This book clearly presents the working knowledge of subsea operations and demonstrates how to optimize operations offshore. The first half of the book covers the fundamental principles governing offshore engineering structural design, as well as drilling operations, procedures, and equipment. The second part includes common challenges of deep water oil and gas engineering as well as beach (shallow) oil engineering, submarine pipeline engineering, cable engineering, and safety system engineering. Many examples are included from various offshore locations, with special focus on offshore China operations. In the offshore petroleum engineering industry, the ability to maintain a profitable business depends on the efficiency and reliability of the structure, the equipment, and the engineer. Offshore Operation Facilities: Equipment and Procedures assists engineers in meeting consumer demand while maintaining a profitable operation. Comprehensive guide to the latest technology, strategies, and best practices for offshore operations Step-by-step approach for dealing with common challenges such as deepwater and shallow waters Includes submarine pipeline, cable engineering, and safety system engineering Unique examples from various offshore locations around the world, with special focus on offshore China

Commercially significant amounts of crude oil and natural gas lie under the continental shelf of the United States. Advances in locating deposits, and improvements in drilling and recovery technology, have made it technically and economically feasible to extract these resources under harsh conditions. But extracting these offshore petroleum resources involves the possibility, however remote, of oil spills, with resulting damage to the ocean and the coastline ecosystems and risks to life and limb of those performing the extraction. The environmental consequences of an oil spill can be more severe underwater than on land because sea currents can quickly disperse the oil over a large area and,

thus, cleanup can be problematic. Bolted connections are an integral feature of deep-water well operations. High-Performance Bolting Technology for Offshore Oil and Natural Gas Operations summarizes strategies for improving the reliability of fasteners used in offshore oil exploration equipment, as well as best practices from other industrial sectors. It focuses on critical bolting—bolts, studs, nuts, and fasteners used on critical connections.

The business of upstream oil and gas industry is a complex process that involves multidisciplinary participation. Producing crude oil and natural gas from the subsurface reservoir rocks to the point of the selling terminal requires stage by stage processes that costs several hundreds of millions of dollars to the operating companies. Because of the capital intensive nature of upstream investments, every required process is challenged of its economic impact or benefits it will have on the project's net present value (NPV). The techniques applied in determining the economics of these processes and their selection criteria are addressed in the book. This book guides the reader through these strategic processes, and presents the participants involved in the business of upstream oil and gas prospecting and the conditions that dictate the field development and investment decisions by investors. It also reveals the shared interests and relationships that exist between international oil companies (IOCs) and national oil companies (NOCs) in the exploration and exploitation of their hydrocarbon resources and reserves. This text will serve the purpose of teaching and learning to those in the energy and financial sectors, as the methods, tools, and techniques discussed throughout the chapters will equip students, tutors, experts, and professionals with the necessary skills and knowledge of Exploration and Production (E&P) projects and energy financing and investment. The principles of project management as it applies in upstream oil/gas projects are discussed as well. And the criteria for project ranking, selection, and budgeting which are sine qua non to project financing and execution are well documented in this book.

During the last decade there have been increasing societal concerns over sustainable developments focusing on the conservation of the environment, the welfare and safety of the individual and at the same time the optimal allocation of available natural and financial resources. As a consequence the methods of risk and reliability analysis are becoming "Designing, constructing, operating, and maintaining offshore oil and gas industry equipment and systems can sometimes result in accidents, injuries, and other serious problems. Safety and Reliability in the Oil and Gas Industry: A Practical Approach focuses on oil and gas industry equipment reliability, offers useful and up-to-date information on the subject, and covers in a single volume the most common safety and reliability engineering issues in the oil and gas industry. The book introduces the latest developments in the area, and provides relevant methods and approaches. It also presents important aspects of various case studies on major accidents in the oil and gas industry, and considers human factors that contribute to accidents and fatalities in the area of oil and gas. Additionally, this book describes: -Mathematical concepts -Oil and gas industry equipment reliability characteristics -Accident data and analysis -Mathematical models used for performing safety and reliability-related analyses in the industry Safety and Reliability in the Oil and Gas Industry: A Practical Approach covers important aspects of safety in the offshore oil and gas industry. A reference designed with engineering professionals in mind, this book can also be used in oil- and gas-industry-related courses, and serves as a guide for anyone concerned with safety and reliability in the area of oil and gas."--

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

Master's Thesis from the year 2011 in the subject Business economics - Economic Policy, grade: B, Robert Gordon University Aberdeen (Energy Centre), course: Master of Science Oil & Gas Engineering, language: English, abstract: Despite sophisticated Health, Safety and Environment (HSE) Management Systems and highly developed safety cultures, major accidents in the Oil & Gas industry are reoccurring events. This type of low frequency high impact event puts at stake the health and safety of employees, the viability of the ecosystem, the integrity of the structure, the life and health of populations in neighboring communities and can also massively impact the economic situation of a region. Prevention of major accidents is therefore of utmost importance. Detailed case studies of nine historic major accidents revealed common features in the accidents, although they represent a wide range of individual accident scenarios. Identified common features and recurring patterns were degradation of safety measures, decrease in attention and awareness towards major accident hazards as well as an increase in complacency and resulting management failures. These findings served as the basis for a prevention model specific to major accident hazards in the Oil & Gas industry. The Management of Major Accidents Scenarios model (MOMAS) was designed with special attention to practical application, information availability over long time periods and avoiding degradation of safety systems, in a holistic system approach. The MOMAS model consists of elements fit for application and offers palpable and precise support in performing the individual assessment steps. This was tested by demonstrating the prevention potential of the MOMAS model on three of the case study incidents. The MOMAS model also integrated the approach of As Low As Reasonably Achievable (ALARA), which is deemed to be more applicable to a major accident scenario setting than the current approach of As Low As Reasonably Pra Risk management is a process through which an organization methodically analyses risks inherent in all of its operational activities with the aim of minimizing damage to physical assets or occupational health

hazards. Risk Management, therefore, should be a central element in the management strategy of any organization as it plays a crucial role in giving the organization a sustainable operational advantage. *Safety Science: Methods to Prevent Incidents and Worker Health Damage at the Workplace* is a handbook for management students and working professionals (safety professionals, human resource managers, insurance officers etc.) interested in the science of risk management and methods to implement safety standards at the workplace. The book introduces readers to the concept of occupational risk and occupational health management. It explains the concepts relevant to these topics such as safety economy valuation and asset integrity management. Assessment tools related to qualitative and quantitative risk management, incident and vulnerability analysis are also provided. Additionally, readers will find information on the human factors and methods to improve human engagement in risk management as well as information about current safety standards and systems in organizations around the world.

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.

This book represents the proceedings of the 10th annual symposium of the Society of Reliability Engineers, Scandinavian Chapter, and was held in Stavanger, Norway, 9-11 October 1989. The theme of the symposium emphasized the need for obtaining a competitive edge through reliability in systems engineering and addressed the role of reliability in marketing, contracts, customer support and product liability. This book will be of interest to those involved in reliability engineering, risk assessment, safety and maintenance engineering.

*Recent Advances in System Reliability Engineering* describes and evaluates the latest tools, techniques, strategies, and methods in this topic for a variety of applications. Special emphasis is put on simulation and modelling technology which is growing in influence in industry, and presents challenges as well as opportunities to reliability and systems engineers. Several manufacturing engineering applications are addressed, making this a particularly valuable reference for readers in that sector. Contains comprehensive discussions on state-of-the-art tools, techniques, and strategies from industry. Connects the latest academic research to applications in industry including system reliability, safety assessment, and preventive maintenance. Gives an in-depth analysis of the benefits and applications of modelling and simulation to reliability.

This book discusses the application of quality and reliability engineering in Asian industries, and offers information for multinational companies (MNC) looking to transfer some of their operation and manufacturing capabilities to Asia and at the same time maintain high levels of reliability and quality. It also provides small and medium enterprises (SME) in Asia with insights into producing high-quality and reliable products. It mainly comprises peer-reviewed papers that were presented at the Asian Network for Quality (ANQ) Congress 2014 held in Singapore (August, 2014), which provides a platform for companies, especially those within Asia where rapid changes and growth in manufacturing are taking place, to present their quality and reliability practices. The book presents practical demonstrations of how quality and reliability methodologies can be modified for the unique Asian market, and as such is a valuable resource for students, academics, professionals and practitioners in the field of quality and reliability.

Piping and valve engineers rely on common industrial standards for selecting and maintaining valves, but these standards are not specific to the subsea oil and gas industry. *Subsea Valves and Actuators for the Oil and Gas Industry* delivers a needed reference to go beyond the standard to specify how to select, test, and maintain the right subsea oil and gas valve for the project. Each chapter focuses on a specific type of valve with a built-in structured table on valve selection, helping guide the engineer to the most efficient valve. Covering subsea-specific protection, the reference also gives information on high pressure protection systems (HIPPS) and discusses corrosion management within the subsea sector, such as Hydrogen Induced Stress Cracking Corrosion (HISC). Additional benefits include understanding the concept of different safety valves in subsea, selecting different valves and actuators located on subsea structures such as Christmas trees, manifolds, and HIPPS modules, with a full detail review including sensors, logic solver, and solenoid which is designed to save cost and improve the reliability in the subsea system. Rounding out with chapters on factory acceptance testing (FAT) and High Integrity Pressure Protection Systems (HIPPS), *Subsea Valves and Actuators for the Oil and Gas Industry* gives subsea engineers and managers a much-needed tool to better understand today's subsea technology. Understand practical information about all types of subsea valves and actuators with over 600 visuals and several case studies. Learn and review the applicable standards and specifications from API and ISO in one convenient location. Protect your assets with a high-pressure protection system (HIPPS) and subsea-specific corrosion management including Hydrogen Induced Stress Cracking Corrosion (HISC).

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