Decommissioning Health Physics A Handbook For Marssim Users Medical Physics Series 1st First Edition By Abelquist Ericw Published By Taylor Francis 2001

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Decommissioning Techniques for Research Reactors - International Atomic Energy Agency 1994

This is the first report published by the IAEA which provides guidance on the preparation and implementation of the decommissioning of different types of research reactor. Different construction and operational features of research reactors have a major impact on the decommissioning techniques required. This report offers information on the conclusions drawn from a number of completed projects and identifies their similarities and differences. It is complemented by a computerized research reactor databank. Staff requirements, decommissioning costs waste activity are presented graphically according to reactor thermal power and integrated energy.

Introduction to Health Physics: Fourth Edition - Herman Cember 2008-05-04

A dynamic, all-inclusive overview of the field of health physics If it's an important topic in the field of health physics, you'll find it in this trusted text . . . in sections on physical principles, atomic and nuclear structure, radioactivity, biological effects of radiation, and instrumentation. This one-of-a-kind guide spans the entire scope of the field and offers a problem-solving approach that will serve you throughout your career. Features: A thorough overview of need-to-know topics, from a review of physical principles to a useful look at the interaction of radiation with matter Chapter-ending practice problems to solidify your grasp of health physics topics and their real-world application Essential background material on quantitative risk assessment for health-threatening radiation dangers Authoritative radiation safety and environmental health coverage that supports the International Commission on Radiological Protection's standards for specific populations High-yield appendices to expand your comprehension of chapter material: Values of Some Useful Constants, Table of the Elements, The Reference Person, Specific Absorbed Fraction of Photon

Energy, and Total Mass Attenuation Coefficients NEW! Essential coverage of non-ionizing radiation-laser and microwaves, computer use in dose calculation, and dose limit recommendations

Operational Radiation Safety Program - National Council on Radiation Protection and Measurements 1998

Radiation Instruments - Herman Cember 2001

Nuclear News - 1998

Radiation Shielding - J. Kenneth Shultis 2000-01-01

This newly published book is intended for dual use as a textbook for students in radiation shielding courses and a reference work for shielding practitioners. It emphasizes the principles behind techniques used in various aspects of shield analysis and presents these principles in many different contexts. This approach is intended to provide a strong base of understanding in order to facilitate use of the large shielding codes that have come to dominate shielding design and analysis. An assumption is made that the reader has an understanding of mathematics through basic calculus and vector analysis as well as a knowledge of the nuclear physics of radioactive decay. For most chapters, problem sets are provided.

Safe Handling of Radionuclides - International Atomic Energy Agency 1973

Books in Print - 1991

The British National Bibliography - Arthur James Wells 2002

Preparing for Decommissioning During Operation and After Final Shutdown - 2013

Forthcoming Books - Rose Arny 2001-08

Decommissioning Health Physics - Eric W. Abelquist 2013-10-10

Experienced Guidance on the Technical Issues of Decommissioning Projects Written by one of the original MARSSIM authors, Decommissioning Health Physics: A Handbook for MARSSIM Users, Second Edition is the only book to incorporate all of the requisite technical aspects of planning and executing radiological surveys in support of decommissioning. Extensively revised and updated, it covers survey instrumentation, detection sensitivity, statistics, dose modeling, survey procedures, and release criteria. New to the Second Edition Chapter on hot spot assessment that recognizes appropriate dosimetric significance of hot spots when designing surveys and includes a new approach for establishing hot spot limits Chapter on the clearance or release of materials, highlighting aspects of the MARSAME manual Revised chapter on characterization survey design to reflect guidance in ANSI N13.59 on the value of data quality objectives (DQOs) Updated regulations and guidance documents throughout Updated survey instrumentation used to support decontamination and decommissioning (D&D) surveys, including expanded coverage of in situ gamma spectrometers Revised statistics chapter that includes an introduction to Bayesian statistics and additional double sampling and ranked set sampling statistical approaches More case studies and examples throughout Implement the Surveys Effectively and Avoid Common Pitfalls With more than 20 years of experience as a practitioner in the decommissioning survey field, author Eric W. Abelquist prepares you for the technical challenges associated with planning and executing MARSSIM surveys. He discusses the application of statistics for survey design and data reduction and addresses the selection of survey instrumentation and detection sensitivity. He presents final status survey procedures and covers pathway modeling to translate release criteria to measurable quantities. He also offers solutions for navigating the complexity inherent in designing and implementing MARSSIM and MARSAME surveys. Detailed derivations, thorough discussions of technical bases, and real-world examples and case studies illustrate effective strategies for demonstrating to regulators and stakeholders that contaminated sites can be released for other beneficial uses.

Intelligent Textiles and Clothing - H Mattila 2006-07-28

The use of intelligent textiles in clothing is an exciting new field with wide-ranging

applications. Intelligent textiles and clothing summarises some of the main types of intelligent textiles and their uses. Part one of the book reviews phase change materials (PCM), their role in such areas as thermal regulation and ways they can be integrated into outdoor and other types of clothing. The second part of the book discusses shape memory materials (SMM) and their applications in medical textiles, clothing and composite materials. Part three deals with chromic (colour change) and conductive materials and their use in such areas as sensors within clothing. The final part of the book looks at current and potential applications, including work wear and medical applications. With its distinguished editor and international team of contributors, Intelligent textiles and clothing is an essential guide for textile manufacturers in such areas as specialist clothing (for example, protective, sports and outdoor clothing) as well as medical textiles. Summarises the main types of intelligent textiles and their uses Reviews phase change materials and their role in clothing Discusses shape memory materials and their applications

Decommissioning of Nuclear Power Plants and Research Reactors - International Atomic Energy Agency 1999

This Safety Guide addresses the subject of how to meet the requirements for decommissioning of nuclear power plants and research reactors. It provides guidance to national authorities and operating organizations on the planning and safe management of the decommissioning of such installations.

Radiation Threats and Your Safety - Armin Ansari 2009-10-23

While it has aided far many more than it has harmed, radiation is forever etched in the public’s mind as an indiscriminate and particularly pernicious killer. Consequently, it is especially critical in this age of terrorist threats that we equip ourselves with accurate information and practical tools that will serve us in the rare chance that we find ourselves in a radiation crisis. Radiation Threats and Your Safety: A Guide to Preparation and Response for Professionals and Community offers a calm and authoritative approach to crisis preparation. Written by a health physicist from the U.S. Centers for Disease Control and Prevention, the book informs us about what we should know ahead of time, how to prepare, and the best ways to respond to a nuclear or radiological incident either as an emergency responder or community/family member. Organized to serve both as a preparation guide and as a reference in a crisis, this book — Uses common language while avoiding unnecessary scientific jargon Details protocols for both accidental and intentional radiation emergencies such as nuclear explosions and dirty bombs Shows how to prepare a family emergency plan Covers medical responses to radiation emergencies including radiation drugs Provides an emergency supply list Discusses radiation from microwaves and cellular phones as well as food irradiation There is no reason why we should feel helpless when faced with a radiation emergency. We can take action to protect ourselves, our families, and our communities. How we react to a radiation emergency will determine its true final impact. To this end, we need information and leaders we can depend upon. This book provides the factual details and the approach needed to proactively prepare for any radiation emergency, while also inspiring the confidence that good crisis management requires.

Handbook of Radioactivity Analysis - Michael F. L'Annunziata 2020-03-07

Handbook of Radioactivity Analysis: Radiation Physics and Detectors, Volume One, and Radioanalytical Applications, Volume Two, Fourth Edition, constitute an authoritative reference on the principles, practical techniques and procedures for the accurate measurement of radioactivity - everything from the very low levels encountered in the environment, to higher levels measured in radioisotope research, clinical laboratories, biological sciences, radionuclide standardization, nuclear medicine, nuclear power, and fuel cycle facilities, and in the implementation of nuclear forensic analysis and nuclear safeguards. It includes sample preparation techniques for all types of matrices found in the environment, including soil, water, air, plant matter and animal tissue, and surface swipes. Users will find the latest advances in the applications of radioactivity analysis across various fields, including environmental monitoring, radiochemical standardization, high-

resolution beta imaging, automated radiochemical separation, nuclear forensics, and more. Spans two volumes, Radiation Physics and Detectors and Radioanalytical Applications Includes a new chapter on the analysis of environmental radionuclides Provides the latest advances in the applications of liquid and solid scintillation analysis, alpha- and gamma spectrometry, mass spectrometric analysis, Cherenkov counting, flow-cell radionuclide analysis, radionuclide standardization, aerosol analysis, high-resolution beta imaging techniques, analytical techniques in nuclear forensics, and nuclear safeguards Describes the timesaving techniques of computer-controlled automatic separation and activity analysis of radionuclides Provides an extensive table of the radiation characteristics of most radionuclides of interest for the radioanalytical chemist

Upgrading Environmental Radiation Data - J. E. Watson 1980

The Toxicology and Biochemistry of Insecticides - Simon J. Yu 2011-03-05

The first book in two decades to address this multi-faceted field, The Toxicology and Biochemistry of Insecticides provides the most up-to-date information on insecticide classification, formulation, mode of action, resistance, metabolism, environmental fate, and regulatory legislation. The book draws on the author's groundbreaking research

EPA Publications Bibliography - 1996

The Physics and Technology of Radiation Therapy - PATRICK. ORTON MCDERMOTT (COLIN.) 2018-11-05

Introducing the 2nd edition of our highly respected radiation therapy textbook. It covers the field of radiation physics with a perfect mix of depth, insight, and humor.The 2nd edition has been guided by the 2018 ASTRO core curriculum for radiation oncology residents. Novice physicists will find the book useful when studying for board exams, with helpful chapter summaries, appendices, and extra end-of-chapter problems and questions. It features new material on digital x-ray imaging, neutron survey meters, flattening-filter free and x-band linacs, biological dose indices, electronic brachytherapy, OSLD, Cerenkov radiation, FMEA, total body irradiation, and more.Also included:·Updated graphics in full color for increased understanding.·Appendices on board certifications in radiation therapy for ·ABR, AART, and Medical Dosimetrist Certification Board.·Dosimetry Data·A full index

Radiochemical Analysis - 1964

Decommissioning Health Physics - Eric W. Abelquist 2001-07-04

Decommissioning Health Physics presents many of the technical issues and challenges that arise during the planning and implementation of decommissioning and decontamination (D&D) projects. The focus is on the final status survey performed during the later stages of decommissioning projects. It expands upon and provides greater technical detail than Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) in areas of survey design strategies. Featuring a number of completely worked examples of final status survey strategies, the book prepares the reader for the real-world application of MARSSIM at D&D projects. One chapter is devoted to the specific decommissioning concerns relevant to specific facility types, power reactors, uranium and thorium facilities and sites, and universities or other research facilities. The book thoroughly discusses practical applications of statistics in the context of decommissioning projects, from elementary statistics to hypothesis testing for a number of applications including data comparisons between the regulator and licensee, normality testing of the data, and survey unit compliance decisions. Decommissioning Health Physics will be beneficial for the planners, designers, and reporters of final status survey results as well as health physics technicians who will benefit from practical chapters on instrumentation and survey procedures.

Decommissioning of Nuclear Installations - K. Pflugrad 1995

Introduction to Health Physics - Herman Cember 1992

This guide offers students a background and basic understanding of the biophysical bases of radiation, radiation safety standards and the key factors in radiation protection. A revised and expanded edition, the book's contents include:

radiation dosimetry, basic physical principles, biological effects of radiation, criticality control and radiation surveillance. The author also highlights new findings on non-ionizing radiation (laser and microwaves), computer use in dose calculation and dose limit recommendations from the International Commission on Radiation Protection. It aims to provide students with a framework and practical introduction to scientific principles and the problem-solving approaches needed in daily radiation protection practice.

Nuclear Decommissioning, Waste Management, and Environmental Site Remediation - Colin Bayliss 2003-10-10

Decommissioning nuclear facilities is a relatively new field, which has developed rapidly in the last ten years. It involves materials that may be highly radioactive and therefore require sophisticated methods of containment and remote handling. The wastes arising from decommissioning are hazardous and have to be stored or disposed of safely in order to protect the environment and future generations. Nuclear decommissioning work must be carried out to the highest possible standards to protect workers, the general public and the environment. This book describes the techniques used for dismantling redundant nuclear facilities, the safe storage of radioactive wastes and the restoration of nuclear licensed sites. * Describes the techniques used for dismantling nuclear facilities, safe storage of radioactive wastes, and the restoration of nuclear licensed facilities. * Provides the reader with decommissioning experience accumulated over 15 years by UKAEA. * Contains valuable information to personnel new to decommissioning and waste management.

Decommissioning of Nuclear Facilities - OECD Nuclear Energy Agency 1991

Decommissioning of Small Medical, Industrial and Research Facilities - International Atomic Energy Agency 2011

"Decommissioning activities for zero-power reactors, radio-diagnostic and radiotherapy hospital departments and laboratories and factories using radioactive material may be erroneously perceived as trivial and of low priority. This publication provides practical information, experience and assistance aimed at a broad spectrum of practitioners who are faced with decommissioning of such small nuclear facilities. Particular consideration is given to the financial and scientific resources, and early planning, which are all factors essential to efficient and effective decommissioning. It is written as a simplified, stepwise approach for guidance to nuclear operators who may have little or no experience in decommissioning. An accompanying CD contains practical information in two Annexes, including descriptions of decommissioning projects problems encountered, solutions and analyses, and lessons learned"--Provided by publisher.

Nuclear Decommissioning - Michele Laraia 2012-02-21

Once a nuclear installation has reached the end of its safe and economical operational lifetime, the need for its decommissioning arises. Different strategies can be employed for nuclear decommissioning, based on the evaluation of particular hazards and their attendant risks, as well as on the analysis of costs of clean-up and waste management. This allows for decommissioning either soon after permanent shutdown, or perhaps a long time later, the latter course allowing for radioactivity levels to drop in any activated or contaminated components. It is crucial for clear processes and best practices to be applied in decommissioning such installations and sites, particular where any significant health and environmental risks exist. This book critically reviews the nuclear decommissioning processes and technologies applicable to nuclear power plants and other civilian nuclear facilities. Part one focuses on the fundamental planning issues in starting a nuclear decommissioning process, from principles and safety regulations, to financing and project management. Part two covers the execution phase of nuclear decommissioning projects, detailing processes and technologies such as dismantling, decontamination, and radioactive waste management, as well as environmental remediation, site clearance and reuse. Finally, part three details international experience in the decommissioning of nuclear applications, including the main nuclear reactor types and nuclear fuel cycle facilities, as well as small nuclear facilities and legacy nuclear waste

sites. Critically reviews nuclear decommissioning processes and technologies applicable to nuclear power plants and other civilian nuclear facilities Discusses the fundamental planning issues in starting a nuclear decommissioning process Considers the execution phase of nuclear decommissioning projects, including dismantling, decontamination, and radioactive waste management, as well as environmental remediation, site clearance and reuse

Radiation Sensing - Kelum A. A. Gamage 2021-09-06

Radiation detection is important in many fields, and it poses significant challenges for instrument designers. Radiation detection instruments, particularly for nuclear decommissioning and security applications, are required to operate in unknown environments and should detect and characterise radiation fields in real time. This book covers both theory and practice, and it solicits recent advances in radiation detection, with a particular focus on radiation detection instrument design, real-time data processing, radiation simulation and experimental work, robot design, control systems, task planning and radiation shielding.

Aerosols Handbook - Lev S. Ruzer 2004-12-28

As more attention is dedicated to understanding the occupational health risks associated with the industrial manufacture and use of nanotechnology, Aerosols Handbook: Measurement, Dosimetry, and Health Effects is a timely presentation of time-tested research in the field of aerosol science. The book covers a multitude of topics in indoor, outdoor,

Radioactive Air Sampling Methods - Mark L. Maiello 2010-10-18

Although the field of radioactive air sampling has matured and evolved over decades, it has lacked a single resource that assimilates technical and background information on its many facets. Edited by experts and with contributions from top practitioners and researchers, Radioactive Air Sampling Methods provides authoritative guidance on measuring airborne radioactivity from industrial, research, and nuclear power operations, as well as naturally occuring radioactivity in the environment. Designed for industrial hygienists, air quality experts, and heath physicists, the book delves into the applied research advancing and transforming practice with improvements to measurement equipment, human dose modeling of inhaled radioactivity, and radiation safety regulations. To present a wide picture of the field, it covers the international and national standards that guide the quality of air sampling measurements and equipment. It discusses emergency response issues, including radioactive fallout and the assets used to assess airborne radioactive emergencies. The book includes a comprehensive series of air sampling methods for commonly encountered radioactive isotopes in the industrial environment that detail the steps to conducting a proper air sampling study. With coverage of fundamental air sampling techniques and practical knowledge, the book provides insight into the contemporary thinking of experts, the maturity of the field, and its deep literature base. Building a bridge between the science behind air sampling and its practice, it supplies the know-how required to achieve technically rigorous air sampling data.

Decommissioning Health Physics - Eric W. Abelquist 2019-12-10

Experienced Guidance on the Technical Issues of Decommissioning Projects Written by one of the original MARSSIM authors, Decommissioning Health Physics: A Handbook for MARSSIM Users, Second Edition is the only book to incorporate all of the requisite technical aspects of planning and executing radiological surveys in support of decommissioning. Extensively revised and updated, it covers survey instrumentation, detection sensitivity, statistics, dose modeling, survey procedures, and release criteria. New to the Second Edition Chapter on hot spot assessment that recognizes appropriate dosimetric significance of hot spots when designing surveys and includes a new approach for establishing hot spot limits Chapter on the clearance or release of materials, highlighting aspects of the MARSAME manual Revised chapter on characterization survey design to reflect guidance in ANSI N13.59 on the value of data quality objectives (DQOs) Updated regulations and guidance documents throughout Updated survey instrumentation used to support decontamination and decommissioning (D&D) surveys, including expanded coverage of in situ gamma spectrometers Revised statistics chapter

that includes an introduction to Bayesian statistics and additional double sampling and ranked set sampling statistical approaches More case studies and examples throughout Implement the Surveys Effectively and Avoid Common Pitfalls With more than 20 years of experience as a practitioner in the decommissioning survey field, author Eric W. Abelquist prepares you for the technical challenges associated with planning and executing MARSSIM surveys. He discusses the application of statistics for survey design and data reduction and addresses the selection of survey instrumentation and detection sensitivity. He presents final status survey

Nuclear Energy ebook Collection - Gianni Petrangeli 2008-09-05

Nuclear Energy ebook Collection contains 6 of our best-selling titles, providing the ultimate reference for every nuclear energy engineer's library. Get access to over 3500 pages of reference material, at a fraction of the price of the hard-copy books. This CD contains the complete ebooks of the following 6 titles: Petrangeli, Nuclear Safety, 9780750667234 Murray, Nuclear Energy, 9780750671361 Bayliss, Nuclear Decommissioning, 9780750677448 Suppes, Sustainable Nuclear Power, 9780123706027 Lewis, Fundamentals of Nuclear Reactor Physics, 9780123706317 Kozima, The Science of the Cold Fusion Phenomenon, 9780080451107 *Six fully searchable titles on one CD providing instant access to the ULTIMATE library of engineering materials for nuclear energy professionals *3500 pages of practical and theoretical nuclear energy information in one portable package. *Incredible value at a fraction of the cost of the print books

Radiation Protection of the Public and the Environment - International Atomic Energy Agency 2018-03-30

This Safety Guide provides guidance on the implementation of the requirements in the International Basic Safety Standards, IAEA Safety Standards Series No. GSR Part 3, in relation to protection of the public and the environment against radiation risks. It provides generic guidance on the application of the radiation protection principles of justification, of optimization of protection and safety, and of dose limits. The publication covers the protection of the public and the environment in all exposure situations -- planned, emergency and existing.

Medical Health Physics - David C. Medich 2006

Programmes and Systems for Source and Environmental Radiation Monitoring - International Atomic Energy Agency 2010

The objective of this Safety Report is to complement IAEA Safety Guide RS-G-1.8 and to provide the methodological and technical details of the design and operation of monitoring programmes for different radionuclides, environmental media and types of facility. It also covers general issues of emergency monitoring during and in the aftermath of an accidental release of radionuclides and gives an outline of dose assessment procedures based on monitoring data and the reporting of information to the regulatory body.

Basic Health Physics - Joseph John Bevelacqua 2010-04-26

Designed to prepare candidates for the American Board of Health Physics Comprehensive examination (Part I) and other certification examinations, this monograph introduces professionals in the field to radiation protection principles and their practical application in routine and emergency situations. It features more than 650 worked examples illustrating concepts under discussion along with in-depth coverage of sources of radiation, standards and regulations, biological effects of ionizing radiation, instrumentation, external and internal dosimetry, counting statistics, monitoring and interpretations, operational health physics, transportation and waste, nuclear emergencies, and more. Reflecting for the first time the true scope of health physics at an introductory level, Basic Health Physics: Problems and Solutions gives readers the tools to properly evaluate challenging situations in all areas of radiation protection, including the medical, university, power reactor, fuel cycle, research reactor, environmental, non-ionizing radiation, and accelerator health physics.