Risk Assessment And Security For Pipelines Tunnels And Underground Rail And Transit Operations

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Engineering for Extremes - Mark G. Stewart 2022
The volume explains how risk and decision-making analytics can be applied to the wicked problem of protecting infrastructure and society from extreme events. There is increasing research that takes into account the risks associated with the timing and severity of extreme events in engineering to reduce the vulnerability or increase the resiliency of infrastructure. "Engineering for extremes" is defined as measures taken to reduce the vulnerability or increase the resiliency of built infrastructure to climate change, hurricanes, storms, floods, earthquakes, heat waves, fires, and malevolent and abnormal events that include terrorism, gas explosions, vehicle impact and vehicle overload. The book introduces the key concepts needed to assess the economic and social well-being risks, costs and benefits of infrastructure to extreme events. This includes hazard modelling (likelihood and severity), infrastructure vulnerability, resilience or exposure (likelihood and extent of damage), social and economic loss models, risk reduction from protective measures, and decision theory (cost-benefit and utility analyses). Case studies authored by experts from around the world describe the practical aspects of risk assessment when deciding on the most cost-efficient measures to reduce infrastructure vulnerability to extreme events for housing, buildings, bridges, roads, tunnels, pipelines, and electricity infrastructure in the developed and developing worlds.
CIS Annual - 2007

Risk Assessment and Security for Pipelines, Tunnels, and Underground Rail and Transit Operations - Anna M. Doro-on 2014-06-03
Risk Assessment and Security for Pipelines, Tunnels, and Underground Rail and Transit Operations details a quantitative risk assessment methodology for systematically analyzing various alternatives for protecting underground rail, oil and gas pipelines, pipeline freight transportation, and other tunnel systems from terrorism threats and other disasters. It examines the engineering, environmental, and economic impacts and addresses both direct and collateral damage. The book describes how to employ the methodology of quantitative psychology for effectively assessing risk in homeland security, defense actions, and critical infrastructure protection. Using pipelines, tunnels,

underground rapid rail, and transit systems as examples, it maintains an emphasis on applying quantitative psychology to risk management in the areas of homeland security and defense. Outlines the background and system operations of pipelines, tunnels, underground rail, and transit systems as well as other super-speed futuristic trains Covers materials used for fabricating weapons of mass destruction and operations for terrorism Deals with the probabilistic risk estimation process, event tree analysis, and fault tree analysis Discusses the risk and vulnerability assessment tools and methodologies used by experts and governmental agencies Approved for public release by the U.S. Federal Government, this book presents regulations, standard processes, and risk assessment models recommended by the U.S. Department of Homeland Security and other federal and state agencies. Describing how to evaluate terrorism threats and warnings, it details protocols for preventive measures and emergency preparedness plans that are based on economic analysis. With comprehensive coverage that includes risk estimation and risk acceptability analysis, the book provides a foundational understanding of risk and the various defensive systems that can improve safety and security as well as thwart terrorists' efforts to sabotage critical infrastructure.

Security Risk Management for the Internet of Things John Soldatos 2020-06-15

In recent years, the rising complexity of Internet of Things (IoT) systems has increased their potential vulnerabilities and introduced new cybersecurity challenges. In this context, state of the art methods and technologies for security risk assessment have prominent limitations when it comes to large scale, cyber-physical and interconnected IoT systems. Risk assessments for modern IoT systems must be frequent, dynamic and driven by knowledge about both cyber and physical assets. Furthermore, they should be more proactive, more automated, and able to leverage information shared across IoT value chains. This book introduces a set of novel risk assessment techniques and their role in the IoT Security risk management process. Specifically, it presents architectures and platforms for end-to-end security, including their implementation based on the edge/fog computing paradigm. It also highlights machine learning techniques that boost the automation and proactiveness of IoT security risk assessments. Furthermore, blockchain solutions for open and transparent sharing of IoT security information across the supply chain are introduced. Frameworks for privacy awareness, along with technical measures that enable privacy risk assessment and boost GDPR compliance are also presented. Likewise, the book illustrates novel solutions for security certification of IoT systems, along with techniques for IoT security interoperability. In the coming years, IoT security will be a challenging, yet very exciting journey for IoT stakeholders, including security experts, consultants, security research organizations and IoT solution providers. The book provides knowledge and insights about where we stand on this journey. It also attempts to develop a vision for the future and to help readers start their IoT Security efforts on the right foot.

Risk Management for Security Professionals Carl Roper 1999-05-19

This book describes the risk management methodology as a specific process, a theory, or a procedure for determining your assets, vulnerabilities, and threats and how security professionals can protect them. Risk Management for Security Professionals is a practical handbook for security managers who need to learn risk management skills. It goes beyond the physical security realm to encompass all risks to which a company may be exposed. Risk Management as presented in this book has several goals: Provides standardized common approach to risk management through a framework that effectively links security strategies and related costs to realistic threat assessment and risk levels Offers flexible yet structured framework that can be applied to the risk assessment and decision support process in support of your business or organization Increases awareness in terms of potential loss impacts, threats and vulnerabilities to organizational assets Ensures that various security recommendations are based on an integrated assessment of loss impacts, threats, vulnerabilities and resource constraints Risk management is essentially a process methodology that will provide a cost-benefit payback factor to senior management. Provides a stand-

alone guide to the risk management process Helps security professionals learn the risk countermeasures and their pros and cons Addresses a systematic approach to logical decision-making about the allocation of scarce security resources

Government Research Directory - Donna Wood 2008

Provides more than 6,800 research facilities and programs of the U.S. and Canadian federal governments. Listings include e-mail and Web site addresses, and a wealth of descriptive information.

Transportation Security Papers - 2002

New Pipeline Technologies, Security, and Safety - Mohammad Najafi 2003

This collection contains 200 papers presented at the ASCE International Conference on Pipeline Engineering and Construction, held in Baltimore, Maryland, July 13-16, 2003.

Transportation and Cargo Security - Kathleen M. Sweet 2006

The aim of this book is to discuss the most relevant facets of maritime, land (railroad, trucking mas transit), pipeline and air transportation security related systems and associated issues. This book will assist the reader in understanding the need for adequate transportation security and the necessity for immediate action to remedy some glaring gaps in the system. Statistical data documenting the importance of the industry within the context of the global economy are examined, as well as the history of each transportation mode. The book will also detail applicable legislation and the agencies tasked to oversee each mode of transportation as well as how to implement an appropriate program to enhance the security of a particular transportation operation. In addition, the book will enable readers to become more aware of the current global threat to the transportation system and understand the basic need for enhanced security programs and individual roles within them. Upon completion of the book, the reader should also posses adequate background knowledge of all applicable domestic and international law and regulations. The reader will also know how to implement basic precautionary master security plans which will improve transportation security across the system. The concluding chapters discuss emerging technologies and the threates emanating from weapons of mass destruction. First of it's kind/Comprehensive/Well written and consice A valuable tool for Transportation Security Managers.

Emergency Management Training and Exercises for Transportation Agency Operations - Frances L. Edwards 2010

Australian Official Journal of Trade Marks - 1998

Transit and Rail Security - United States. Congress. House. Committee on Transportation and Infrastructure. Subcommittee on Highways and Transit 2007

Annual Report for the Fiscal Year July 1 ... to June 30 - Metropolitan Water District of Southern California 1997

Surface Transportation Security - Stephen M. Lord 2010-08

Terrorist attacks on surface transportation facilities in Moscow, Mumbai, London, and Madrid caused casualties and highlighted the vulnerability of such systems. The Transportation Security Admin. (TSA) is the primary fed. agency responsible for security of transportation systems. This testimony focuses on the extent to which: (1) DHS has used risk management in strengthening surface transportation security; (2) TSA has coordinated its strategy and efforts for securing surface transportation with stakeholders; (3) TSA has measured the effectiveness of its surface transportation security-improvement actions; and (4) TSA has made progress in deploying surface transportation security inspectors and related challenges it faces in doing so.

The Grey House Transportation Security Directory & Handbook Kathleen M. Sweet 2005

Project Risk Management - Chris Chapman 1997-01-02

Risk is a key consideration for project managers in any area of endeavour. The authors show how, using a general methodology, to take

a systematic approach to managing risk to increase overall project management efficiency.

Tunnelling - Alan Muir Wood 2000-03-09

Tunnelling has become a fragmented process, excessively influenced by lawyers'notions of confrontational contractual bases. This prevents the pooling of skills, essential to the achievement of the promoters' objectives. Tunnelling: Management by Design seeks the reversal of this trend. After a brief historical treatment of selected developments, th

Risk Assessment for Water Infrastructure Safety and Security - Anna Doro-on 2011-08-17

One of the seventeen critical infrastructures vital to the security of the United States, the water supply system remains largely unprotected from the threat of terrorism, including possible revenge by Al Qaeda over the killing of Osama Bin Laden. Recognizing and identifying prospective events of terrorism against the water infrastructure is critical to the protection of the nation, as the consequences triggered by a terrorist attack on the water supply would be devastating. Risk Assessment for Water Infrastructure: Safety and Security provides a unique quantitative risk assessment methodology for protection and security against terrorist contamination, vandalism, attacks against dams, and other threats to water supply systems. Focusing on the human safety, environmental, and economic consequences triggered by potential terrorist attacks and other threats, the book presents: The development of an integrated approach of risk assessment based upon the cumulative prospect theory The qualitative/quantitative processes and models for security and safe facility operations as required by EPA, DHS, and other governmental and regulatory agencies The application of an integrated model to the risk assessment of surface water, dams, wells, wastewater treatment facilities, reservoirs, and aqueducts of large urban regions The development of intelligence analysis incorporating risk assessment for terrorism prevention Finally, the book presents the legal and regulatory requirements and policy related to the protection and security of water infrastructure from terrorism and natural hazards to both human health and the environment. By analyzing potential terrorist risks against the water supply, strategic improvements in U.S. water infrastructure security may be achieved, including changes in policy, incorporation of intrusion detection technology, increased surveillance, and increased intelligence. More information can be found on the author's website.

Strategies for Protecting National Critical Infrastructure Assets - John Sullivant 2007-09-26

This book establishes a new approach for conducting risk assessments in a high-risk world. It Introduces the elements of the risk assessment process by defining its purpose and objectives, describing the behavioural and physical sciences, the techniques employed in the process, and the measurement and evaluation tools and standards used to perform an objective risk assessment.

Securing the Nation's Rail and Other Surface Transportation Networks - United States. Congress. Senate. Committee on Commerce, Science, and Transportation 2011

Risk Management in Project Finance and Implementation - Henri L. Beenhakker 1997

A wide-ranging, comprehensible instruction on all of the critical factors in risk management, intended for managers and investment professionals throughout the public and private sectors, and for their academic colleagues and students.

The Trade Marks Journal - 1999-01-06

Handbook of Systems Engineering and Risk Management in Control Systems, Communication, Space Technology, Missile, Security and Defense Operations - Anna M. Doro-on 2022-09-27

This book provides multifaceted components and full practical perspectives of systems engineering and risk management in security and defense operations with a focus on infrastructure and manpower control systems, missile design, space technology, satellites, intercontinental ballistic missiles, and space security. While there are many existing selections of systems engineering and risk management textbooks, there is no existing work that connects systems engineering

and risk management concepts to solidify its usability in the entire security and defense actions. With this book Dr. Anna M. Doro-on rectifies the current imbalance. She provides a comprehensive overview of systems engineering and risk management before moving to deeper practical engineering principles integrated with newly developed concepts and examples based on industry and government methodologies. The chapters also cover related points including design principles for defeating and deactivating improvised explosive devices and land mines and security measures against kinds of threats. The book is designed for systems engineers in practice, political risk professionals, managers, policy makers, engineers in other engineering fields, scientists, decision makers in industry and government and to serve as a reference work in systems engineering and risk management courses with focus on security and defense operations.

Glossary of Key Information Security Terms - Richard Kissel 2011-05

This glossary provides a central resource of definitions most commonly used in Nat. Institute of Standards and Technology (NIST) information security publications and in the Committee for National Security Systems (CNSS) information assurance publications. Each entry in the glossary points to one or more source NIST publications, and/or CNSSI-4009, and/or supplemental sources where appropriate. This is a print on demand edition of an important, hard-to-find publication.

Terrorism - Robert A. Friedlander 1979

"An extensive collection of significant documents covering all major and minor issues and events regarding terrorism. Government reports, executive orders, speeches, court proceedings, and position papers are presented in full text reprint." (Oceana Website)

Tunnel Operations, Maintenance, Inspection, and Evaluation (TOMIE) Manual - Federal Highway Administration 2020-07-21

Tunnels represent a significant financial investment with challenging design, construction, and operational issues. Tunnels that are not adequately maintained usually require more costly and extensive repairs. To help safeguard tunnel users and to ensure reliable levels of service, the FHWA developed the National Tunnel Inspection Standards (NTIS), the Tunnel Operations Maintenance Inspection and Evaluation (TOMIE) Manual, and the Specifications for National Tunnel Inventory (SNTI). In accordance with the NTIS, this Manual describes methods for improving the safety and performance of roadway tunnel operation, maintenance, inspection, and evaluation programs.

Homeland Security and Terrorism - Russell Howard 2006

Recommended online resources p. 476.481

Department of Homeland Security Appropriations for 2012 - United States. Congress. House. Committee on Appropriations. Subcommittee on Homeland Security 2011

Congressional Record - United States. Congress 2007

Maritime Information Review - 1993

Risk Assessment and Management of Critical Highway Infrastructure - 2004

This study expands upon the scope of a previous contract study for the Virginia Transportation Research Council (VTRC) concluded in March 2002. The objective is to develop methodologies for risk analysis of critical highway infrastructure at two levels: (1) system level and (2) asset level. The system-level analysis conducts risk assessment from a statewide perspective. The goal is to evaluate and prioritize infrastructure from a considerable inventory of assets. The definition of critical infrastructure offered by Presidential Decision Directive (PDD) 63 is used to determine the set of attributes that help differentiate critical from non-critical infrastructure. These attributes correspond to national, regional, and local impact of a structure's damage or complete loss. In addition, the levels of impact are utilized in prioritization: infrastructure that has potential national and regional impact is considered more important than infrastructure with local impact. Further prioritization is conducted based on the asset's need for risk management actions. The asset's current state or condition, in terms of resilience, robustness, redundancy, and security against willful threat is used to evaluate the

need for management actions. A set of criteria and corresponding metrics is identified, and supporting data are gathered using information from the FHWA National Bridge Inventory and other sources. Once the most critical infrastructure is prioritized, an in-depth risk assessment of particular assets is performed to determine specific risks and vulnerabilities. Eight case studies on selected VDOT sites are conducted. The details of these case studies are not presented in this report. Instead, general findings are presented that can serve as a guideline for policy implementation to other similar assets. Since a small number of case studies are performed by the project team, another important goal of this study is for effective knowledge transfer of the methodology to VDOT in order to facilitate risk assessment of other critical infrastructure. For this purpose, a prototype computer tool is developed, which is designed to guide facility managers in risk assessment and management. The case studies and documentation of the computer tool are provided in supplemental documents available by request from the authors.

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.

Risk Assessment and Security for Pipelines, Tunnels, and Underground Rail and Transit Operations - Anna M. Doro-on 2014-06-03

Risk Assessment and Security for Pipelines, Tunnels, and Underground Rail and Transit Operations details a quantitative risk assessment methodology for systematically analyzing various alternatives for protecting underground rail, oil and gas pipelines, pipeline freight transportation, and other tunnel systems from terrorism threats and other disasters. It examines the engineering, environmental, and economic impacts and addresses both direct and collateral damage. The book describes how to employ the methodology of quantitative psychology for effectively assessing risk in homeland security, defense actions, and critical infrastructure protection. Using pipelines, tunnels, underground rapid rail, and transit systems as examples, it maintains an emphasis on applying quantitative psychology to risk management in the areas of homeland security and defense. Outlines the background and system operations of pipelines, tunnels, underground rail, and transit systems as well as other super-speed futuristic trains Covers materials used for fabricating weapons of mass destruction and operations for terrorism Deals with the probabilistic risk estimation process, event tree analysis, and fault tree analysis Discusses the risk and vulnerability assessment tools and methodologies used by experts and governmental agencies Approved for public release by the U.S. Federal Government, this book presents regulations, standard processes, and risk assessment models recommended by the U.S. Department of Homeland Security and

other federal and state agencies. Describing how to evaluate terrorism threats and warnings, it details protocols for preventive measures and emergency preparedness plans that are based on economic analysis. With comprehensive coverage that includes risk estimation and risk acceptability analysis, the book provides a foundational understanding of risk and the various defensive systems that can improve safety and security as well as thwart terrorists' efforts to sabotage critical infrastructure.

The Security Risk Assessment Handbook - Douglas Landoll 2016-04-19

The Security Risk Assessment Handbook: A Complete Guide for Performing Security Risk Assessments provides detailed insight into precisely how to conduct an information security risk assessment. Designed for security professionals and their customers who want a more in-depth understanding of the risk assessment process, this volume contains real-wor

9/11 and the Future of Transportation Security - R. William Johnstone 2006

Building on his work as part of the team that issued the 9/11 Commission's findings, the author offers recommendations on how to best address vulnerabilities in the U.S. transportation system.

Ciottone's Disaster Medicine E-Book - Gregory R. Ciottone 2015-09-24

The most comprehensive resource of its kind, Ciottone's Disaster Medicine, 2nd Edition, thoroughly covers isolated domestic events as well as global disasters and humanitarian crises. Dr. Gregory Ciottone and more than 200 worldwide authorities share their knowledge and expertise on the preparation, assessment, and management of both natural and man-made disasters, including terrorist attacks and the threat of biological warfare. Part 1 offers an A-to-Z resource for every aspect of disaster medicine and management, while Part 2 features an exhaustive compilation of every conceivable disaster event, organized to facilitate quick reference in a real-time setting. Quickly grasp key concepts, including identification of risks, organizational preparedness, equipment planning, disaster education and training, and more advanced concepts such as disaster risk reduction, tactical EMS, hazard vulnerability analysis, impact of disaster on children, and more. Understand the chemical and biologic weapons known to exist today, as well as how to best manage possible future events and scenarios for which there is no precedent. Consult this title on your favorite e-reader. Be prepared for man-made disasters with new sections that include Topics Unique to Terrorist Events and High-Threat Disaster Response and Operational Medicine (covering tactical and military medicine). Get a concise overview of lessons learned by the responders to recent disasters such as the earthquake in Haiti, Hurricane Sandy, the 2014 Ebola outbreak, and active shooter events like Sandy Hook, CT and Aurora, CO. Learn about the latest technologies such as the use of social media in disaster response and mobile disaster applications. Ensure that everyone on your team is up-to-date with timely topics, thanks to new chapters on disaster nursing, crisis leadership, medical simulation in disaster preparedness, disaster and climate change, and the role of non-governmental agencies (NGOs) in disaster response – a critical topic for those responding to humanitarian needs overseas.

CQ Weekly - 2007

Secure Operations Technology - Andrew Ginter 2019-01-03

IT-SEC protects the information. SEC-OT protects physical, industrial operations from information, more specifically from attacks embedded in information. When the consequences of compromise are unacceptable - unscheduled downtime, impaired product quality and damaged equipment - software-based IT-SEC defences are not enough. Secure Operations Technology (SEC-OT) is a perspective, a methodology, and a set of best practices used at secure industrial sites. SEC-OT demands cyber-physical protections - because all software can be compromised. SEC-OT strictly controls the flow of information - because all information can encode attacks. SEC-OT uses a wide range of attack capabilities to determine the strength of security postures - because nothing is secure. This book documents the Secure Operations Technology approach, including physical offline and online protections against cyber attacks

and a set of twenty standard cyber-attack patterns to use in risk assessments.

Risk Management in Civil Infrastructure - Mohammed M. Ettouney 2016-12-01

This book presents several original theories for risk, including Theory of Risk Monitoring, and Theory of Risk Acceptance, in addition to several analytical models for computing relative and absolute risk. The book discusses risk limit, states of risk, and the emerging concept of risk monitoring. The interrelationships between risk and resilience are also highlighted in an objective manner. The book includes several practical case studies showing how risk management and its components can be used to enhance performance of infrastructures at reasonable costs.

United States Code Service, Lawyers Edition - United States 1936