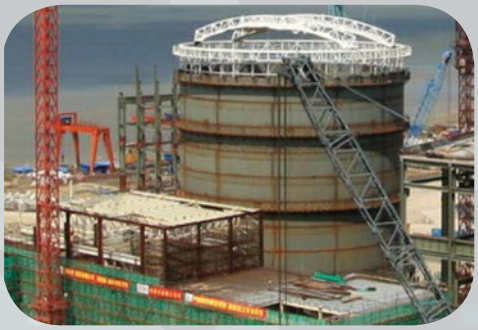
IAEA Publications

Catalogue

2017–2018



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Atoms for Peace

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Atoms for Peace

The IAEA serves as the world's intergovernmental forum for scientific and technical cooperation in the nuclear field. It was set up as the world's "Atoms for Peace" organization in 1957 within the United Nations family. The IAEA works with its Member States and multiple partners worldwide to promote safe, secure and peaceful nuclear technologies.

The IAEA's mission is guided by the interests and needs of Member States, strategic plans and the vision embodied in the IAEA Statute. Three main pillars — or areas of work — underpin the IAEA's mission: Safety and Security; Science and Technology; and Safeguards and Verification.

IAEA Publications

The IAEA is one of the leading publishers in the field of nuclear science and technology, with titles on nuclear and radiological safety, emergency response, nuclear power, nuclear medicine, nuclear waste management, nuclear law and safeguards as well as relevant topics in food and agriculture, earth science, industry and the environment.

Key publications include the IAEA Safety Standards, which detail the principles of safety for protection against ionizing radiation, and IAEA Safety Reports, which describe good practices and give practical examples and detailed methods that can be used to meet safety requirements.

Publications 2016–2018 1–66

Series Index 67–73

Stocklist of Publications 2014–2017 75–95

Order Form 97

Ordering Locally 99–100

INTERNATIONAL ATOMIC ENERGY AGENCY, PUBLICATIONS CATALOGUE 2017/18, IAEA/PUB/CAT/2017/18
Printed by the IAEA in Austria, May 2017

IAEA Publications
Catalogue

2017–2018

Full Details of Publications Published 2016–2017,
Forthcoming Publications 2017–2018 and a
Stocklist of Publications Published 2014–2017

INTRODUCTION

This publications catalogue lists all sales publications of the IAEA published in 2016–2017 and those forthcoming in 2017–2018.

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CONTENTS

HUMAN HEALTH 1

Medical Physics, Dosimetry and Diagnosis 1

Radiotherapy 2

Nuclear Medicine (including Radiopharmaceuticals) 3

FOOD AND AGRICULTURE 5

Food Irradiation 5

Soil Fertility and Irrigation 6

Agrochemicals 7

NUCLEAR MEASUREMENT TECHNIQUES AND INSTRUMENTATION 9

Physics 10

Chemistry 10

Nuclear Analytical Techniques 10

Research Reactors and Particle Accelerators (Applications) 11

EARTH SCIENCES 13

Uranium Geology, Exploration and Mining 13

INDUSTRIAL APPLICATIONS 15

NUCLEAR AND RADIOLOGICAL SAFETY AND SECURITY 17

Uranium Mining and Milling 22

Fuel Fabrication and Storage 22

Nuclear Power Plants 23

Research Reactors 28

Transport of Radioactive Material 29

Waste Repositories 29

Radiation Protection 30

Accident Response 32

Radioactive Waste Management 33

Safety Analysis 35

Quality Management 37

Legal and Governmental Aspects 37

NUCLEAR POWER 39

Nuclear Power Planning and Economics 40

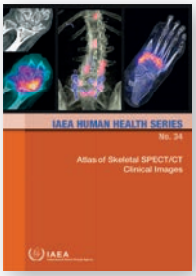
Nuclear Power Operations 44

Reactor Technology 46

Qualification and Training of Personnel 47

NUCLEAR FUEL CYCLE AND WASTE MANAGEMENT 49
Fuel Fabrication and Performance 51
Spent Fuel Management 51
PLASMA PHYSICS AND NUCLEAR FUSION 53
SAFEGUARDS 55
NUCLEAR LAW 57
ENVIRONMENT 59
NUCLEAR SECURITY AND PHYSICAL PROTECTION OF RADIOACTIVE MATERIAL 63
SERIES INDEX 67
STOCKLIST OF PUBLICATIONS 2014–2017 75
ORDER FORM 97
ORDERING LOCALLY 99

MEDICAL PHYSICS, DOSIMETRY AND DIAGNOSIS

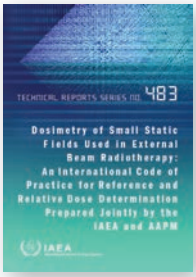


Atlas of Skeletal SPECT/CT Clinical Images

IAEA Human Health Series No. 34

The atlas focuses specifically on single photon emission computed tomography/computed tomography (SPECT/CT) in musculoskeletal imaging, and thus illustrates the inherent advantages of the combination of the metabolic and anatomical components in a single procedure. In addition, the atlas provides information on the usefulness of several sets of specific indications. The publication, which serves more as a training tool than a textbook, will help to further integrate the SPECT and CT experience in clinical practice by presenting a series of typical cases with many different patterns of SPECT/CT seen in bone scintigraphy.

(237 pp., 301 figs; 2016) • ISBN 978-92-0-103416-8 • STI/PUB/1748 • €75.00

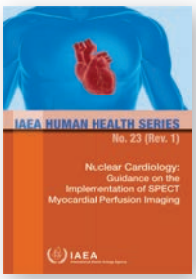


Dosimetry of Small Static Fields Used in External Beam Radiotherapy: An International Code of Practice for Reference and Relative Dose Determination Prepared Jointly by the IAEA and AAPM

Technical Reports Series No. 483

This is the first international code of practice dedicated to the dosimetry of small static fields used in radiotherapy. It provides consistent reference dosimetry, traceable to metrological primary standards, and enables common procedures within a country to be followed. The publication presents an overview of the physics, followed by a general formalism for reference dosimetry in small fields. Guidelines for its practical implementation using suitable detectors and methods for the determination of field output factors are given for specific clinical machines that use small static fields. The development of this code of practice has been done through an international working group, established jointly with the American Association of Physicists in Medicine. Internationally harmonized guidelines in this field will ensure worldwide consistency in dose delivery to radiotherapy patients and will contribute to dose standardization in international clinical trial studies, comparing outcomes of various radiotherapy treatment modalities using small fields.

(Forthcoming) • ISBN 978-92-0-105916-1 • STI/DOC/010/483 • €52.00



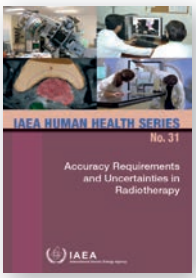
Nuclear Cardiology: Guidance on the Implementation of SPECT Myocardial Perfusion Imaging

IAEA Human Health Series No. 23 (Rev. 1)

Nuclear cardiology is one of the most widely used non-invasive techniques for the assessment of coronary artery disease and other cardiovascular conditions. It has proved to be a cost effective tool for the evaluation and management of cardiac patients and usually has a decisive role for diagnosis, prognosis and risk stratification. In particular, radionuclide myocardial perfusion imaging (MPI) is used extensively worldwide for the evaluation of known or suspected coronary artery disease, with an estimated 15–20 million procedures performed annually. This publication provides a detailed analysis of all the steps involved in the delivery of nuclear cardiology services, from referrals to reporting, and is intended to serve as guidance for the implementation, homogenization and enhancement of MPI practice in those Member States where the technique is under development.

(101 pp., 24 figs; 2016) • ISBN 978-92-0-107616-8 • STI/PUB/1753 • €46.00

RADIOTHERAPY



Accuracy Requirements and Uncertainties in Radiotherapy

IAEA Human Health Series No. 31

Accuracy requirements in radiation oncology have been defined in multiple publications; however, these have been based on differing radiation technologies. In the meantime, the uncertainties in radiation dosimetry reference standards have been reduced and more detailed patient outcome data are available. No comprehensive literature on accuracy and uncertainties in radiotherapy has been published so far. The IAEA has therefore developed a new international consensus document on accuracy requirements and uncertainties in radiotherapy, to promote safer and more effective patient treatments. This publication addresses accuracy and uncertainty issues related to the vast majority of radiotherapy departments including both external beam radiotherapy and brachytherapy. It covers clinical, radiobiological, dosimetric, technical and physical aspects.

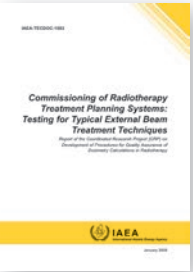
(297 pp., 46 figs; 2016) • ISBN 978-92-0-100815-2 • STI/PUB/1679 • €76.00

Application of the Risk Matrix Method to Radiotherapy

IAEA TECDOC Series No. 1685

This publication describes a project to introduce a tool for self-evaluation by radiotherapy services that allows the analysis of errors or failures that might give rise to accidents. The results of applying this tool to a generic radiotherapy service are also presented. These results are used as a basis for a set of recommendations to strengthen quality and safety programmes in radiotherapy departments. Both operational experience (lessons learned from accidental exposure) and the results of probability safety assessment studies have been taken into account in applying the tool and formulating these recommendations.

English Edition (74 pp., 13 figs; 2016) • ISBN 978-92-0-107216-0 • IAEA-TECDOC-1685 • €18.00
Spanish Edition (85 pp., 13 figs; 2012) • ISBN 978-92-0-332510-3 • IAEA-TECDOC-1685 • €18.00



Commissioning of Radiotherapy Treatment Planning Systems: Testing for Typical External Beam Treatment Techniques

Report of the Coordinated Research Project on Development of Procedures for Quality Assurance of Dosimetry Calculations in Radiotherapy

IAEA TECDOC Series No. 1583

This publication is a guide for the clinical commissioning of radiotherapy treatment planning systems (RTPSs) and provides a simple protocol for this task. The procedures for clinical commissioning tests cover typical treatment techniques used in radiotherapy hospitals and are based on the use of a specific phantom. The purpose of this testing is twofold. Firstly, the tests will provide an educational opportunity for the user to become familiar with the operation of the RTPS. Secondly, the tests will demonstrate to the user that the logistic chain starting from computed tomography (CT) scanning, anatomic modelling, treatment planning and monitor unit/time (MU) calculation is operable for typical treatment techniques and leads to the desired results with sufficient accuracy.

English CD Edition (2011) • ISBN 978-92-0-169910-7 • IAEA-TECDOC-1583 • €18.00
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Russian Edition (67 pp., 26 figs; 2016) • ISBN 978-92-0-400616-2 • IAEA-TECDOC-1583 • €18.00

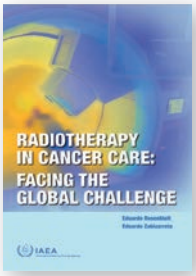
Radiation Protection and Safety in Medical Uses of Ionizing Radiation

Specific Safety Guide

IAEA Safety Standards Series No. SSG-46

This Safety Guide provides recommendations and guidance on fulfilling the requirements of IAEA Safety Standards Series No. GSR Part 3 for ensuring radiation protection and safety of radiation sources in medical uses of ionizing radiation with regard to patients, workers, carers and comforters, volunteers in biomedical research, and the public. It covers radiological procedures in diagnostic radiology (including dentistry), image guided interventional procedures, nuclear medicine, and radiotherapy. Recommendations and guidance are provided on applying a systematic approach to ensure that there is a balance between being able to utilize the benefits from medical uses of ionizing radiation and minimizing the risk of radiation effects to people.

(Forthcoming) • ISBN 978-92-0-101717-8 • STI/PUB/1775 • €54.00



Radiotherapy in Cancer Care: Facing the Global Challenge

Cancer treatment is complex and calls for a diverse set of services. Radiotherapy is recognized as an essential tool in the cure and palliation of cancer. Currently, access to radiation treatment is limited in many countries and non-existent in some. This lack of radiotherapy resources exacerbates the burden of disease and underscores the continuing health care disparity among States. Closing this gap represents an essential measure in addressing this global health equity problem. This publication presents a comprehensive overview of the major topics and issues to be taken into consideration when planning a strategy to address this problem, in particular in low and middle income countries. With contributions from leaders in the field, it provides an introduction to the achievements and issues of radiotherapy as a cancer treatment modality around the world. Dedicated chapters focus on the new radiotherapy technologies, proton beams, carbon ion, intraoperative radiotherapy, radiotherapy for children, treatment of HIV-AIDS malignancies, and costing and quality management issues.

(Forthcoming) • ISBN 978-92-0-115013-4 • STI/PUB/1638 • €62.00

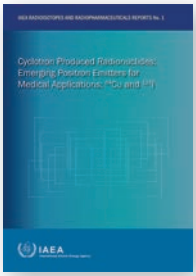
NUCLEAR MEDICINE (INCLUDING RADIOPHARMACEUTICALS)

Accelerator Based Alternatives to Non-HEU Production of Technetium-99m

IAEA Radioisotopes and Radiopharmaceuticals Reports No. 2

This publication presents a comprehensive overview of the technologies involved in the production of cyclotron based 99mTc. These would include techniques relevant to preparation of targets, irradiation of targets under high beam currents, target processing, target recovery and quality control of the final product. The publication provides broad information, well supported with references, on improved production routes and improved separation and purification of cyclotron based 99mTc. These approaches achieve high specific activity and chemical purity of 99mTc suitable for labelling molecules of medical interest and also enable spare capacity to be available at medical cyclotron centres. The readership of this publication is scientists interested in translating this technology to practice, technologists already working with cyclotrons wanting to enhance the utility of the existing machines and managers who are in the process of setting up facilities in their countries. Students working towards higher level degrees in related fields may also benefit from this publication.

(Forthcoming) • ISBN 978-92-0-102916-4 • STI/PUB/1743 • €33.00



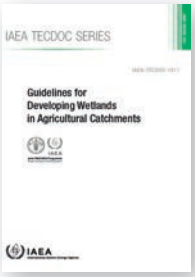
Cyclotron Produced Radionuclides: Emerging Positron Emitters for Medical Applications: 64Cu and 124I

IAEA Radioisotopes and Radiopharmaceuticals Reports No. 1

The growing number of medical cyclotrons and positron emission tomography/computed tomography (PET/CT) centres as well as the proven high clinical utility of fluorodeoxyglucose (FDG) in cancer patients has led to interest in possibilities for the use of PET tracers which are in different stages of clinical evaluation. This publication presents the outcome of an IAEA coordinated research project on this topic and provides a comprehensive overview of the technologies involved in the production of 64Cu and 124I, techniques on preparation of targets, irradiation of targets under high beam currents, target processing, target recovery and labelling. It provides guidance to enhance 64Cu and 124I production and applications. This book will appeal to scientists and technologists involved in putting cyclotron based radioisotope production into practice, as well as postgraduate students in the field.

(63 pp., 38 figs; 2016) • ISBN 978-92-0-109615-9 • STI/PUB/1717 • €38.00

FOOD AND AGRICULTURE



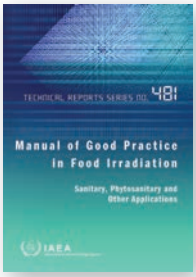
Guidelines for Developing Wetlands in Agricultural Catchments

IAEA TECDOC Series No. 1811

This publication presents the results of an international research project on optimizing the capture and storage of water by assessing nutrient using water conservation zones in agricultural landscapes. Eight countries from Asia Pacific, Africa and Europe participated in the project. Field studies were established in all participating countries using isotopic and nuclear techniques to assess three types of water conservation zones that are used to harvest water for irrigation, crop production and improve downstream water quality. In addition, isotopic and nuclear techniques were used to collect data to identify the ideal locations in the landscapes for developing wetlands. The publication provides information to researchers working in the area of soil and water management, natural resource managers, policy makers and farmers. For those working to develop wetlands, information is provided to support planning, monitoring and evaluation.

(68 pp., 16 figs; 2017) • ISBN 978-92-0-100917-3 • IAEA-TECDOC-1811 • €18.00

FOOD IRRADIATION



Manual of Good Practice in Food Irradiation

Sanitary, Phytosanitary and Other Applications

Technical Reports Series No. 481

Ensuring that the process of irradiating food delivers the desired result consistently is essential for the correct application of the technology and will help to inspire consumer confidence in irradiated food. This publication aims to help operators of irradiation facilities to appreciate and improve their practices and also to provide detailed, yet straightforward, technical information for stakeholders such as food regulators, manufacturers and traders, who also need to understand 'good practice'.

English Edition (85 pp., 24 figs; 2015) • ISBN 978-92-0-105215-5 • STI/DOC/010/481 • €48.00
Spanish Edition (91 pp., 24 figs; 2017) • ISBN 978-92-0-306116-2 • STI/DOC/010/481 • €48.00

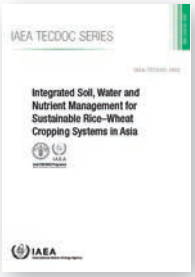
SOIL FERTILITY AND IRRIGATION

Cosmic Ray Neutron Sensing: Use, Calibration and Validation for Soil Moisture Estimation

IAEA TECDOC Series No. 1809

Nuclear and related techniques can help develop climate-smart agricultural practices by optimizing water use efficiency. The measurement of soil water content is essential to improve the use of this resource in agriculture. However, most sensors monitor small areas (less than 1m in radius), hence a large number of sensors are needed to obtain soil water content across a large area. This can be both costly and labour intensive and so larger scale measuring devices are needed as an alternative to traditional point-based soil moisture sensing techniques. The cosmic ray neutron sensor (CRNS) is such a device that monitors soil water content in a non-invasive and continuous way. This publication provides background information about this novel technique, and explains in detail the calibration and validation process.

(48 pp., 13 figs; 2017) • ISBN 978-92-0-101017-9 • IAEA-TECDOC-1809 • €18.00



Integrated Soil, Water and Nutrient Management for Sustainable Rice–Wheat Cropping Systems in Asia

IAEA TECDOC Series No. 1802

The rice-wheat system is the predominant cropping system in Asia, providing food, employment and income, ensuring the livelihoods of about one billion resource poor people. However, the productivity of the current rice–wheat systems is seriously threatened by increasing land degradation and scarcity of water and labour, inefficient cropping practices and other emerging socioeconomic and environmental drivers. Responding to the need to develop alternate crop establishment methods and improved cropping practices, this publication summarizes the results from a joint FAO/IAEA coordinated research project on optimizing productivity and sustainability of rice–wheat cropping systems. It provides relevant information on how to modify existing water and nutrient management systems and improve soil management in both traditional and emerging crop establishment methods for sustainable intensification of cereal production in Asia.

(160 pp., 3 figs; 2016) • ISBN 978-92-0-106616-9 • IAEA-TECDOC-1802 • €18.00

Management and Area-wide Evaluation of Water Conservation Zones in Agricultural Catchments for Biomass Production, Water Quality and Food Security

IAEA TECDOC Series No. 1784

This publication summarizes the research work undertaken as part of a FAO/IAEA coordinated research project (CRP) which aimed to assess and enhance ecosystem services provided by wetlands, ponds and riparian buffer zones for improving water storage and nutrient use within agricultural catchments. The specific objectives of the CRP were to determine the capacity of water conservation zones for water and nutrient storage, assess nutrient attenuation capacities, assess the link between water and nutrient dynamics and optimize water conservation zones for improving water storage and quality.

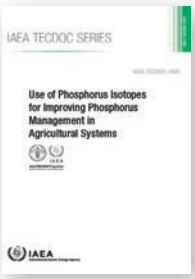
(164 pp., 80 figs; 2016) • ISBN 978-92-0-100516-8 • IAEA-TECDOC-1784 • €18.00

Supporting Sampling and Sample Preparation Tools for Isotope and Nuclear Analysis

IAEA TECDOC Series No. 1783

Nuclear and related techniques can help develop climate-smart agricultural practices by optimizing water and nutrient use efficiency, assessing organic carbon sequestration in soil, and assisting in the evaluation of soil erosion control measures. Knowledge on the behaviour of radioactive materials in soil, water and foodstuffs is also essential in enhancing nuclear emergency preparedness and response. Appropriate sampling and sample preparation are the first steps to ensure the quality and effective use of the measurements and this publication provides comprehensive detail on the necessary steps.

(68 pp., 5 figs; 2016) • ISBN 978-92-0-100416-1 • IAEA-TECDOC-1783 • €18.00



Use of Phosphorus Isotopes for Improving Phosphorus Management in Agricultural Systems

IAEA TECDOC Series No. 1805

Phosphorus is an essential element in plant, human and animal nutrition. Soils with low levels of phosphorus are widespread in many regions of the world, and the deficiency limits plant growth and reduces crop production and food quality. This publication provides comprehensive and up to date information on several topics related to phosphorus in soil–plant systems, in agricultural systems and in the environment. It presents the theoretical background as well as practical information on how to use nuclear and radioisotope tracer techniques in both laboratory and greenhouse experiments to assess soil phosphorus forms and plant-available soil phosphorus pools, and to understand the cycling processes in soil–plant systems. The publication focuses on practical applications of radiotracer techniques and can serve as resource material for research projects on improving sustainable phosphorus management in agricultural systems and as practical guidance on the use of phosphate isotopes in soil–plant research.

(110 pp., 4 figs; 2016) • ISBN 978-92-0-107416-4 • IAEA-TECDOC-1805 • €18.00

AGROCHEMICALS

Development of Radiometric and Allied Analytical Methods and Strategies to Strengthen National Residue Control Programmes for Antibiotic and Anthelmintic Veterinary Drug Residues

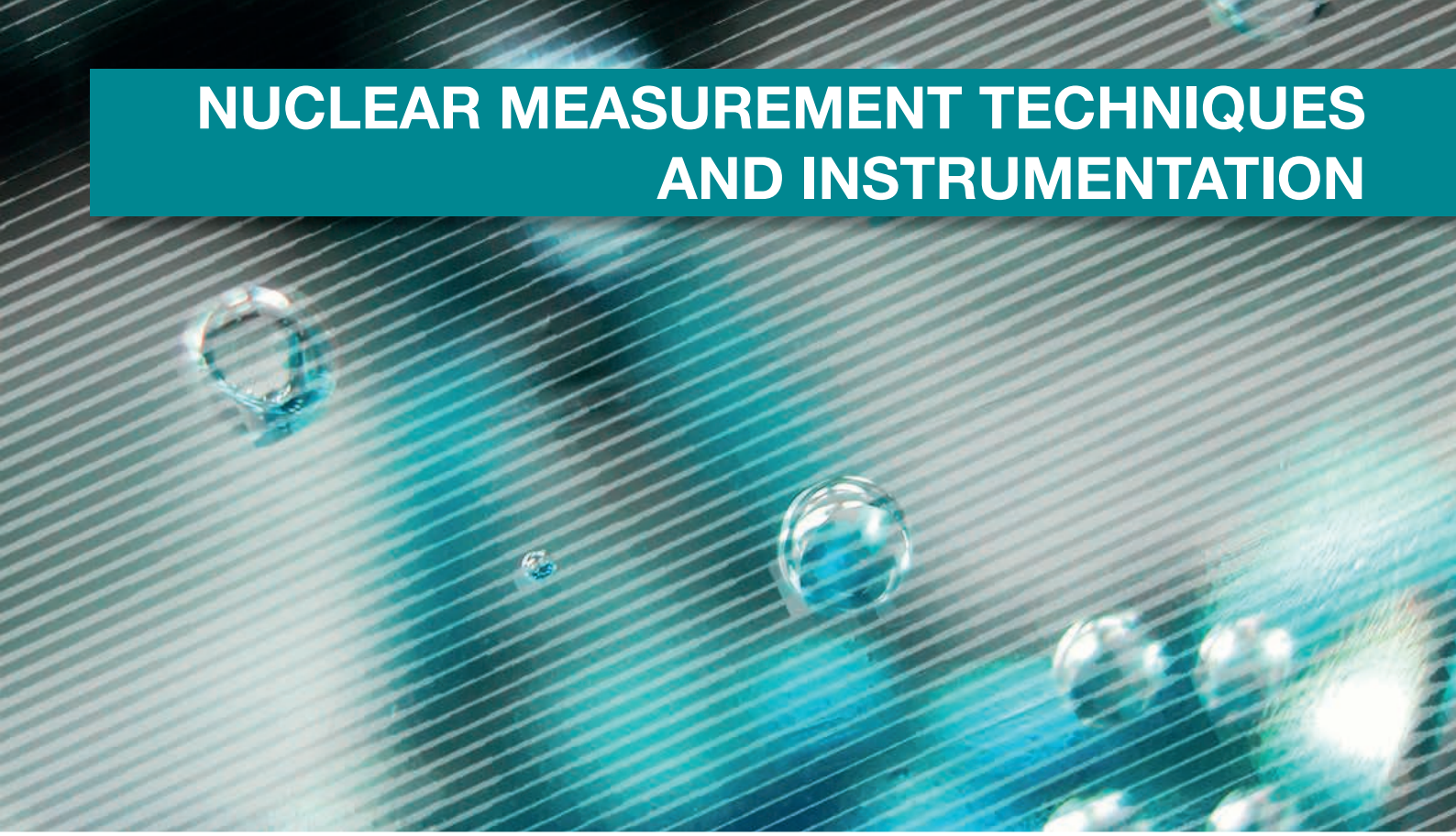
Final Report of a Coordinated Research Project

IAEA TECDOC Series No. 1800

This publication was produced under an IAEA coordinated research project and details the results of the work completed by the project counterparts in developing radiometric and complementary techniques for veterinary drug residues. The information is useful for research on, and technology transfer to facilitate, veterinary drug and associated residue testing in food and environmental samples. The publication presents a source of standard operating procedures that can be used for step-by-step laboratory analyses and will be useful for Member States in implementing food safety control programmes.

(240 pp., 17 figs; 2016) • ISBN 978-92-0-106416-5 • IAEA-TECDOC-1800 • €18.00

NUCLEAR MEASUREMENT TECHNIQUES AND INSTRUMENTATION



Cosmic Ray Neutron Sensing: Use, Calibration and Validation for Soil Moisture Estimation

IAEA TECDOC Series No. 1809

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(48 pp., 13 figs; 2017) • ISBN 978-92-0-101017-9 • IAEA-TECDOC-1809 • €18.00

Uses of Ionizing Radiation for Conservation for Tangible Cultural Heritage

IAEA Radiation Technology Series No. 6

The preservation of world cultural heritage is a key issue for maintaining national identity and understanding the influences or exchanges among civilizations throughout history. Development of appropriate preservation techniques that do not compromise longevity or authenticity are therefore of utmost importance. Radiation techniques have demonstrated significant success in the disinfestation and preservation of cultural heritage artefacts, and national and international research programmes have developed harmonized methodologies for such radiation treatment. This publication provides state of the art knowledge on radiation technology applied to the conservation and consolidation of items of cultural heritage and will be of use to collection curators, conservators, restorers, registrars, art historians, archaeologists and conservation scientists active in the various fields of cultural heritage in museums, libraries, archives, archaeological institutions, historical buildings and conservation workshops.

(Forthcoming) • ISBN 978-92-0-103316-1 • STI/PUB/1747 • €50.00

PHYSICS

Accelerator Simulation and Theoretical Modelling of Radiation Effects (SMoRE)

IAEA Nuclear Energy Series No. NF-T-2.2

This publication summarizes the findings and conclusions of the IAEA coordinated research project (CRP) on accelerator simulation and theoretical modelling of radiation effects, aimed at supporting Member States in the development of advanced radiation resistant structural materials for implementation in innovative nuclear systems. This aim can be achieved through enhancement of both experimental neutron-emulation capabilities of ion accelerators and improvement of the predictive efficiency of theoretical models and computer codes. This dual approach is challenging but necessary, because outputs of accelerator simulation experiments need adequate theoretical interpretation, and theoretical models and codes need high dose experimental data for their verification. Both ion irradiation investigations and computer modelling have been the specific subjects of the CRP, and the results of these studies are presented in this publication which also includes state of the art reviews of four major aspects of the project: challenges and trends of structural materials development for present and future reactor designs, accelerator methodologies for material testing, multiscale modelling tools, and advanced examination techniques.

(Forthcoming) • ISBN 978-92-0-107415-7 • STI/PUB/1732 • €39.00

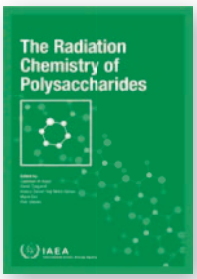
CHEMISTRY

The Environmental Behaviour of Polonium

Technical Reports Series No. 484

This publication covers polonium behaviour in the terrestrial, freshwater and marine environments, dose considerations and mitigation and remediation options. Additionally, case studies are presented. The primary objective is to provide Member States with information for use in the radiological assessment of accidental releases and routine discharges of polonium in the environment, and in remediation planning for areas contaminated by polonium.

(Forthcoming) • ISBN 978-92-0-112116-5 • STI/DOC/010/484 • €80.00



The Radiation Chemistry of Polysaccharides

This publication provides the background and compiles the most recent research findings as well as detailing development activities relating to the development of radiation processed products made of natural polymers. Successes clearly indicate that the radiation processing of natural polymers has emerged as an exciting area where the unique characteristics of these polymeric materials can be exploited for a variety of practical applications in agriculture, healthcare, industry and the environment.

(467 pp., 274 figs; 2016) • ISBN 978-92-0-101516-7 • STI/PUB/1731 • €75.00

NUCLEAR ANALYTICAL TECHNIQUES

Guidelines for the Development of a Quality Management System (QMS) on Training and Certification of Personnel for Non-destructive Testing (NDT)

IAEA TECDOC Series No. 1772

A quality management system (QMS) can be expressed as the organizational structure or processes, procedures and resources needed to implement quality management. Such a system plays an important role in the sustainable training and certification of non-destructive testing (NDT), resulting in better management, technical competence, worldwide recognition and harmonization and competitiveness. The guidelines presented in this publication support developers and provide information on the part NDT plays in overall quality assurance (QA) programmes.

(Forthcoming) • ISBN 978-92-0-108115-5 • IAEA-TECDOC-1772 • €18.00

Improvement of the Reliability and Accuracy of Heavy Ion Beam Analysis

Technical Reports Series No. 485

This publication highlights the achievements of an IAEA coordinated research project addressing limitations in the utilization of heavy ions, through the delivery of better analytical tools with a higher degree of reliability, accuracy, and user confidence, thereby enabling an expansion in the range of problems that can be solved. Relevant to researchers in ion beam laboratories, which utilize heavy ion beams for materials research, this publication will also be of interest to those using light ion beams for other materials science problems, as the underlying knowledge is common to all ion beam types. The database of the new stopping cross-sections included in this publication contains extensive new data not available before.

(Forthcoming) • ISBN 978-92-0-103517-2 • STI/DOC/010/485 • €45.00

Supporting Sampling and Sample Preparation Tools for Isotope and Nuclear Analysis

IAEA TECDOC Series No. 1783

Nuclear and related techniques can help develop climate-smart agricultural practices by optimizing water and nutrient use efficiency, assessing organic carbon sequestration in soil, and assisting in the evaluation of soil erosion control measures. Knowledge on the behaviour of radioactive materials in soil, water and foodstuffs is also essential in enhancing nuclear emergency preparedness and response. Appropriate sampling and sample preparation are the first steps to ensure the quality and effective use of the measurements and this publication provides comprehensive detail on the necessary steps.

(68 pp., 5 figs; 2016) • ISBN 978-92-0-100416-1 • IAEA-TECDOC-1783 • €18.00

Trends of Synchrotron Radiation Applications in Cultural Heritage, Forensics and Materials Science

IAEA TECDOC Series No. 1803

This publication provides an overview of the analytical applications of synchrotron radiation (SR) sources in the fields of cultural heritage, forensics and materials science, and presents relevant research projects carried out by 14 Member States. The papers included in this publication were presented by experts during a technical meeting held at the IAEA. The meeting provided a forum for specialists in SR applications to review the current status of, and developments and trends in, SR applications, with an emphasis on the fields of cultural heritage, forensics and characterization of energy related materials.

(175 pp., 90 figs; 2016) • ISBN 978-92-0-107116-3 • IAEA-TECDOC-1803 • €18.00

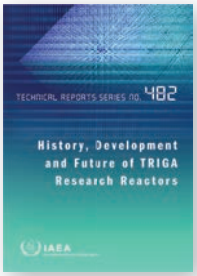
RESEARCH REACTORS AND PARTICLE ACCELERATORS (APPLICATIONS)

Accelerator Based Alternatives to Non-HEU Production of Technetium-99m

IAEA Radioisotopes and Radiopharmaceuticals Reports No. 2

This publication presents a comprehensive overview of the technologies involved in the production of cyclotron based 99mTc. These would include techniques relevant to preparation of targets, irradiation of targets under high beam currents, target processing, target recovery and quality control of the final product. The publication provides broad information, well supported with references, on improved production routes and improved separation and purification of cyclotron based 99mTc. These approaches achieve high specific activity and chemical purity of 99mTc suitable for labelling molecules of medical interest and also enable spare capacity to be available at medical cyclotron centres. The readership of this publication is scientists interested in translating this technology to practice, technologists already working with cyclotrons wanting to enhance the utility of the existing machines and managers who are in the process of setting up facilities in their countries. Students working towards higher level degrees in related fields may also benefit from this publication.

(Forthcoming) • ISBN 978-92-0-102916-4 • STI/PUB/1743 • €33.00

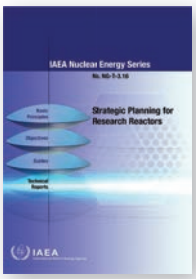


History, Development and Future of TRIGA Research Reactors

Technical Reports Series No. 482

This publication summarizes the past and present of TRIGA research reactors, and addresses potential challenges in the near future. As the staff of TRIGA facilities retire, there is an urgent need to capture their knowledge. This publication covers the historical development and basic characteristics, utilization, fuel conversion and ageing management of TRIGA research reactors. The CD-ROM accompanying this publication includes 22 individual papers, describing operational TRIGA facilities worldwide, reporting on their status, key research results, issues and challenges they are facing as well as future plans.

(113 pp., 46 figs; 2016) • ISBN 978-92-0-102016-1 • STI/DOC/010/482 • €45.00



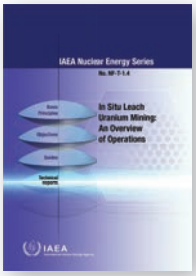
Strategic Planning for Research Reactors

IAEA Nuclear Energy Series No. NG-T-3.16

This publication is a revision of IAEA-TECDOC-1212 which primarily focused on enhancing the utilization of existing research reactors. This updated version also provides guidance on how to develop and implement a strategic plan for a new research reactor project and will be of particular interest for organizations which are preparing a feasibility study to establish such a new facility. This publication will enable managers to determine more accurately the actual and potential capabilities of an existing reactor, or the intended purpose and type of a new facility. At the same time, management will be able to match these capabilities to stakeholders/users' needs and establish the strategy of meeting such needs. In addition, several annexes are presented, including some examples as clarification to the main text and ready to use templates as assistance to the team drafting a strategic plan.

(Forthcoming) • ISBN 978-92-0-101317-0 • STI/PUB/1771 • €38.00

URANIUM GEOLOGY, EXPLORATION AND MINING



In Situ Leach Uranium Mining: An Overview of Operations

IAEA Nuclear Energy Series No. NF-T-1.4

In situ leach or leaching (ISL) or in situ recovery (ISR) mining has become one of the standard uranium production methods. Its application to amenable uranium deposits (in certain sedimentary formations) has been growing in view of its competitive production costs and low surface impacts. This publication provides an historical overview and shows how ISL experience around the world can be used to direct the development of technical activities, taking into account environmental considerations, and emphasizing the economics of the process, including responsible mine closure. The publication provides information on how to design, operate and regulate current and future projects safely and efficiently, with a view to maximizing performance and minimizing negative environmental impact.

(60 pp., 3 figs; 2016) • ISBN 978-92-0-102716-0 • STI/PUB/1741 • €30.00

Uranium Geology, Exploration, Resources, Production and Related Activities Volume 1: Africa

IAEA Nuclear Energy Series No. NF-T-1.6

This publication summarizes important information relating to uranium supply and demand and incorporates data from previous publications, as well as from the International Uranium Resources Evaluation Project (IUREP), and other publicly available information and government data which have been collected and reviewed by experts. It focuses on Africa and provides a comprehensive reference source for uranium geology, exploration, resources, production and related activities in 53 countries. It will be useful to decision makers at all levels, including but not limited to, government officers in energy and mineral resource fields, exploration companies, geologists, geological surveys, energy utilities, universities, research institutions and natural resource authorities.

(Forthcoming) • ISBN 978-92-0-102616-3 • STI/PUB/1740 • €70.00

Uranium Geology, Exploration, Resources, Production and Related Activities
Volume 2: Central, Eastern and Southeast Europe

IAEA Nuclear Energy Series No. NF-T-1.7

This publication is part of a series that summarizes important information relating to uranium supply and demand and incorporates data from previous publications, as well as from the International Uranium Resources Evaluation Project (IUREP), and other publicly available information and government data which have been collected and reviewed by experts. This volume focuses on Central, Eastern and Southeast Europe and provides a comprehensive reference source for uranium geology, exploration, resources, production and related activities in 25 countries. It will be useful to decision makers at all levels, including but not limited to, government officers in energy and mineral resource fields, exploration companies, geologists, geological surveys, energy utilities, universities, research institutions and natural resource authorities.

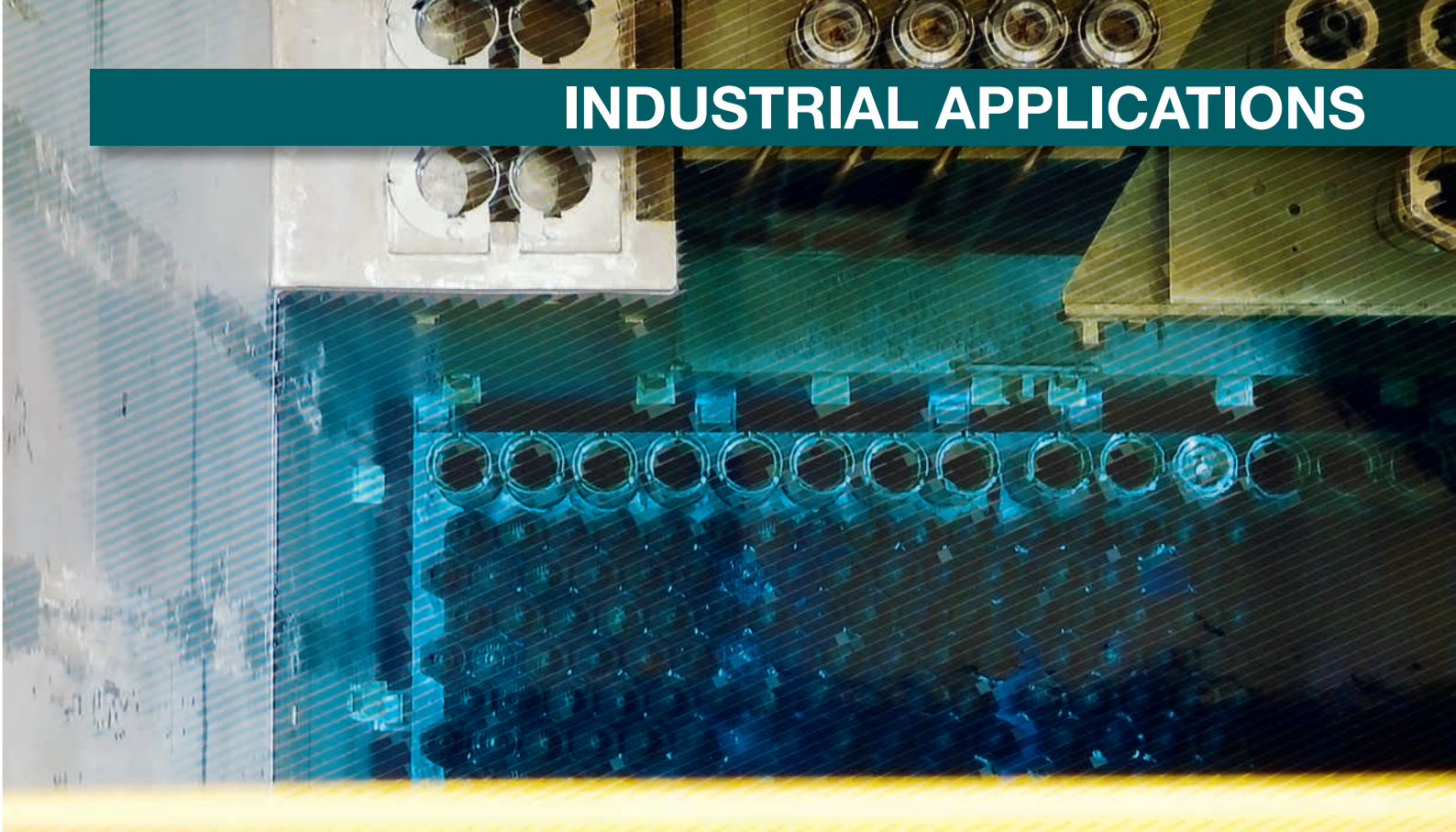
(Forthcoming) • ISBN 978-92-0-103217-1 • STI/PUB/1788 • €55.00

Uranium Geology, Exploration, Resources, Production and Related Activities
Volume 3: Southeast Asia, East Asia and the Pacific

IAEA Nuclear Energy Series No. NF-T-1.8

This publication is part of a series that summarizes important information relating to uranium supply and demand and incorporates data from previous publications, as well as from the International Uranium Resources Evaluation Project (IUREP), and other publicly available information and government data which have been collected and reviewed by experts. This volume focuses on Southeast Asia, the Pacific, and East Asia, and provides a comprehensive reference source for uranium geology, exploration, resources, production and related activities in 18 countries. It will be useful to decision makers at all levels, including but not limited to, government officers in energy and mineral resource fields, exploration companies, geologists, geological surveys, energy utilities, universities, research institutions and natural resource authorities.

(Forthcoming) • ISBN 978-92-0-102717-7 • STI/PUB/1783 • €47.00



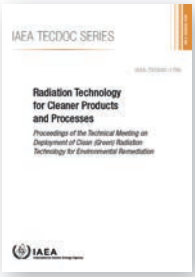
INDUSTRIAL APPLICATIONS

Industrial Applications of Nuclear Energy

IAEA Nuclear Energy Series No. NP-T-4.3

This publication provides a detailed overview of the potential use of nuclear energy for industrial systems and/or processes which have a strong demand for process heat/steam and power, and on the mapping of nuclear power reactors proposed for various industrial applications. It describes the technical concepts for combined nuclear–industrial complexes that are being pursued in various Member States, and presents the concepts that were developed in the past to be applied in connection with some major industries. It also provides an analysis of the energy demand in various industries and outlines the potential that nuclear energy may have in major industrial applications such as process steam for oil recovery and refineries, hydrogen generation, and steel and aluminium production. The audience for this publication includes academia, industry, and government agencies.

(Forthcoming) • ISBN 978-92-0-101417-7 • STI/PUB/1772 • €59.00



Radiation Technology for Cleaner Products and Processes

Proceedings of the Technical Meeting on Deployment of Clean (Green) Radiation Technology for Environmental Remediation

IAEA TECDOC Series No. 1786

The development of appropriate green technologies capable of reducing the use and release of pollutants is becoming increasingly important in order to meet improved environmental regulations. The application of radiation technologies has proven to offer many advantages in lessening the environmental impact of processes and in the green development of new products. Examples include industrial effluents and municipal waste treatment, materials modification and the sterilization of equipment. This publication presents the proceedings of a technical meeting on the deployment of clean radiation technology for environmental remediation. The meeting provided a forum for presenting recent developments and reviewing global, regional and national level initiatives. Papers provided detailed practical experience and lessons learned in the use of radiation technologies for the treatment of environmental pollutants and in the development of new materials and other products. Economic and regulatory issues were addressed. Consideration was also given to future developments and roadmaps for integrating radiation technology with conventional technologies on a larger scale.

(244 pp., 128 figs; 2016) • ISBN 978-92-0-101016-2 • IAEA-TECDOC-1786 • €18.00

NUCLEAR AND RADIOLOGICAL SAFETY AND SECURITY

A Methodology for Establishing a National Strategy for Education and Training in Radiation, Transport and Waste Safety

Safety Reports Series No. 93

This publication provides Member States with a detailed methodology to establish a national strategy for education and training in radiation, transport and waste safety, in order to build competence in a sustainable and timely manner. Guidance is provided on assessing education and training needs, giving consideration to the national legal and regulatory framework for education and training, and the current and future facilities and activities; designing the national education and training programme based on the needs; and optimizing national resources to complement external assistance. A practical example of the application of the methodology is generated for a hypothetical country, outlining the chronological sequence of the actions to be taken, their timeframe, including the role and contribution from the different national stakeholders. This methodology has been tested in the field during 20 regional workshops attended by about 300 participants from more than 80 Member States.

(Forthcoming) • ISBN 978-92-0-102217-2 • STI/PUB/1778 • €41.00

Building Capacity for Nuclear Security

Implementing Guide

IAEA Nuclear Security Series No. 31-G

Each State has the primary responsibility to build the capacity of organizations and people in order to develop, implement, and sustain a nuclear security regime. To discharge its responsibilities, the State has to strengthen its capacity at national, organizational and individual levels. Specifically, the State has to be able to enhance the competences and capabilities of relevant stakeholders in fulfilling their responsibilities within the nuclear security regime. Such endeavour involves various elements in capacity building, ranging from education and training to the development of knowledge network. This publication is intended to serve as a reference document for Member States to develop a national capacity building strategy for nuclear security. It addresses all organizations involved in nuclear security and reflects the multidisciplinary and cross-institutional nature of this task, as well as the long term efforts that are required.

(Forthcoming) • ISBN 978-92-0-111916-2 • STI/PUB/1764 • €40.00

Computer Security Incident Response Planning at Nuclear Facilities

The purpose of this publication is to assist Member States in developing comprehensive contingency plans for computer security incidents with the potential to impact nuclear security and/or nuclear safety. It provides an outline and recommendations for establishing a computer security incident response capability as part of a computer security programme, and considers the roles and responsibilities of the system owner, operator, competent authority, and national technical authority in responding to a computer security incident with possible nuclear security repercussions.

(62 pp., 4 figs; 2016) • ISBN 978-92-0-104416-7 • IAEA-TDL-005 • €18.00

Computer Security of Instrumentation and Control Systems at Nuclear Facilities

Technical Guidance

IAEA Nuclear Security Series No. 33-T

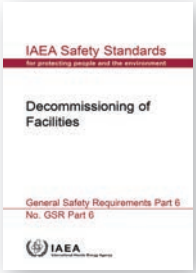
Computer Security as a discipline is challenged by increasing threat vectors targeting a dynamic technological environment. This publication establishes guidance addressing the challenge of applying computer security measures to instrumentation and control (I&C) systems at nuclear facilities. The measures are intended to protect these I&C systems throughout their entire lifecycles against malicious acts perpetrated by threat actors. The technical basis and methodologies for the application of these computer security measures are considered. The publication also addresses the application of such measures to the development, simulation and maintenance environments of these I&C systems. In addition, account is taken of developments in human factors engineering and nuclear safety. This Technical Guide references and takes into account other Safety Guides and IAEA Nuclear Security Series publications that provide guidance relating to I&C design.

(Forthcoming) • ISBN 978-92-0-103117-4 • STI/PUB/1787 • €42.00

Conducting Computer Security Assessments at Nuclear Facilities

Computer security is increasingly recognized as a key component in nuclear security. As technology advances, it is anticipated that computer and computing systems will be used to an even greater degree in all aspects of plant operations including safety and security systems. A rigorous and comprehensive assessment process can assist in strengthening the effectiveness of the computer security programme. This publication outlines a methodology for conducting computer security assessments at nuclear facilities. The methodology can likewise be easily adapted to provide assessments at facilities with other radioactive materials.

(64 pp., 4 figs; 2016) • ISBN 978-92-0-104616-1 • IAEA-TDL-006 • €18.00



Decommissioning of Facilities

General Safety Requirements

IAEA Safety Standards Series No. GSR Part 6

Decommissioning is the last step in the lifetime management of a facility. It must also be considered during the design, construction, commissioning and operation of facilities. This publication establishes requirements for the safe decommissioning of a broad range of facilities: nuclear power plants, research reactors, nuclear fuel cycle facilities, facilities for processing naturally occurring radioactive material, former military sites, and relevant medical, industrial and research facilities. It addresses all the aspects of decommissioning that are required to ensure safety, aspects such as roles and responsibilities, strategy and planning for decommissioning, conduct of decommissioning actions and termination of the authorization for decommissioning. It is intended for use by those involved in policy development, regulatory control and implementation of decommissioning.

Arabic Edition (25 pp., 2 figs; 2016) • ISBN 978-92-0-600216-2 • STI/PUB/1652 • €25.00
Chinese Edition (19 pp., 2 figs; 2015) • ISBN 978-92-0-510215-3 • STI/PUB/1652 • €25.00
English Edition (23 pp., 2 figs; 2014) • ISBN 978-92-0-102614-9 • STI/PUB/1652 • €25.00
Russian Edition (29 pp., 2 figs; 2015) • ISBN 978-92-0-404515-4 • STI/PUB/1652 • €25.00
Spanish Edition (Forthcoming) • ISBN 978-92-0-300417-6 • STI/PUB/1652 • €25.00

Developing Regulations and Associated Administrative Measures for Nuclear Security

Implementing Guide

IAEA Nuclear Security Series No. 29-G

This publication aims to assist States to identify the responsibilities of those involved in nuclear security so that suitable regulations, agreements and associated administrative measures may be developed for establishing and sustaining an effective nuclear security regime. The publication is structured to provide an overview of the most important aspects to be covered by a State's legislative and regulatory framework for governing nuclear security. States may therefore use this publication to undertake a gap analysis of their legislative and regulatory framework for nuclear security in order to take actions to update their framework as necessary.

(Forthcoming) • ISBN 978-92-0-111716-8 • STI/PUB/1762 • €39.00

Ensuring Robust National Nuclear Safety Systems — Institutional Strength in Depth

A Report by the International Nuclear Safety Group

INSAG Series No. 27

Defence in depth has become a fundamental aspect of the analysis of the adequacy of technical systems to assure nuclear power plant safety. It is a comprehensive approach to providing a systematic means to analyse and assure layers of systems to prevent or mitigate accidents. This publication is intended to provide an analogous philosophy to guide the thinking about the institutional structures necessary to assure nuclear safety. It refers to the three important institutional subsystems — the industry, regulator and stakeholders — and describes the interfaces that should be nurtured among these as well as within each subsystem. The publication is intended to serve as a fundamental tool in the continuing efforts to strengthen nuclear safety.

(Forthcoming) • ISBN 978-92-0-102317-9 • STI/PUB/1779 • €24.00

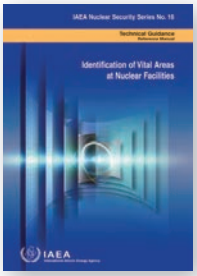
Establishing the Infrastructure for Radiation Safety

Specific Safety Guide

IAEA Safety Standards Series No. SSG-44

The objective of this Safety Guide is to provide guidance on the establishment of the national radiation safety infrastructure that meets the IAEA safety standards. It provides recommendations, in the form of actions, on meeting the relevant Safety Requirements in an effective and integrated manner while taking specific national circumstances into full consideration. This Safety Guide does not diminish the application of, or provide a synopsis of or a substitute for, the IAEA Safety Fundamentals and Safety Requirements publications or other associated Safety Guides. Rather it sets out a holistic approach to the establishment of the national radiation safety infrastructure and provides advice for the application of IAEA safety standards for both, States having essentially no elements of the radiation safety infrastructure in place, and those that already have some.

(Forthcoming) • ISBN 978-92-0-101517-4 • STI/PUB/1773 • €42.00



Identification of Vital Areas at Nuclear Facilities

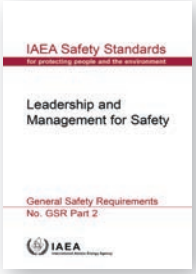
Technical Guidance

Reference Manual

IAEA Nuclear Security Series No. 16

This publication provides detailed guidance with regard to the identification of vital areas at nuclear facilities. It presents a structured approach to identifying those areas that contain equipment, systems and components to be protected against sabotage. The process for selection of a specific set of vital areas to be protected is based on consideration of the potential radiological consequences of sabotage, and on the design, operational and safety features of a nuclear facility. The method builds upon safety analysis to develop logic models for sabotage scenarios that could cause unacceptable radiological consequences. The sabotage actions represented in the logic models are linked to the areas from which they can be accomplished. The logic models are then analysed to determine areas that should be protected to prevent these unacceptable radiological consequences. The publication is part of a set of supporting publications in the IAEA Nuclear Security Series with the aim of assisting States in the design, implementation and evaluation of their physical protection systems for nuclear material and nuclear facilities.

English Edition (37 pp., 2 figs; 2013) • ISBN 978-92-0-114410-2 • STI/PUB/1505 • €22.00
French Edition (39 pp., 2 figs; 2016) • ISBN 978-92-0-210915-5 • STI/PUB/1505 • €22.00



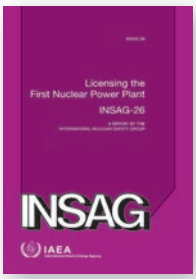
Leadership and Management for Safety

General Safety Requirements

IAEA Safety Standards Series No. GSR Part 2

This Safety Requirements publication establishes requirements that support Principle 3 of the Fundamental Safety Principles in relation to establishing, sustaining and continuously improving leadership and management for safety and an integrated management system. It emphasizes that leadership for safety, management for safety, an effective management system and a systemic approach (i.e. an approach in which interactions between technical, human and organizational factors are duly considered) are all essential to the specification and application of adequate safety measures and to the fostering of a strong safety culture. Leadership and an effective management system will integrate safety, health, environmental, security, quality, human and organizational factors, societal and economic elements. The management system will ensure the fostering of a strong safety culture, regular assessment of performance and the application of lessons from experience. The publication is intended for use by regulatory bodies, operating organizations and other organizations concerned with facilities and activities that give rise to radiation risks.

Arabic Edition (26 pp., 2 figs; 2016) • ISBN 978-92-0-612716-2 • STI/PUB/1750 • €30.00
Chinese Edition (23 pp., 2 figs; 2016) • ISBN 978-92-0-510316-7 • STI/PUB/1750 • €30.00
English Edition (26 pp., 2 figs; 2016) • ISBN 978-92-0-104516-4 • STI/PUB/1750 • €30.00
French Edition (28 pp., 2 figs; 2016) • ISBN 978-92-0-208216-8 • STI/PUB/1750 • €30.00
Russian Edition (Forthcoming) • ISBN 978-92-0-412516-0 • STI/PUB/1750 • €30.00



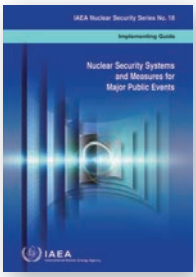
Licensing the First Nuclear Power Plant

A Report by the International Nuclear Safety Group

INSAG Series No. 26

A robust national nuclear safety infrastructure is essential for the deployment of a country's first nuclear power plant. A major challenge in this process is the development of an effective legal and governmental framework for safety, including an independent regulatory body. This publication supplements existing guidance in the IAEA safety standards on the development of an effective safety infrastructure and provides further assistance to new entrant regulatory bodies on the key challenges they will face throughout the life cycle of the first nuclear power plant. The publication focuses on the phases of a nuclear power deployment programme from the granting of a licence for construction to granting the licence for commissioning and operation.

English Edition (49 pp., 1 fig.; 2012) • ISBN 978-92-0-134210-2 • STI/PUB/1573 • €25.00
Russian Edition (66 pp., 1 fig.; 2016) • ISBN 978-92-0-405716-4 • STI/PUB/1573 • €25.00



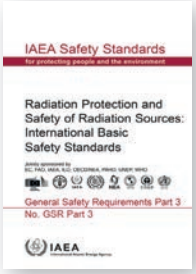
Nuclear Security Systems and Measures for Major Public Events

Implementing Guide

IAEA Nuclear Security Series No. 18

This publication provides an overview, based on practical experience and lessons learned, for establishing nuclear security systems and measures for major public events. It covers technical and administrative nuclear security measures for developing the necessary organizational structure, developing plans, strategies and concepts of operations, and making arrangements for implementing the developed plans, strategies and concepts.

Arabic Edition (60 pp., 14 figs; 2016) • ISBN 978-92-0-610716-4 • STI/PUB/1546 • €30.00
English Edition (56 pp., 14 figs; 2012) • ISBN 978-92-0-127010-8 • STI/PUB/1546 • €30.00
French Edition (62 pp.; 13 figs.; 2017) • ISBN 978-92-0-208416-2 • STI/PUB/1546 • €30.00;
Russian Edition (67 pp., 14 figs; 2014) • ISBN 978-92-0-401414-3 • STI/PUB/1546 • €30.00



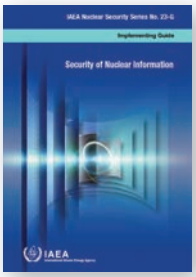
Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards

General Safety Requirements

IAEA Safety Standards Series No. GSR Part 3

This publication is the new edition of the International Basic Safety Standards. The edition is co-sponsored by seven other international organizations — European Commission (EC/Euratom), FAO, ILO, OECD/NEA, PAHO, UNEP and WHO. It replaces the interim edition that was published in November 2011 and the previous edition of the International Basic Safety Standards which was published in 1996. It has been extensively revised and updated to take account of the latest finding of the United Nations Scientific Committee on the Effects of Atomic Radiation, and the latest recommendations of the International Commission on Radiological Protection. The publication details the requirements for the protection of people and the environment from harmful effects of ionizing radiation and for the safety of radiation sources. All circumstances of radiation exposure are considered.

Arabic Edition (443 pp., 2 figs; 2015) • ISBN 978-92-0-605815-2 • STI/PUB/1578 • €68.00
Chinese Edition (421 pp., 2 figs; 2015) • ISBN 978-92-0-505615-9 • STI/PUB/1578 • €68.00
English Edition (436 pp., 2 figs; 2014) • ISBN 978-92-0-135310-8 • STI/PUB/1578 • €68.00
French Edition (457 pp., 2 figs; 2016) • ISBN 978-92-0-200316-3 • STI/PUB/1578 • €68.00
Russian Edition (477 pp., 2 figs; 2015) • ISBN 978-92-0-409915-7 • STI/PUB/1578 • €68.00
Spanish Edition (451 pp., 2 figs; 2016) • ISBN 978-92-0-307915-0 • STI/PUB/1578 • €68.00



Security of Nuclear Information

Implementing Guide

IAEA Nuclear Security Series No. 23-G

This publication provides guidance on implementing the principle of confidentiality and on the broader aspects of information security (i.e. integrity and availability). It assists States in bridging the gap between existing government and industry standards on information security, the particular concepts and considerations that apply to nuclear security and the special provisions and conditions that exist when dealing with nuclear material and other radioactive material. Specifically it seeks to assist States in the identification, classification, and assignment of appropriate security controls to information that could adversely impact nuclear security if compromised.

Arabic Edition (58 pp.; 2016) • ISBN 978-92-0-612316-4 • STI/PUB/1677 • €30.00
English Edition (54 pp.; 2015) • ISBN 978-92-0-110614-8 • STI/PUB/1677 • €30.00

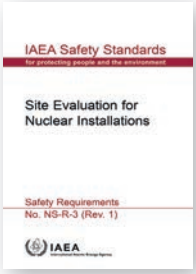
Self-assessment of Nuclear Security Culture in Facilities and Activities

Technical Guidance

IAEA Nuclear Security Series No. 28-T

The IAEA has developed a comprehensive methodology for evaluating nuclear security culture. When implemented by a State, this methodology will help to make nuclear security culture sustainable. It will also promote cooperation and the sharing of good practices related to nuclear security culture. This publication is the first guidance for assessing nuclear security culture and analysing its strengths and weaknesses within a facility or activity, or an organization. It reflects, within the context of assessment, the nuclear security culture model, principles and criteria set out in the Implementing Guide, IAEA Nuclear Security Series No. 7. This guidance will be useful for organizations and operating facilities in conducting the self-assessment of nuclear security culture by providing practical methods and tools. It will also help regulatory bodies and other competent authorities to understand the self-assessment methodology used by operators, encourage operators to start the self-assessment process or, if appropriate, conduct independent assessments of nuclear security culture.

(Forthcoming) • ISBN 978-92-0-111616-1 • STI/PUB/1761 • €55.00



Site Evaluation for Nuclear Installations

Safety Requirements

IAEA Safety Standards Series No. NS-R-3 (Rev. 1)

This publication establishes requirements and provides criteria for ensuring safety in site evaluation for nuclear installations. The Safety Guides on-site evaluation listed in the references section provide recommendations on how to meet the requirements established in this publication. A review of Safety Requirements publications was commenced in 2011 following the accident in the Fukushima Daiichi nuclear power plant in Japan. The review revealed no significant areas of weakness and resulted in just a small set of amendments to strengthen the requirements and facilitate their implementation, which are contained in the present publication.

Arabic Edition (29 pp., 2 figs; 2016) • ISBN 978-92-0-610016-5 • STI/PUB/1709 • €35.00
Chinese Edition (25 pp., 2 figs; 2016) • ISBN 978-92-0-509416-8 • STI/PUB/1709 • €35.00
English Edition (27 pp., 2 figs; 2016) • ISBN 978-92-0-106515-5 • STI/PUB/1709 • €35.00
French Edition (29 pp., 2 figs; 2016) • ISBN 978-92-0-208116-1 • STI/PUB/1709 • €35.00
Russian Edition (33 pp., 2 figs; 2016) • ISBN 978-92-0-409216-5 • STI/PUB/1709 • €35.00
Spanish Edition (Forthcoming) • ISBN 978-92-0-310216-2 • STI/PUB/1709 • €35.00

Status of Radon Related Activities in Member States Participating in Technical Cooperation Projects in Europe

IAEA TECDOC Series No. 1810

This publication summarizes the status of radon programmes at the start of 2014 in the Member States in Europe participating in the IAEA technical cooperation project on establishing enhanced approaches to the control of public exposure to radon. The current status was determined from responses to a questionnaire covering the following elements of a national radon action plan: policies and strategies; radon measurement surveys; establishment of reference levels; managing radon in existing buildings and in future buildings; education and training of professionals; and public awareness initiatives.

(196 pp.; 2 figs; 2017) • ISBN 978-92-0-100617-2 • IAEA-TECDOC-1810 • €18.00

Sustaining a Nuclear Security Regime

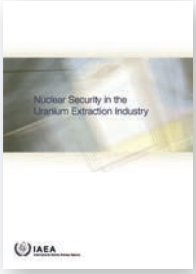
Implementing Guide

IAEA Nuclear Security Series No. 30-G

This publication addresses the sustainability of all aspects of a national nuclear security regime, including those relating to nuclear material and nuclear facilities, other radioactive material and associated facilities, and nuclear and other radioactive material out of regulatory control. The publication is relevant for States that have established a nuclear security regime as well as for States that are in the process of establishing one. It includes guidance on how to address challenges in sustaining a nuclear security regime over time. It also addresses the initial development and implementation of the regime, particularly where sustainability can be built into it as part of its design.

(Forthcoming) • ISBN 978-92-0-111816-5 • STI/PUB/1763 • €25.00

URANIUM MINING AND MILLING



Nuclear Security in the Uranium Extraction Industry

This publication provides States and operators with advice on defining, implementing, maintaining or enhancing their nuclear security regime for the protection of uranium ore concentrate against unauthorized removal. It defines prudent management practice as required by IAEA Nuclear Security Series No. 13, Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Revision 5), for this category of material. This advice can be adopted in the form of regulations or applied as voluntary standards. States, regulatory bodies, and industry may choose to tailor their implementation of this advice to meet their national circumstances.

(68 pp.; 2016) • ISBN 978-92-0-110815-9 • IAEA-TDL-003 • €18.00

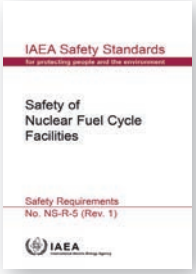
FUEL FABRICATION AND STORAGE

International Safeguards in the Design of Fuel Fabrication Plants

IAEA Nuclear Energy Series No. NF-T-4.7

This publication is the third in a series from the IAEA that provides guidance on the early consideration of safeguards requirements in the design and construction of nuclear facilities. It is principally intended for designers and operators of nuclear fuel fabrication facilities; however, vendors, state authorities and investors may also benefit from the information provided. This guidance is introductory rather than comprehensive; more detailed information on IAEA safeguards implementation can be found in the Guidance for States Implementing Comprehensive Safeguards Agreements and Additional Protocols (IAEA Services Series No. 21, May 2016) and other publications in that series. This publication expands upon the general considerations addressed in International Safeguards in Nuclear Facility Design and Construction (IAEA Nuclear Energy Series No. NP-T-2.8, April 2013).

(Forthcoming) • ISBN 978-92-0-103315-4 • STI/PUB/1699 • €30.00



Safety of Nuclear Fuel Cycle Facilities

Safety Requirements

IAEA Safety Standards Series No. NS-R-5 (Rev. 1)

This publication covers the broad scope of requirements for fuel cycle facilities that, in light of the experience and present state of technology, must be satisfied to ensure safety for the lifetime of the facility. Topics of specific relevance include aspects of nuclear fuel generation, storage, reprocessing and disposal.

Arabic Edition (107 pp., 4 figs; 2015) • ISBN 978-92-0-606015-5 • STI/PUB/1641 • €20.00
Chinese Edition (97 pp., 4 figs; 2015) • ISBN 978-92-0-500515-7 • STI/PUB/1641 • €20.00
English Edition (102 pp., 4 figs; 2014) • ISBN 978-92-0-100114-6 • STI/PUB/1641 • €20.00
French Edition (115 pp., 4 figs; 2016) • ISBN 978-92-0-207716-4 • STI/PUB/1641 • €20.00
Russian Edition (121 pp., 4 figs; 2016) • ISBN 978-92-0-410015-0 • STI/PUB/1641 • €20.00

Safety of Nuclear Fuel Cycle Research and Development Facilities

Specific Safety Guide

IAEA Safety Standards Series No. SSG-43

This publication provides guidance on meeting the requirements of IAEA Safety Standards Series No. NS-R-5 (Rev.1) relating to research and development facilities in the nuclear fuel cycle. It covers the lifetime of these facilities from site selection through to decommissioning, concentrating on design and operation. It applies to laboratories, pilot workshops and experimental facilities that store, handle and process uranium, plutonium and other transuranics, fission products and activated materials in significant quantities. Such facilities may be involved in the study of chemical, metallurgical or radiological properties of specific radioactive materials such as prototype nuclear fuels (before and after reactor irradiation) or nuclear material or radioactive waste arising from experimental processes. This Safety Guide also applies to research and development for processes and equipment that are envisaged for later use on an industrial scale for the nuclear fuel cycle (e.g. pilot workshops for active waste conditioning).

(Forthcoming) • ISBN 978-92-0-103116-7 • STI/PUB/1745 • €44.00

Safety of Nuclear Fuel Reprocessing Facilities

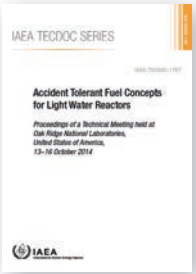
Specific Safety Guide

IAEA Safety Standards Series No. SSG-42

This publication provides guidance on meeting the requirements of IAEA Safety Standards Series No. NS-R-5 (Rev.1) relating to nuclear fuel reprocessing facilities. It covers the lifetime of these facilities, from site selection through to decommissioning, concentrating on the design and operational phases. It applies to facilities that reprocess spent fuel and other material from nuclear power plants that use metallic and oxide fuels, including materials from mixed oxide fuel (MOX) and breeder reactors. It covers the safety issues relating to: the handling of spent fuel; mechanical treatment and the dissolution of spent fuel in acid; the separation of uranium and plutonium from fission products using solvents; the separation and purification of plutonium and uranium; and the production and storage of solutions and oxides to be used as feed material to form fresh uranium or mixed (UO2/PuO2) oxide fuel.

(Forthcoming) • ISBN 978-92-0-103016-0 • STI/PUB/1744 • €51.00

NUCLEAR POWER PLANTS



Accident Tolerant Fuel Concepts for Light Water Reactors

Proceedings of a Technical Meeting Held at Oak Ridge National Laboratories, United States of America, 13–16 October 2014

IAEA TECDOC Series No. 1797

This publication provides a record of a Technical Meeting on Accident Tolerant Fuel Concepts for Light Water Reactors, held at Oak Ridge National Laboratories in 2014, to consider the early stages of research and development into accident tolerant fuel. Following the Fukushima Daiichi accident, a review of fuel behaviour has been initiated. Zirconium alloy clad fuel operates successfully to high burnup and is the result of 40 years of continuous development and improvement. However, under severe accident conditions, the high temperature zirconium–steam interaction can be a major source of damage to the power plant. This publication considers different ways to ameliorate this problem without sacrificing the good behaviour of fuel in normal operation. Options range from making the cladding more resistant to the high temperature steam oxidation through to completely new fuel designs with ceramic cladding and different fuel materials.

(372 pp., 240 figs; 2016) • ISBN 978-92-0-105216-2 • IAEA-TECDOC-1797 • €18.00

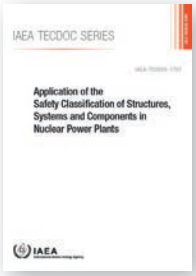
Application of the Management System for Facilities and Activities

Safety Guide

IAEA Safety Standards Series No. GS-G-3.1

This publication provides guidance for following the requirements for management systems that integrate safety, health, security, quality assurance and environmental objectives. A successful management system ensures that nuclear safety matters are not dealt with in isolation but are considered within the context of all these objectives. The aim of this publication is to assist Member States to establish and implement effective management systems that coherently integrate all aspects of managing nuclear facilities and activities.

English Edition (123 pp., 1 fig.; 2006) • ISBN 92-0-106606-6 • STI/PUB/1253 • €31.00
Russian Edition (116 pp., 1 fig.; 2009) • ISBN 978-92-0-401309-2 • STI/PUB/1253 • €31.00
Spanish Edition (109 pp., 1 fig.; 2016) • ISBN 978-92-0-307516-9 • STI/PUB/1253 • €31.00



Application of the Safety Classification of Structures, Systems and Components in Nuclear Power Plants

IAEA TECDOC Series No. 1787

This publication describes how to complete tasks associated with every step of the classification methodology set out in IAEA Safety Standards Series No. SSG-30, Safety Classification of Structures, Systems and Components in Nuclear Power Plants. In particular, how to capture all the structures, systems and components (SSCs) of a nuclear power plant to be safety classified. Emphasis is placed on the SSCs that are necessary to limit radiological releases to the public and occupational doses to workers in operational conditions. This publication provides information for organizations establishing a comprehensive safety classification of SSCs compliant with IAEA recommendations, and to support regulators in reviewing safety classifications submitted by licensees.

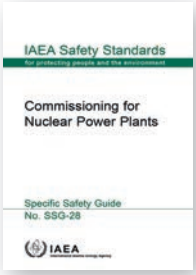
(72 pp., 4 figs; 2016) • ISBN 978-92-0-101116-9 • IAEA-TECDOC-1787 • €18.00

Attributes of Full Scope Level 1 Probabilistic Safety Assessment (PSA) for Applications in Nuclear Power Plants

IAEA TECDOC Series No. 1804

This publication aims to further promote the use and application of PSA in Member States by providing a comprehensive list of PSA applications and describing what technical features (termed 'attributes') need to be satisfied to reliably support them. Consideration has also been given to the basic set of attributes characterizing a 'base case PSA' that is performed to assess overall plant safety. The present publication can support PSA practitioners in appropriate planning of a PSA project taking into account possible uses of the PSA in the future. It can also be used by reviewers as an aid in assessing the quality of PSAs and judging the adequacy of a PSA for particular applications.

(331 pp., 2 figs; 2016) • ISBN 978-92-0-107316-7 • IAEA-TECDOC-1804 • €18.00



Commissioning for Nuclear Power Plants

Specific Safety Guide

IAEA Safety Standards Series No. SSG-28

This Safety Guide provides recommendations on the basis of international best practices, as currently followed in IAEA Member States, on how to meet commissioning requirements for nuclear power plants. These requirements enable the commissioning of a nuclear power plant to proceed safely and to a high quality. The recommendations will also enable the necessary assurances to be provided that the plant has been constructed in accordance with the design intent and can be operated safely.

English Edition (84 pp., 2 figs; 2014) • ISBN 978-92-0-140110-6 • STI/PUB/1595 • €40.00
Russian Edition (104 pp., 2 figs; 2016) • ISBN 978-92-0-406016-4 • STI/PUB/1595 • €40.00

Consideration of External Hazards in Probabilistic Safety Assessment for Single Unit and Multi-unit Nuclear Power Plants

Safety Reports Series No. 92

This publication outlines the generic methodology for probabilistic safety assessment (PSA) of nuclear power plants (NPP) against external hazards. It integrates design, procedural, operational, human factors and both protection and mitigation aspects that are essential to model a NPP response to an external hazard and to assess the associated risk. It specifically addresses the identification and screening of external hazards considering the multi-unit impact.

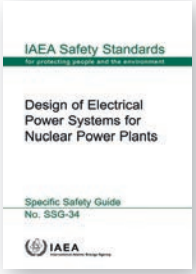
(Forthcoming) • ISBN 978-92-0-101917-2 • STI/PUB/1777 • €40.00

Considerations on the Application of the IAEA Safety Requirements for the Design of Nuclear Power Plants

IAEA TECDOC Series No. 1791

This publication facilitates the understanding and practical application of the IAEA Safety Requirements for the Design of Nuclear Power Plants, SSR 2/1 (Rev. 1), which has been revised after the Fukushima Daiichi accident to strengthen the safety of the plant designs. It addresses in particular some novel requirements and concepts in SSR-2/1 (Rev. 1), that due to the complexity of the topics could lead to different interpretations. The publication is intended to clarify them in order to contribute to the harmonization of approaches and to coalesce or minimize diverging views.

(84 pp., 4 figs; 2016) • ISBN 978-92-0-104116-6 • IAEA-TECDOC-1791 • €18.00



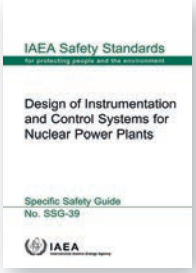
Design of Electrical Power Systems for Nuclear Power Plants

Specific Safety Guide

IAEA Safety Standards Series No. SSG-34

This Safety Guide provides recommendations on the necessary characteristics of electrical power systems for nuclear power plants, and of the processes for developing these systems, in order to meet the safety requirements of IAEA Safety Standards Series No. SSR-2/1 (Rev. 1). It reflects the changes that have been made to SSR-2/1, in particular to Requirement 68 on emergency power supply.

(120 pp., 9 figs; 2016) • ISBN 978-92-0-109314-1 • STI/PUB/1673 • €47.00



Design of Instrumentation and Control Systems for Nuclear Power Plants

Specific Safety Guide

IAEA Safety Standards Series No. SSG-39

This publication is a revision and combination of two Safety Guides, IAEA Safety Standards Series No. NS-G-1.1 and No. NS-G-1.3. The revision takes into account developments in instrumentation and control (I&C) systems since the publication of the earlier Safety Guides. The main changes relate to the continuing development of computer applications and the evolution of the methods necessary for their safe, secure and practical use. In addition, account is taken of developments in human factors engineering and the need for computer security. This Safety Guide also references and takes into account other IAEA safety standards and IAEA Nuclear Security Series publications that provide guidance relating to I&C design.

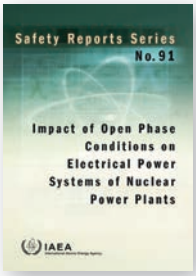
(161 pp., 5 figs; 2016) • ISBN 978-92-0-102815-0 • STI/PUB/1694 • €54.00

Design Safety Considerations for Water Cooled Small Modular Reactors Incorporating Lessons Learned from the Fukushima Daiichi Accident

IAEA TECDOC Series No. 1785

This publication presents technology developers and users with common considerations, approaches and measures for enhancing the defence in depth and operability of water cooled small modular reactor (SMR) design concepts to cope with extreme natural hazards. Indicative requirements to prevent an accident such as the Fukushima Daiichi accident from recurring are also provided for States planning to adopt water cooled SMR designs and technologies. This publication was produced within the framework of the IAEA Action Plan on Nuclear Safety, specifically under item 12 on effectively utilizing research and development.

(152 pp., 58 figs; 2016) • ISBN 978-92-0-100716-2 • IAEA-TECDOC-1785 • €18.00



Impact of Open Phase Conditions on Electrical Power Systems of Nuclear Power Plants

Safety Reports Series No. 91

This publication covers relevant aspects of open phase conditions (OPC) initiated in the transmission systems or on-site plant electrical systems. It provides details on the methods that can be used to identify vulnerability to OPC in the existing electrical protective schemes. The technical guidance provided will help to enhance the safety of nuclear power plants and to address vulnerability to OPC in the plant electrical systems. The publication will serve as a useful guidance, with a focus on electrical power systems, for all personnel involved in the design, manufacture, qualification, operation, maintenance, management and licensing of nuclear facilities.

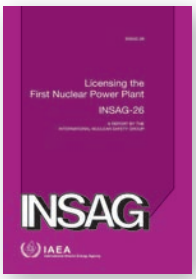
(92 pp., 32 figs; 2016) • ISBN 978-92-0-108516-0 • STI/PUB/1755 • €42.00

Industrial Safety Guidelines for Nuclear Facilities

IAEA Nuclear Energy Series No. NP-T-3.3

These IAEA guidelines on industrial safety for nuclear facilities are co-sponsored by the International Labour Organization. Specific review of industrial safety practices at nuclear plants have been part of the IAEA OSART (Operational Safety Review Team) missions for decades, and supplementary guidance for such reviews has been available since 1990. This publication presents the latest good practices that nuclear organizations have put into place to implement high quality industrial safety programmes.

(Forthcoming) • ISBN 978-92-0-101617-1 • STI/PUB/1774 • €60.00



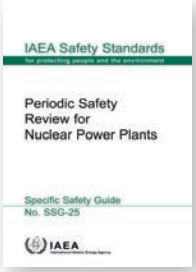
Licensing the First Nuclear Power Plant

A Report by the International Nuclear Safety Group

INSAG Series No. 26

A robust national nuclear safety infrastructure is essential for the deployment of a country's first nuclear power plant. A major challenge in this process is the development of an effective legal and governmental framework for safety, including an independent regulatory body. This publication supplements existing guidance in the IAEA safety standards on the development of an effective safety infrastructure and provides further assistance to new entrant regulatory bodies on the key challenges they will face throughout the life cycle of the first nuclear power plant. The publication focuses on the phases of a nuclear power deployment programme from the granting of a licence for construction to granting the licence for commissioning and operation.

English Edition (49 pp., 1 fig.; 2012) • ISBN 978-92-0-134210-2 • STI/PUB/1573 • €25.00
Russian Edition (66 pp., 1 fig.; 2016) • ISBN 978-92-0-405716-4 • STI/PUB/1573 • €25.00



Periodic Safety Review for Nuclear Power Plants

Specific Safety Guide

IAEA Safety Standards Series No. SSG-25

This Safety Guide provides recommendations and guidance on conducting periodic safety review (PSR) of an existing nuclear power plant. PSR is a comprehensive safety review of all important aspects of safety, carried out at regular intervals, typically every ten years. In addition, PSR may be used in support of the decision making process for licence renewal or long term operation, or for restart of a nuclear power plant following a prolonged shutdown. The review process described in this Safety Guide is valid for nuclear power plants of any age and may have a wider applicability, for example to research reactors and radioactive waste management facilities, by means of a graded approach. Although PSR may not be an appropriate means for identifying safety issues in the decommissioning phase, the documentation resulting from PSR of an operating nuclear power plant will be an important input when planning decommissioning.

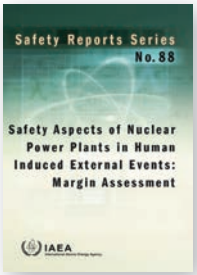
English Edition (106 pp., 5 figs; 2013) • ISBN 978-92-0-137410-3 • STI/PUB/1588 • €37.00
Russian Edition (126 pp., 5 figs; 2016) • ISBN 978-92-0-405416-3 • STI/PUB/1588 • €37.00

Safety Aspects of Nuclear Power Plants in Human Induced External Events: Assessment of Structures

Safety Reports Series No. 87

This publication provides detailed guidelines for the safety assessment of nuclear power structures against mechanical impact, explosion and fire caused by human induced external events. It covers the characterization of loading, the assessment of structural integrity using both simplified methods and more elaborated methodologies, and the assessment of induced vibration. The acceptance criteria provided in the publication are for different failure modes: overall stability, overall bending and shear, local failure modes and induced vibrations. The process of analysing fire consequences is also included.

(Forthcoming) • ISBN 978-92-0-101117-6 • STI/PUB/1769 • €65.00

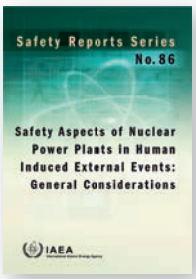


Safety Aspects of Nuclear Power Plants in Human Induced External Events: Margin Assessment

Safety Reports Series No. 88

This publication describes the procedures for calculating the margins of nuclear power plants in relation to human induced external hazards. It focuses on plant and systems performance evaluations. A two level approach for margin assessment is provided. The first level consists of a deterministic procedure in which, for each scenario, the existence of at least one undamaged success path to comply with the fundamental safety function is investigated. This procedure can be subsequently extended to calculate probability measures such as conditional core damage probability and the conditional probability of spent fuel damage. In the most elaborated stage, probabilistic safety assessment (PSA) techniques are introduced, giving consideration to the probabilistic aspects of the hazards and of the capacity of structures, systems and components (fragility). Event tree and fault tree models are used to compute PSA metrics, such as core damage frequency, large-early release frequency and frequency of spent fuel damage.

(102 pp., 13 figs; 2017) • ISBN 978-92-0-111415-0 • STI/PUB/1723 • €42.00



Safety Aspects of Nuclear Power Plants in Human Induced External Events: General Considerations

Safety Reports Series No. 86

This publication gives the general roadmap on how to perform the design and evaluation of the protection of nuclear power plants against human induced external hazards, consistent with IAEA safety standards. The publication concentrates on an overall view of the methodology and on the important considerations for its application to existing and new nuclear power plants. Topics covered include elements of the design/evaluation approach, developed in five phases: event identification; load characterization; design and assessment approaches; plant performance assessment and acceptance criteria; and operator response. The publication provides an approach to the assessment of extreme human induced external events which is fully consistent with the methods used for evaluation of nuclear facilities subjected to extreme natural events, such as earthquakes and floods.

(88 pp., 3 figs; 2017) • ISBN 978-92-0-111015-2 • STI/PUB/1721 • €41.00

Safety of Nuclear Power Plants: Commissioning and Operation

Specific Safety Requirements

IAEA Safety Standards Series No. SSR-2/2 (Rev. 1)

This publication is a revision of IAEA Safety Standards Series No. NS-R-2, Safety of Nuclear Power Plants: Operation, and has been extended to cover the commissioning stage. It describes the requirements to be met to ensure the safe commissioning, operation, and transition from operation to decommissioning of nuclear power plants. Over recent years there have been developments in areas such as long term operation of nuclear power plants, plant ageing, periodic safety review, probabilistic safety analysis review and risk informed decision making processes. It became necessary to revise the IAEA's Safety Requirements in these areas and to correct and/or improve the publication on the basis of feedback from its application by both the IAEA and its Member States. In addition, the requirements are governed by, and must apply, the safety objective and safety principles that are established in the IAEA Safety Standards Series No. SF-1, Fundamental Safety Principles. A review of Safety Requirements publications, initiated in 2011 following the accident in the Fukushima Daiichi nuclear power plant in Japan, revealed no significant areas of weakness but resulted in a small set of amendments to strengthen the requirements and facilitate their implementation. These are contained in the present publication.

Arabic Edition (48 pp., 2 figs; 2017) • ISBN 978-92-0-612416-1 • STI/PUB/1716 • €48.00
Chinese Edition (43 pp., 2 figs; 2016) • ISBN 978-92-0-509116-7 • STI/PUB/1716 • €48.00
English Edition (47 pp., 2 figs; 2016) • ISBN 978-92-0-109415-5 • STI/PUB/1716 • €48.00
French Edition (49 pp., 2 figs; 2016) • ISBN 978-92-0-208316-5 • STI/PUB/1716 • €48.00
Russian Edition (Forthcoming) • ISBN 978-92-0-408716-1 • STI/PUB/1716 • €48.00
Spanish Edition (Forthcoming) • ISBN 978-92-0-300117-5 • STI/PUB/1716 • €48.00

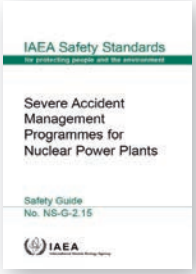
Safety of Nuclear Power Plants: Design

Specific Safety Requirements

IAEA Safety Standards Series No. SSR-2/1 (Rev. 1)

This publication establishes requirements applicable to the design of nuclear power plants and elaborates on the safety objective, safety principles and concepts that provide the basis for deriving the safety requirements that must be met for the design of a nuclear power plant. It will be useful for organizations involved in design, manufacture, construction, modification, maintenance, operation and decommissioning of nuclear power plants, as well as for regulatory bodies. A review of Safety Requirements publications was commenced in 2011 following the accident in the Fukushima Daiichi nuclear power plant in Japan. The review revealed no significant areas of weakness and resulted in just a small set of amendments to strengthen the requirements and facilitate their implementation, which are contained in the present publication.

Arabic Edition (68 pp., 2 figs; 2016) • ISBN 978-92-0-600217-9 • STI/PUB/1715 • €50.00
Chinese Edition (62 pp., 2 figs; 2016) • ISBN 978-92-0-509316-1 • STI/PUB/1715 • €50.00
English Edition (71 pp., 2 figs; 2016) • ISBN 978-92-0-109315-8 • STI/PUB/1715 • €50.00
French Edition (Forthcoming) • ISBN 978-92-0-208616-6 • STI/PUB/1715 • €50.00
Russian Edition (83 pp., 2 figs; 2016) • ISBN 978-92-0-409016-1 • STI/PUB/1715 • €50.00
Spanish Edition (83 pp., 2 figs; 2016) • ISBN 978-92-0-312916-9 • STI/PUB/1715 • €50.00



Severe Accident Management Programmes for Nuclear Power Plants

Safety Guide

IAEA Safety Standards Series No. NS-G-2.15

This Safety Guide provides recommendations for the development of accident management programmes to prevent, and to mitigate the consequences of beyond design basis accidents, including severe accidents. Although primarily developed for use for light water reactors, the recommendations are valid for a wide range of nuclear reactors, both existing and new.

English Edition (66 pp., 1 fig.; 2009) • ISBN 978-92-0-112908-6 • STI/PUB/1376 • €25.00
Russian Edition (78 pp., 1 fig.; 2014) • ISBN 978-92-0-401614-7 • STI/PUB/1376 • €25.00
Spanish Edition (72 pp., 1 fig.; 2016) • ISBN 978-92-0-310115-8 • STI/PUB/1376 • €25.00

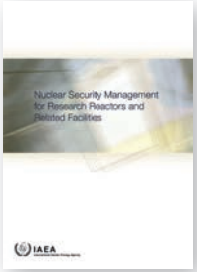
RESEARCH REACTORS

Management of the Interface between Nuclear Safety and Security for Research Reactors

IAEA TECDOC Series No. 1801

The aim of this publication is to provide technical guidelines and practical information to assist Member States, operating organizations and regulatory bodies, on the basis of international good practices, and to manage the interface between nuclear safety and security at research reactor facilities in an integrated and coordinated manner. The publication was developed based on input from IAEA technical and consultants meetings held between 2013 and 2015.

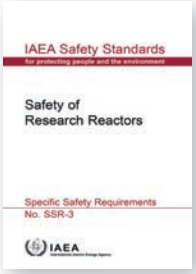
(53 pp.; 2016) • ISBN 978-92-0-106316-8 • IAEA-TECDOC-1801 • €18.00



Nuclear Security Management for Research Reactors and Related Facilities

This publication provides a single source guidance to assist those responsible for the implementation of nuclear security measures at research reactors and associated facilities in developing and maintaining an effective and comprehensive programme covering all aspects of nuclear security on the site. It is based on national experience and practices as well as on publications in the field of nuclear management and security. The scope includes security operations, security processes, and security forces and their relationship with the State's nuclear security regime. The guidance is provided for consideration by States, competent authorities and operators.

(84 pp., 2 figs; 2016) • ISBN 978-92-0-111315-3 • IAEA-TDL-004 • €18.00



Safety of Research Reactors

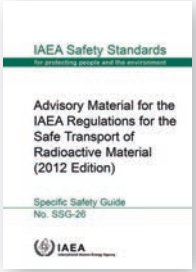
Specific Safety Requirements

IAEA Safety Standards Series No. SSR-3

This Safety Requirements publication establishes requirements for all main areas of safety for research reactors, with particular emphasis on requirements for design and operation. It explains the safety objectives and concepts that form the basis for safety and safety assessment for all stages in the lifetime of a research reactor. Technical and administrative requirements for the safety of new research reactors are established in accordance with these objectives and concepts, and they are to be applied to the extent practicable for existing research reactors. The safety requirements established in this publication for the management of safety and regulatory supervision apply to site evaluation, design, manufacturing, construction, commissioning, operation (including utilization and modification), and planning for decommissioning of research reactors (including critical assemblies and subcritical assemblies). The publication is intended for use by regulatory bodies and other organizations with responsibilities in these areas and in safety analysis, verification and review, and the provision of technical support.

(125 pp., 2 figs; 2016) • ISBN 978-92-0-104816-5 • STI/PUB/1751 • €58.00

TRANSPORT OF RADIOACTIVE MATERIAL



Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (2012 Edition)

Specific Safety Guide

IAEA Safety Standards Series No. SSG-26

This Safety Guide provides recommendations and guidance on achieving and demonstrating compliance with IAEA Safety Standards Series No. SSR-6, Regulations for the Safe Transport of Radioactive Material (2012 Edition), which establishes the requirements to be applied to the national and international transport of radioactive material. Transport is deemed to comprise all operations and conditions associated with and involved in the movement of radioactive material, including the design, fabrication and maintenance of packaging, and the preparation, consigning, handling, carriage, storage in transit and receipt at the final destination of packages. This publication supersedes IAEA Safety Standards Series No. TS-G-1.1 Rev. 1, which was issued in 2008.

English Edition (450 pp., 17 figs; 2014) • ISBN 978-92-0-136910-9 • STI/PUB/1586 • €70.00
Spanish Edition (506 pp., 17 figs; 2016) • ISBN 978-92-0-300116-8 • STI/PUB/1586 • €70.00

Proceedings of the International Conference on the Safe and Secure Transport of Radioactive Material: The Next Fifty Years

IAEA TECDOC Series No. 1792

This publication presents the proceedings of an international conference on safe and secure transport of radioactive material, held in Vienna, 2011. The conference provided an ideal opportunity to discuss and review, in an international context, issues related to the safe and secure transport of nuclear and radioactive materials, allowing best practices to be identified and shared. The conference participants were charged with developing recommendations to create a safe, secure and sustainable framework for the transport of radioactive material for the next 50 years.

CD Edition (2016) • ISBN 978-92-0-154216-8 • IAEA-TECDOC-CD-1792 • €18.00

WASTE REPOSITORIES

Environmental Change in Post-closure Safety Assessment of Solid Radioactive Waste Repositories

Report of Working Group 3 Reference Models for Waste Disposal of EMRAS II Topical Heading Reference Approaches for Human Dose Assessment

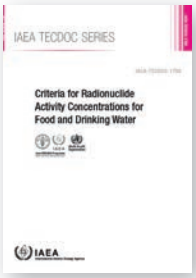
Environmental Modelling for Radiation Safety (EMRAS II) Programme

IAEA TECDOC Series No. 1799

This publication describes the work of the Reference Models for Waste Disposal Working Group, one of nine set up as part of programme entitled Environmental Modelling for Radiation Safety (EMRAS II), which concentrated on the improvement of environmental transfer models and the development of reference approaches to estimate the radiological impacts on humans, as well as on flora and fauna, arising from radionuclides in the environment.

(132 pp., 29 figs; 2016) • ISBN 978-92-0-106216-1 • IAEA-TECDOC-1799 • €18.00

RADIATION PROTECTION

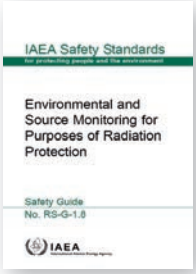


Criteria for Radionuclide Activity Concentrations for Food and Drinking Water

IAEA TECDOC Series No. 1788

This publication considers the various international standards to be applied at the national level for the assessment of levels of radionuclides in food and in drinking water in different circumstances for the purposes of control, other than in a nuclear or radiological emergency. It collates and provides an overview of the different criteria used in assessing and controlling the radionuclide content of food and drinking water. The approach used to derive reference levels of radionuclide activity concentration in food and in drinking water as criteria for use in particular circumstances is also considered. This publication is intended for the use by regulatory bodies, policy makers and interested parties with responsibilities in relation to the management of various situations where radionuclides are, or could be, present in food and in drinking water, other than in the case of a nuclear or radiological emergency.

(60 pp., 4 figs; 2016) • ISBN 978-92-0-103816-6 • IAEA-TECDOC-1788 • €18.00



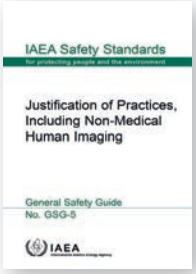
Environmental and Source Monitoring for Purposes of Radiation Protection

Safety Guide

IAEA Safety Standards Series No. RS-G-1.8

The purpose of this Safety Guide is to provide international guidance, coherent with contemporary radiation protection principles and IAEA safety requirements, on the strategy of monitoring in relation to: (a) control of radionuclide discharges under practice conditions, and (b) intervention, such as in cases of nuclear or radiological emergencies or past contamination of areas with long lived radionuclides. Three categories of monitoring are discussed: monitoring at the source of the discharge (source monitoring), monitoring in the environment (environmental monitoring) and monitoring of individual exposure in emergencies (individual monitoring). The Safety Guide also provides general guidance on assessment of the doses to critical groups of the population due to the presence of radioactive materials or radiation fields in the environment both from routine operation of nuclear and other related facilities (practice) and from nuclear or radiological emergencies and past contamination of areas with long lived radionuclides (intervention). The dose assessments are based on the results of source monitoring, environmental monitoring, individual monitoring or their combinations. This Safety Guide is primarily intended for use by national regulatory bodies and other agencies involved in national systems of radiation monitoring, as well as by operators of nuclear installations and other facilities where natural or human made radionuclides are treated and monitored.

English Edition (119 pp., 2 figs; 2005) • ISBN 92-0-113404-5 • STI/PUB/1216 • €26.00
Russian Edition (141 pp., 2 figs; 2016) • ISBN 978-92-0-405116-2 • STI/PUB/1216 • €26.00
Spanish Edition (131 pp., 2 figs; 2010) • ISBN 978-92-0-306010-3 • STI/PUB/1216 • €26.00



Justification of Practices, Including Non-Medical Human Imaging

General Safety Guide

IAEA Safety Standards Series No. GSG-5

This Safety Guide was developed to assist governments and regulatory bodies with the assessment of particularly challenging proposals for the use of radiation; in particular, in human imaging for purposes other than medical diagnosis, medical treatment or biomedical research, such as for security screening at airports. It complements the guidance provided in the IAEA Safety Guide on the Regulatory Control of Radiation Sources. It provides guidance to governments and regulatory bodies on the elements that should be considered and the process that should be applied in determining whether the introduction of a particular type of practice is justified. It is intended to assist in the decision making process when confronted with a need or a request to authorize a novel type of practice or a need to review the justification of types of practice that are already established. The publication also provides some guidance to those wishing to demonstrate to the government or regulatory body that a particular type of practice is justified.

English Edition (57 pp., 2 figs; 2014) • ISBN 978-92-0-102414-5 • STI/PUB/1650 • €32.00
Spanish Edition (Forthcoming) • ISBN 978-92-0-309916-5 • STI/PUB/1650 • €32.00

Occupational Radiation Protection

General Safety Guide

IAEA Safety Standards Series No. GSG-7

This Safety Guide, prepared jointly by the International Atomic Energy Agency (IAEA) and the International Labour Organization (ILO), provides guidance on fulfilling the requirements of the International Basic Safety Standards (IAEA Safety Standards Series No. GSR Part 3) with respect to occupational exposure. It provides general guidance on the development of occupational radiation protection programmes as appropriate for the sources of radiation likely to be encountered in the workplaces in question to fulfil the management's responsibility for protection and safety. Detailed guidance is also provided on the monitoring and assessment of workers' exposure due to external radiation sources and from intakes of radionuclides. The Safety Guide reflects the current internationally accepted principles and recommended good practices in occupational radiation protection, with account taken of the conceptual changes and technological enhancements that have occurred over the past decade.

(Forthcoming) • ISBN 978-92-0-102917-1 • STI/PUB/1785 • €58.00

Radiation Protection and Safety in Medical Uses of Ionizing Radiation

Specific Safety Guide

IAEA Safety Standards Series No. SSG-46

This Safety Guide provides recommendations and guidance on fulfilling the requirements of IAEA Safety Standards Series No. GSR Part 3 for ensuring radiation protection and safety of radiation sources in medical uses of ionizing radiation with regard to patients, workers, carers and comforters, volunteers in biomedical research, and the public. It covers radiological procedures in diagnostic radiology (including dentistry), image guided interventional procedures, nuclear medicine, and radiotherapy. Recommendations and guidance are provided on applying a systematic approach to ensure that there is a balance between being able to utilize the benefits from medical uses of ionizing radiation and minimizing the risk of radiation effects to people.

(Forthcoming) • ISBN 978-92-0-101717-8 • STI/PUB/1775 • €54.00

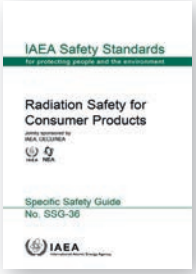
Radiation Protection of the Public and the Environment

General Safety Guide

IAEA Safety Standards Series No. GSG-8

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.

(Forthcoming) • ISBN 978-92-0-102517-3 • STI/PUB/1781 • €40.00



Radiation Safety for Consumer Products

Specific Safety Guide

IAEA Safety Standards Series No. SSG-36

In the IAEA safety standards, a 'consumer product' is defined as a device or manufactured item into which radionuclides have deliberately been incorporated or produced by activation, or which generates ionizing radiation, and which can be sold or made available to members of the public without special surveillance or regulatory control after sale. Many such products, including irradiated gemstones, are sold in commercial outlets and over the Internet. This Safety Guide outlines the regulatory approach to authorizing the manufacture and supply of such products to the public, including justification, safety assessment and application of the criteria for exemption. The guidance will also assist manufacturers, transport companies and suppliers to comply with regulatory requirements during the life cycle of consumer products, including recycling and disposal at the end of their useful life.

(109 pp., 3 figs; 2016) • ISBN 978-92-0-102515-9 • STI/PUB/1691 • €52.00

ACCIDENT RESPONSE

Arrangements for Preparedness for a Nuclear or Radiological Emergency

Safety Guide

IAEA Safety Standards Series No. GS-G-2.1

Under the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, one function of the IAEA is to collect and disseminate to States Parties and Member States information concerning methodologies, techniques and research data relating to emergency response. The primary objectives of this Safety Guide, co-sponsored by FAO, OCHA, ILO, PAHO and WHO, are to provide guidance on preparedness for and response to a nuclear or radiological emergency, to describe appropriate responses to a range of emergencies, and to provide background information on past experience, thereby helping the user to better implement arrangements that address the underlying issues.

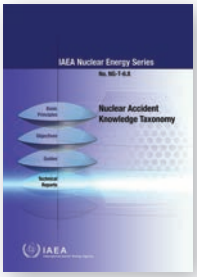
English Edition (145 pp., 4 figs; 2007) • ISBN 92-0-109306-3 • STI/PUB/1265 • €31.00
Russian Edition (182 pp., 4 figs; 2016) • ISBN 978-92-0-405616-7 • STI/PUB/1265 • €31.00
Spanish Edition (165 pp., 4 figs; 2010) • ISBN 978-92-0-307310-3 • STI/PUB/1265 • €31.00

Leadership, Human Performance and Internal Communication for Nuclear Emergencies

IAEA Nuclear Energy Series No. NG-T-1.5

This publication focuses on the challenges and their possible solutions in the areas of leadership, human performance and internal communication in a severe nuclear emergency. It presents a brief overview of some of the key concepts, especially how they relate to an organization's ability to successfully manage an emergency event. The target audience for this publication are those officials and senior managers dealing with emergency response in the operating organization, government, local authorities and the regulatory body. Those who have an influence on the style of leadership and personnel development and training that is applied in their organizations and who are involved in emergency preparedness and response will also benefit from this publication.

(Forthcoming) • ISBN 978-92-0-103317-8 • STI/PUB/1789 • €30.00

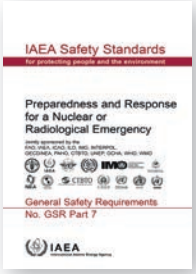


Nuclear Accident Knowledge Taxonomy

IAEA Nuclear Energy Series No. NG-T-6.8

There is a need to categorize and structure knowledge related to nuclear accidents. Development of the structure is challenging unless conducted with consideration of the experience of people who were involved in the accidents. In order to support those activities, the IAEA has taken a leading role to assist in the development of a knowledge organization system and associated taxonomy for nuclear accident knowledge domain, which could be implemented and applied by Member States' nuclear organizations. This publication is intended to support Member State activity in managing knowledge from serious nuclear accidents, providing a description of knowledge organization system features, information about the developed system taxonomy, and details on the methodology to organize knowledge in this area.

(37 pp., 5 figs; 2016) • ISBN 978-92-0-101416-0 • STI/PUB/1730 • €28.00



Preparedness and Response for a Nuclear or Radiological Emergency

General Safety Requirements

IAEA Safety Standards Series No. GSR Part 7

This publication, jointly sponsored by the FAO, IAEA, ICAO, ILO, IMO, INTERPOL, OECD/NEA, PAHO, CTBTO, UNEP, OCHA, WHO and WMO, is the new edition establishing the requirements for preparedness and response for a nuclear or radiological emergency which takes into account the latest experience and developments in the area. It supersedes the previous edition of the Safety Requirements for emergency preparedness and response, IAEA Safety Standards Series No. GS-R-2, which was published in 2002. This publication establishes the requirements for ensuring an adequate level of preparedness and response for a nuclear or radiological emergency, irrespective of its cause. These Safety Requirements are intended to be used by governments, emergency response organizations, other authorities at the local, regional and national levels, operating organizations and the regulatory body as well as by relevant international organizations at the international level.

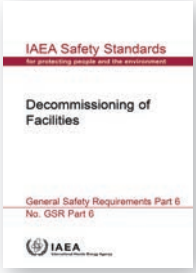
Arabic Edition (109 pp., 2 figs; 2016) • ISBN 978-92-0-609816-5 • STI/PUB/1708 • €45.00
Chinese Edition (91 pp., 2 figs; 2016) • ISBN 978-92-0-506716-2 • STI/PUB/1708 • €45.00
English Edition (102 pp., 2 figs; 2015) • ISBN 978-92-0-105715-0 • STI/PUB/1708 • €45.00
Russian Edition (160 pp., 2 figs; 2016) • ISBN 978-92-0-408916-5 • STI/PUB/1708 • €45.00

The Radiological Accident in Chilca

Under the Convention on Assistance in the Case of a Nuclear or Radiological Emergency, the Peruvian authorities requested assistance from the IAEA in relation to the radiological accident that occurred during non-destructive testing using a nuclear radioactive source in the district of Chilca, Peru, in 2012. This assistance related to dose assessment and medical management of those involved in the accident was provided during 2012 and 2013. The report gives a detailed account and analysis of the event, as well as, the actions taken in order to assist organizations responsible for radiation protection, source safety and emergency preparedness and response in identifying lessons to be learned that may help to prevent similar accidents.

(Forthcoming) • ISBN 978-92-0-101817-5 • STI/PUB/1776 • €35.00

RADIOACTIVE WASTE MANAGEMENT



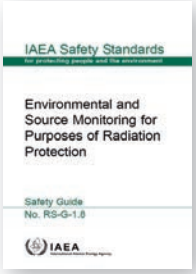
Decommissioning of Facilities

General Safety Requirements

IAEA Safety Standards Series No. GSR Part 6

Decommissioning is the last step in the lifetime management of a facility. It must also be considered during the design, construction, commissioning and operation of facilities. This publication establishes requirements for the safe decommissioning of a broad range of facilities: nuclear power plants, research reactors, nuclear fuel cycle facilities, facilities for processing naturally occurring radioactive material, former military sites, and relevant medical, industrial and research facilities. It addresses all the aspects of decommissioning that are required to ensure safety, aspects such as roles and responsibilities, strategy and planning for decommissioning, conduct of decommissioning actions and termination of the authorization for decommissioning. It is intended for use by those involved in policy development, regulatory control and implementation of decommissioning.

Arabic Edition (25 pp., 2 figs; 2016) • ISBN 978-92-0-600216-2 • STI/PUB/1652 • €25.00
Chinese Edition (19 pp., 2 figs; 2015) • ISBN 978-92-0-510215-3 • STI/PUB/1652 • €25.00
English Edition (23 pp., 2 figs; 2014) • ISBN 978-92-0-102614-9 • STI/PUB/1652 • €25.00
Russian Edition (29 pp., 2 figs; 2015) • ISBN 978-92-0-404515-4 • STI/PUB/1652 • €25.00
Spanish Edition (Forthcoming) • ISBN 978-92-0-300417-6 • STI/PUB/1652 • €25.00



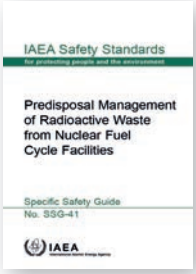
Environmental and Source Monitoring for Purposes of Radiation Protection

Safety Guide

IAEA Safety Standards Series No. RS-G-1.8

The purpose of this Safety Guide is to provide international guidance, coherent with contemporary radiation protection principles and IAEA Safety Requirements, on the strategy of monitoring in relation to: (a) control of radionuclide discharges under practice conditions, and (b) intervention, such as in cases of nuclear or radiological emergencies or past contamination of areas with long lived radionuclides. Three categories of monitoring are discussed: monitoring at the source of the discharge (source monitoring), monitoring in the environment (environmental monitoring) and monitoring of individual exposure in emergencies (individual monitoring). The Safety Guide also provides general guidance on assessment of the doses to critical groups of the population due to the presence of radioactive materials or radiation fields in the environment both from routine operation of nuclear and other related facilities (practice) and from nuclear or radiological emergencies and past contamination of areas with long lived radionuclides (intervention). The dose assessments are based on the results of source monitoring, environmental monitoring, individual monitoring or their combinations. This Safety Guide is primarily intended for use by national regulatory bodies and other agencies involved in national systems of radiation monitoring, as well as by operators of nuclear installations and other facilities where natural or human made radionuclides are treated and monitored.

English Edition (119 pp., 2 figs; 2005) • ISBN 92-0-113404-5 • STI/PUB/1216 • €26.00
Russian Edition (141 pp., 2 figs; 2016) • ISBN 978-92-0-405116-2 • STI/PUB/1216 • €26.00
Spanish Edition (131 pp., 2 figs; 2010) • ISBN 978-92-0-306010-3 • STI/PUB/1216 • €26.00



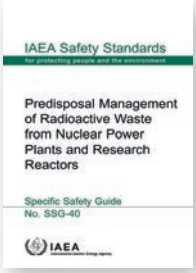
Predisposal Management of Radioactive Waste from Nuclear Fuel Cycle Facilities

Specific Safety Guide

IAEA Safety Standards Series No. SSG-41

This Safety Guide provides guidance on the predisposal management of all types of radioactive waste (including spent nuclear fuel declared as waste and high level waste) generated at nuclear fuel cycle facilities. These waste management facilities may be located within larger facilities or may be separate, dedicated waste management facilities (including centralized waste management facilities). The Safety Guide covers all stages in the lifetime of these facilities, including their siting, design, construction, commissioning, operation, and shutdown and decommissioning. It covers all steps carried out in the management of radioactive waste following its generation up to (but not including) disposal, including its processing (pretreatment, treatment and conditioning). Radioactive waste generated both during normal operation and in accident conditions is considered.

(93 pp., 3 figs; 2016) • ISBN 978-92-0-110315-4 • STI/PUB/1720 • €43.00



Predisposal Management of Radioactive Waste from Nuclear Power Plants and Research Reactors

Specific Safety Guide

IAEA Safety Standards Series No. SSG-40

This Safety Guide provides operating organizations that generate and manage radioactive waste as well as regulatory bodies and government bodies with recommendations on how to meet the requirements for the predisposal management of radioactive waste generated at nuclear power plants and research reactors (including subcritical and critical assemblies). It covers all stages in the lifetime of waste management facilities, including their siting, design, construction, commissioning, operation, and shutdown and decommissioning. It covers all steps carried out in the management of radioactive waste following its generation up to (but not including) disposal, including its processing (pre-treatment, treatment and conditioning). Radioactive waste generated during normal operation and in accident conditions is considered.

(83 pp., 4 figs; 2016) • ISBN 978-92-0-109815-3 • STI/PUB/1719 • €42.00

Predisposal Management of Radioactive Waste from the Use of Radioactive Material in Medicine, Industry, Agriculture, Research and Education

Specific Safety Guide

IAEA Safety Standards Series No. SSG-45

This Safety Guide is applicable to the predisposal management of radioactive waste derived from the use of radioactive materials in medicine, industry, agriculture, research and education, including disused sealed radioactive sources. It focuses on waste generated at facilities such as hospitals and research centres, where radioactive waste is not usually generated in bulk quantities. It covers the managerial, administrative and technical issues associated with the safe management of radioactive waste, from its generation to its acceptance at a disposal facility or its release from regulatory control.

(Forthcoming) • ISBN 978-92-0-111316-0 • STI/PUB/1758 • €40.00

SAFETY ANALYSIS

Application of the Risk Matrix Method to Radiotherapy

IAEA TECDOC Series No. 1685

This publication describes a project to introduce a tool for self-evaluation by radiotherapy services that allows the analysis of errors or failures that might give rise to accidents. The results of applying this tool to a generic radiotherapy service are also presented. These results are used as a basis for a set of recommendations to strengthen quality and safety programmes in radiotherapy departments. Both operational experience (lessons learned from accidental exposure) and the results of probability safety assessment studies have been taken into account in applying the tool and formulating these recommendations.

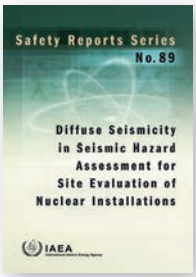
English Edition (74 pp., 13 figs; 2016) • ISBN 978-92-0-107216-0 • IAEA-TECDOC-1685 • €18.00
Spanish Edition (85 pp., 13 figs; 2012) • ISBN 978-92-0-332510-3 • IAEA-TECDOC-1685 • €18.00

Consideration of External Hazards in Probabilistic Safety Assessment for Single Unit and Multi-unit Nuclear Power Plants

Safety Reports Series No. 92

This publication outlines the generic methodology for probabilistic safety assessment (PSA) of nuclear power plants (NPPs) against external hazards, which integrates design, procedural, operational, human factors and both protection and mitigation aspects that are essential to model a NPP response to an external hazard and to assess the associated risk. It specifically addresses the identification and screening of external hazards considering the multi-unit impact.

(Forthcoming) • ISBN 978-92-0-101917-2 • STI/PUB/1777 • €40.00



Diffuse Seismicity in Seismic Hazard Assessment for Site Evaluation of Nuclear Installations

Safety Reports Series No. 89

Diffuse seismicity refers to earthquakes occurring in locations where no apparent correlation can be made with any causative faults. The possibility of such earthquakes must be taken into consideration for nuclear installation sites, even for low to moderate seismicity regions, and their potential influence has to be assessed appropriately. This publication provides guidance for addressing the seismic hazard from diffuse seismicity in a manner consistent with internationally recognized practices and with reference to relevant IAEA safety standards.

(88 pp., 26 figs; 2016) • ISBN 978-92-0-101716-1 • STI/PUB/1727 • €55.00

Performance of Models in Radiological Impact Assessment for Normal Operation

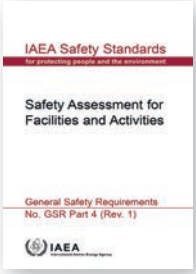
Report of Working Group 1 Reference Methodologies for Controlling Discharges of Routine Releases of EMRAS II Topical Heading Reference Approaches for Human Dose Assessment

Environmental Modelling for Radiation Safety (EMRAS II) Programme

IAEA TECDOC Series No. 1808

This publication provides the results from Working Group 1, on Reference Methodologies for Controlling Discharges of Routine Releases, of the IAEA's EMRAS II (Environmental Modelling for Radiation Safety) programme, which ran from 2009 to 2011. This Working Group carried out an intercomparison of methods used for assessing radiological impacts to people and the environment due to authorized releases of radionuclides during normal operation of nuclear facilities. Three important types of exposure scenarios were considered, those related to atmospheric, marine and river releases. The publication describes the details of the hypothetical radioactive release scenarios, the environmental pathways considered, the environmental transfer models applied, the calculation methods and the results obtained. An analysis of the results and the main findings and conclusions relevant for the use of the described input data and methodologies in regulatory applications is included. The publication also presents considerations on selection of the 'representative person' and a summary of the different approaches in some States for the regulatory control of radioactive discharges. Input data is included in the annex.

(98 pp., 15 figs; 2017) • ISBN 978-92-0-112616-0 • IAEA-TECDOC-1808 • €18.00



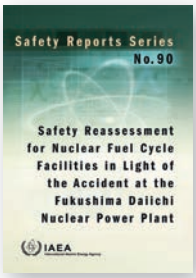
Safety Assessment for Facilities and Activities

General Safety Requirements

IAEA Safety Standards Series No. GSR Part 4 (Rev. 1)

This publication describes the generally applicable requirements to be fulfilled in safety assessments for facilities and activities, with special attention paid to defence in depth, quantitative analyses and the application of a graded approach to the range of facilities and activities that are addressed. The requirements provide a consistent and coherent basis for safety assessments, facilitating the transfer of good practices between organizations. A review of Safety Requirements publications was commenced in 2011 following the accident in the Fukushima Daiichi nuclear power plant in Japan. The review revealed no significant areas of weakness and resulted in just a small set of amendments to strengthen the requirements and facilitate their implementation, which are contained in the present publication.

Arabic Edition (38 pp., 3 figs; 2016) • ISBN 978-92-0-612816-9 • STI/PUB/1714 • €49.00
Chinese Edition (34 pp., 3 figs; 2016) • ISBN 978-92-0-510116-3 • STI/PUB/1714 • €49.00
English Edition (38 pp., 3 figs; 2016) • ISBN 978-92-0-109115-4 • STI/PUB/1714 • €49.00
French Edition (40 pp., 3 figs; 2017) • ISBN 978-92-0-212216-1 • STI/PUB/1714 • €49.00
Russian Edition (46 pp., 3 figs; 2016) • ISBN 978-92-0-408816-8 • STI/PUB/1714 • €49.00
Spanish Edition (Forthcoming) • ISBN 978-92-0-312016-6 • STI/PUB/1714 • €49.00



Safety Reassessment for Nuclear Fuel Cycle Facilities in Light of the Accident at the Fukushima Daiichi Nuclear Power Plant

Safety Reports Series No. 90

This publication provides guidance on performing safety reassessments, in the light of the accident at the Fukushima Daiichi nuclear power plant and in accordance with a graded approach, for nuclear fuel cycle facilities of all types. Although this publication primarily focuses on nuclear fuel cycle facilities that are in operation, the guidance it provides also applies to facilities that are in the design and construction phases. It is not intended to replace or supersede any of the requirements or guidance provided by the relevant IAEA safety standards, including those covering safety analysis, evaluation of seismic and external hazards, and emergency preparedness and response for nuclear fuel cycle facilities. However, this publication should be used in close conjunction with these safety standards.

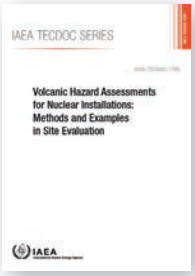
(45 pp., 2 figs; 2016) • ISBN 978-92-0-101916-5 • STI/PUB/1726 • €40.00

Seismic Hazard Assessment in Site Evaluation for Nuclear Installations: Ground Motion Prediction Equations and Site Response

IAEA TECDOC Series No. 1796

The objective of this publication is to provide the state of the art practice and detailed technical elements related to ground motion evaluation by ground motion prediction equations (GMPEs) and site response in the context of seismic hazard assessments as recommended in IAEA Safety Standards Series No. SSG-9, Seismic Hazards in Site Evaluation for Nuclear Installations. The publication includes the basics of GMPEs, ground motion simulation, selection and adjustment of GMPEs, site characterization, and modelling of site response in order to improve seismic hazard assessment. The text aims at delineating the most important aspects of these topics (including current practices, criticalities and open problems) within a coherent framework. In particular, attention has been devoted to filling conceptual gaps. It is written as a reference text for trained users who are responsible for planning preparatory seismic hazard analyses for siting of all nuclear installations and/or providing constraints for anti-seismic design and retrofitting of existing structures.

(132 pp., 42 figs; 2016) • ISBN 978-92-0-105516-3 • IAEA-TECDOC-1796 • €18.00



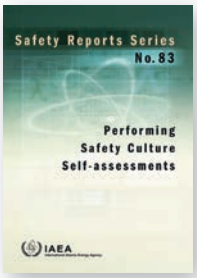
Volcanic Hazard Assessments for Nuclear Installations: Methods and Examples in Site Evaluation

IAEA TECDOC Series No. 1795

This publication provides information on detailed methodologies and examples in the application of volcanic hazard assessment to site evaluation for nuclear installations, thereby addressing the recommendations in IAEA Safety Standards Series No. SSG-21, Volcanic Hazards in Site Evaluation for Nuclear Installations. It demonstrates the practicability of evaluating the recommendations through a systematic volcanic hazard assessment and examples from Member States. The results of this hazard assessment can be used to derive the appropriate design bases and operational considerations for specific nuclear installations.

(279 pp., 53 figs; 2016) • ISBN 978-92-0-104916-2 • IAEA-TECDOC-1795 • €18.00

QUALITY MANAGEMENT



Performing Safety Culture Self-assessments

Safety Reports Series No. 83

This publication provides practical guidance on how to conduct a safety culture self-assessment. The focus is on using such assessments as a learning opportunity for organizational growth and development rather than as a fault-finding or 'find and fix' exercise. The approach involves considerable engagement with all levels of the organization. Methods applied include document reviews, questionnaires, interviews, observations and focus groups. Besides the complexity and subtleties of safety culture it also describes how to avoid common pitfalls in analysing results. The information presented in this publication will be of interest to individuals engaged in assessing and improving safety culture.

(157 pp., 11 figs; 2016) • ISBN 978-92-0-101515-0 • STI/PUB/1682 • €63.00

LEGAL AND GOVERNMENTAL ASPECTS

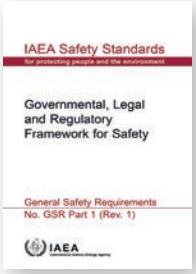
Communication and Consultation with Interested Parties by the Regulatory Body

General Safety Guide

IAEA Safety Standards Series No. GSG-6

This Safety Guide provides recommendations on meeting the safety requirements concerning communication and consultation with the public and other interested parties by the regulatory body about the possible radiation risks associated with facilities and activities, and about processes and decisions of the regulatory body. The Safety Guide can be used by authorized parties in circumstances where there are regulatory requirements placed on them for communication and consultation. It may also be used by other organizations or individuals considering their responsibilities for communication and consultation with interested parties.

(Forthcoming) • ISBN 978-92-0-102817-4 • STI/PUB/1784 • €30.00



Governmental, Legal and Regulatory Framework for Safety

General Safety Requirements

IAEA Safety Standards Series No. GSR Part 1 (Rev. 1)

This publication establishes requirements in respect of the governmental, legal and regulatory framework for safety. It covers the essential aspects of the framework for establishing a regulatory body and taking other actions necessary to ensure the effective regulatory control of facilities and activities utilized for peaceful purposes. Other responsibilities and functions, such as liaison within the global safety regime and on support services for safety (including radiation protection), emergency preparedness and response, nuclear security, and the State system of accounting for and control of nuclear material, are also covered. A review of Safety Requirements publications was commenced in 2011 following the accident in the Fukushima Daiichi nuclear power plant in Japan. The review revealed no significant areas of weakness and resulted in just a small set of amendments to strengthen the requirements and facilitate their implementation, which are contained in the present publication.

Arabic Edition (40 pp., 2 figs; 2016) • ISBN 978-92-0-611216-8 • STI/PUB/1713 • €48.00
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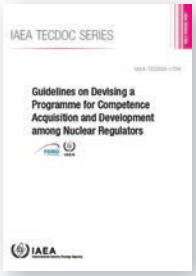
English Edition (42 pp., 2 figs; 2016) • ISBN 978-92-0-108815-4 • STI/PUB/1713 • €48.00
French Edition (Forthcoming) • ISBN 978-92-0-208016-4 • STI/PUB/1713 • €48.00
Russian Edition (49 pp., 2 figs; 2016) • ISBN 978-92-0-409516-6 • STI/PUB/1713 • €48.00
Spanish Edition (Forthcoming) • ISBN 978-92-0-311116-4 • STI/PUB/1713 • €48.00



Guidelines on Devising a Programme for Competence Acquisition and Development among Nuclear Regulators

IAEA TECDOC Series No. 1794

This publication provides the outline of a programme to strengthen regulatory competences, based on the operating experience of countries with a developed nuclear programme and which are members of the Forum of Radiological and Nuclear Regulatory Agencies (FORO). The guidelines are designed to optimize the resources of the Ibero-American region and they complement and supplement the IAEA's Safety Reports Series No. 79.

English Edition (141 pp., 12 figs; 2016) • ISBN 978-92-0-111016-9 • IAEA-TECDOC-1794 • €18.00
Spanish Edition (140 pp., 12 figs; 2016) • ISBN 978-92-0-304716-6 • IAEA-TECDOC-1794 • €18.00

International Conference on Effective Nuclear Regulatory Systems: Sustaining Improvements Globally

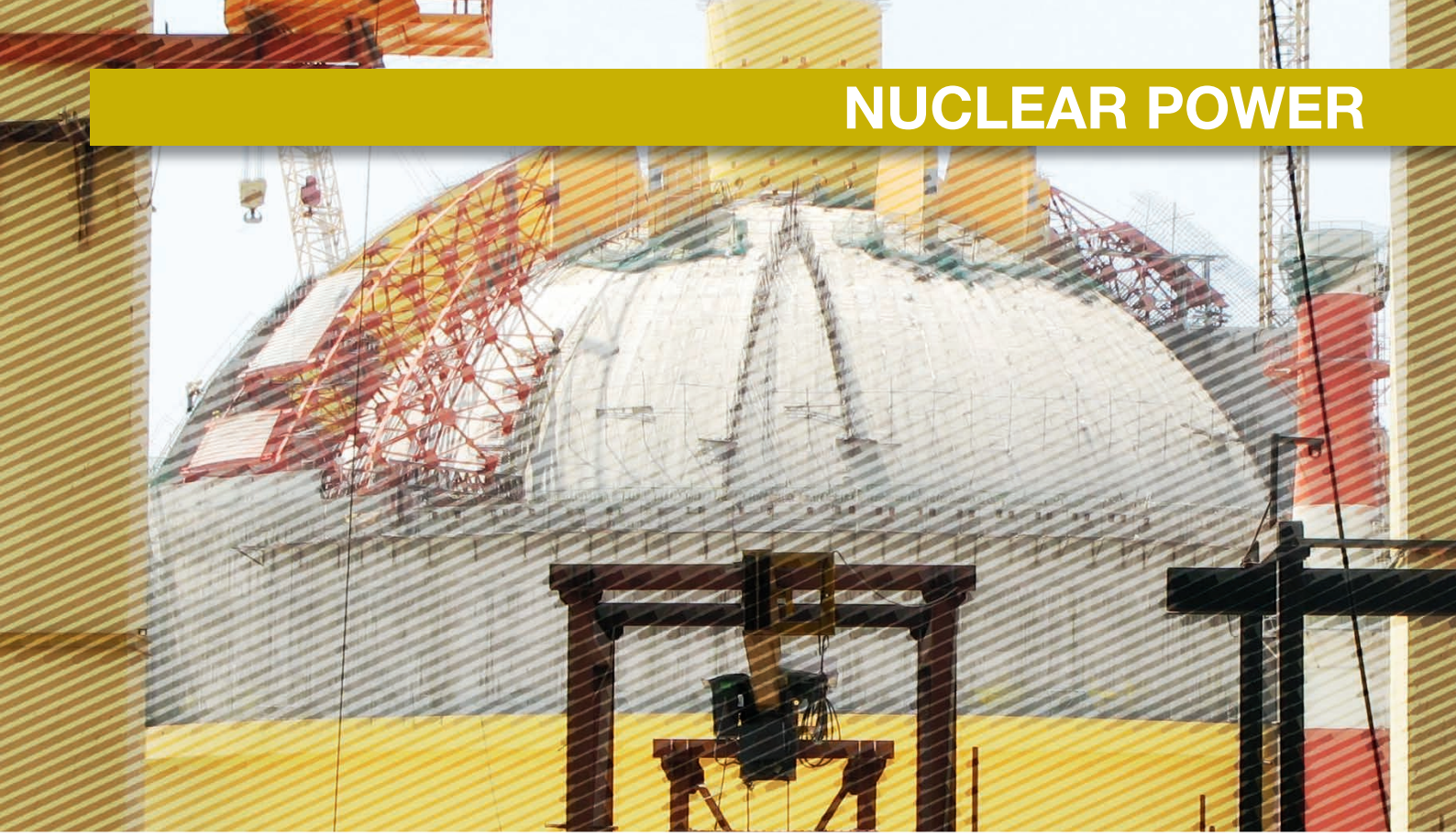
Proceedings of an International Conference Held in Vienna, Austria, 11–15 April 2016

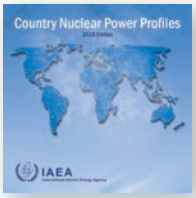
Proceedings Series

This publication is the proceedings of the fourth in a series of conferences convened by the IAEA on effective nuclear regulatory systems. The conference brought together senior regulators in the areas of nuclear and radiation safety as well as nuclear security from around the world to discuss how to improve regulatory effectiveness to ensure the protection of the public and the environment. The conference built upon the conclusions and deliberations of the past to review issues that are important to the global nuclear regulatory community. These proceedings include the opening addresses, the session summaries, and the President's summary and conclusions of the conference. The attached CD-ROM contains all the papers from the conference that were made available for publication.

(Forthcoming) • ISBN 978-92-0-103417-5 • STI/PUB/1790 • €40.00

NUCLEAR POWER





Country Nuclear Power Profiles

2016 Edition

The Country Nuclear Power Profiles compile background information on the status and development of nuclear power programmes in Member States. The publication summarizes organizational and industrial aspects of nuclear power programmes and provides information about the relevant legislative, regulatory and international framework in each State. Its descriptive and statistical overview of the overall economic, energy and electricity situation in each State and its nuclear power framework is intended to serve as an integrated source of key background information about nuclear power programmes throughout the world. This 2016 edition, issued on CD-ROM, contains updated country information for 51 States.

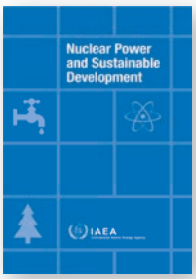
(2016) • ISBN 978-92-0-156916-5 •
IAEA-CNPP/2016/CD • €95.00

Industrial Applications of Nuclear Energy

IAEA Nuclear Energy Series No. NP-T-4.3

This publication provides a detailed overview of the potential use of nuclear energy for industrial systems and/or processes which have a strong demand for process heat/steam and power, and on the mapping of nuclear power reactors proposed for various industrial applications. It describes the technical concepts for combined nuclear–industrial complexes that are being pursued in various Member States, and presents the concepts that were developed in the past to be applied in connection with some major industries. It also provides an analysis of the energy demand in various industries and outlines the potential that nuclear energy may have in major industrial applications such as process steam for oil recovery and refineries, hydrogen generation, and steel and aluminium production. The audience for this publication includes academia, industry, and government agencies.

(Forthcoming) • ISBN 978-92-0-101417-7 •
STI/PUB/1772 • €59.00



Nuclear Power and Sustainable Development

Transforming the energy system is at the core of the dedicated sustainable development goal on energy within the new United Nations development agenda. This publication explores the possible contribution of nuclear energy to addressing the issues of sustainable development through a large selection of indicators. It reviews the characteristics of nuclear power in comparison with alternative sources of electricity supply, according to economic, social and environmental pillars of sustainability. The findings summarized in this publication will help the reader to consider, or reconsider, the contribution that can be made by the development and operation of nuclear power plants in contributing to more sustainable energy systems.

(116 pp., 31 figs; 2016) • ISBN 978-92-0-107016-6 • STI/PUB/1754 • €45.00

Nuclear Power Reactors in the World

2016 Edition

Reference Data Series No. 2

This is the 36th edition of Reference Data Series No. 2, which presents the most recent reactor data available to the IAEA. It contains summarized information as of the end of 2015 on power reactors operating, under construction and shutdown as well as performance data on reactors operating in the IAEA Member States. The information is collected through designated national correspondents in the Member States and the data are used to maintain the IAEA's Power Reactor Information System (PRIS).

(79 pp., 6 figs; 2016) • ISBN 978-92-0-103716-9 • IAEA-RDS-2/36 • €15.00

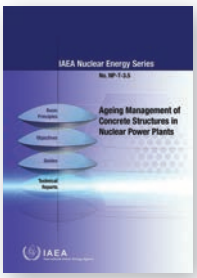
Opportunities for Cogeneration with Nuclear Energy

IAEA Nuclear Energy Series No. NP-T-4.1

This publication presents a comprehensive overview of various aspects relating to the application of cogeneration with nuclear energy, which may offer advantages such as increased efficiency, better cost effectiveness, and reduced environmental impact. The publication provides details on experiences, best practices and expectations for the foreseeable future of cogeneration with nuclear power technology and serves as a guide that supports newcomer countries. It includes information on systems and applications in various sectors, feasibility aspects, technical and economic details, and case studies.

(Forthcoming) • ISBN 978-92-0-103616-2 • STI/PUB/1749 • €58.00

NUCLEAR POWER PLANNING AND ECONOMICS



Ageing Management of Concrete Structures in Nuclear Power Plants

IAEA Nuclear Energy Series No. NP-T-3.5

This publication is one in a series of reports on the assessment and management of ageing of major nuclear power plant (NPP) components. Current practices for assessment of safety margins (fitness for service) and inspection, monitoring and mitigation of ageing related degradation of selected concrete structures related to NPPs are documented. Implications for and differences in new reactor designs are discussed. This information is intended to help all involved directly and indirectly in ensuring the safe operation of NPPs, and also to provide a common technical basis for dialogue between plant operators and regulators when dealing with age related licensing issues.

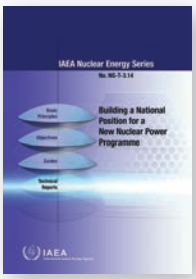
(355 pp., 211 figs; 2016) • ISBN 978-92-0-102914-0 • STI/PUB/1654 • €55.00

Buried and Underground Piping and Tank Ageing Management for Nuclear Power Plants

IAEA Nuclear Energy Series No. NP-T-3.20

This publication is one in a series of reports on the assessment and management of ageing of the major nuclear power plant (NPP) components. It deals with buried and underground piping and tank systems that are included as part of an NPP and addresses potential ageing mechanisms, age related degradation, and ageing management as well as condition assessments for the material and components of such systems. The intended target audience for this publication are NPP owners, operators, designers, engineers and specialists.

(Forthcoming) • ISBN 978-92-0-102116-8 • STI/PUB/1735 • €60.00



Building a National Position for a New Nuclear Power Programme

IAEA Nuclear Energy Series No. NG-T-3.14

This publication provides guidance to countries seeking to establish a national position on the introduction or re-establishment of a nuclear power programme. It provides direction to political decision makers, energy experts, and other stakeholders about the process for establishing a national position as countries prepare national nuclear energy policies. It also helps embarking countries to build a consistent and durable national position for nuclear power on the basis of sound energy planning and greater public involvement in order to maintain the country's long term commitment, regardless of possible political changes in a country.

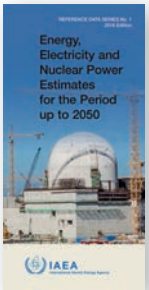
(19 pp., 2 figs; 2016) • ISBN 978-92-0-102216-5 • STI/PUB/1736 • €20.00

Commissioning Guidelines for Nuclear Power Plants

IAEA Nuclear Energy Series No. NP-T-2.10

Commissioning is one of the key steps towards putting into service a new nuclear facility, or a new system, structure or component within an existing facility. Commissioning activities need to be planned early in the design and procurement process, with careful consideration of eventual acceptance criteria and test methods. This publication describes commissioning in its basic form, the commissioning process specific to nuclear power plants (NPPs), the relevant management system requirements, typical organizational models and critical human resources issues. It also provides details on experience and lessons learned obtained in Member States. The publication will be of use to all stakeholders involved in the commissioning of NPPs, including owner operators, contractors, engineers, regulatory bodies and vendors.

(Forthcoming) • ISBN 978-92-0-102816-7 • STI/PUB/1742 • €48.00



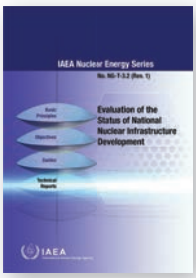
Energy, Electricity and Nuclear Power Estimates for the Period up to 2050

2016 Edition

Reference Data Series No. 1

The 36th edition of the annual Reference Data Series No. 1 contains estimates of energy, electricity and nuclear power trends up to the year 2050, using a variety of sources, such as the IAEA's Power Reactor Information System and data prepared by the United Nations.

(53 pp., 10 figs; 2016) • ISBN 978-92-0-106816-3 • IAEA-RDS-1/36 • €18.00



Evaluation of the Status of National Nuclear Infrastructure Development

IAEA Nuclear Energy Series No. NG-T-3.2 (Rev. 1)

This publication provides a holistic approach to evaluate progress in the development of the nuclear power infrastructure based on the guidance contained in the IAEA Nuclear Energy Series No. NG-G-3.1, Milestones in the Development of a National Infrastructure for Nuclear Power. It can be used by a Member State itself, wishing to evaluate its progress (self-evaluation), or as a basis for an integrated nuclear infrastructure review (INIR) mission. This revised version combines in one publication an explanation of the methodology and the evaluation tables, takes into account all new material and lessons learned from the Fukushima Daiichi accident, and presents the results of the INIR missions implemented between 2009 and 2014.

(69 pp., 1 fig.; 2016) • ISBN 978-92-0-102316-2 • STI/PUB/1737 • €29.00

Handbook of Ageing Management for Nuclear Power Plants

IAEA Nuclear Energy Series No. NP-T-3.24

This handbook on ageing management for nuclear power plants (NPPs) has been developed in compliance with relevant IAEA safety standards and draws on lessons learned from ageing management practices worldwide. It provides an overview of the topic and guidance on proactive ageing management within NPPs. The publication also collates information on ageing mechanisms, effects on structures, systems and components, the regulatory framework as well as some details on innovative techniques and research and development in the area. The information is presented concisely with clear flow charts and with structured reference to the underlying principles. The handbook will support NPP staff, maintenance managers, vendors, personnel at research organizations and regulators in their work related to the ageing of structures, systems and components.

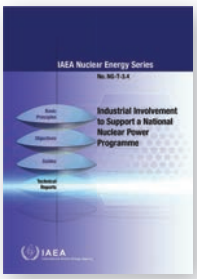
(Forthcoming) • ISBN 978-92-0-102416-9 • STI/PUB/1738 • €48.00

Impacts of Electricity Market Reforms on the Choice of Nuclear and Other Generation Technologies

IAEA TECDOC Series No. 1789

Electricity market reforms have been underway worldwide for the last 20 years. They have included restructuring, privatization, regulation and the introduction of market mechanisms in electricity generation and trading. This publication analyses the impacts of these reforms as well as non-reform factors, on the selection of electricity generation technologies, including nuclear power, by investors. A country case study approach has been adopted in developing the material presented in the publication. Each case study is organized around the following themes: rationale for reform; nature of the electricity market reform; how has the reform shaped the allocation of investment risk in electricity markets and how has this risk allocation influenced investor choice of generation technologies; and finally, how have non-reform related factors influenced investors' choice. This publication will be of use by stakeholders in the strategic planning of the electricity sector, including policy makers, policy analysts, policy advisors, power sector regulators and utility operators.

(152 pp.; 2016) • ISBN 978-92-0-103916-3 • IAEA-TECDOC-1789 • €18.00

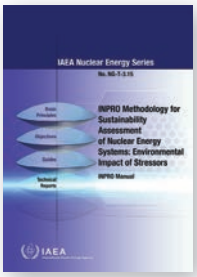


Industrial Involvement to Support a National Nuclear Power Programme

IAEA Nuclear Energy Series No. NG-T-3.4

This publication, an update of Technical Reports Series No. 281, provides guidance in making the many considerations and decisions involved in preparing national industrial organizations for participation in a nuclear power programme, including those that will participate in the construction and commissioning of the first nuclear power plant units. Roles and responsibilities of government, industry, utility and other stakeholders are detailed.

(66 pp., 7 figs; 2016) • ISBN 978-92-0-103715-2 • STI/PUB/1703 • €36.00



INPRO Methodology for Sustainability Assessment of Nuclear Energy Systems: Environmental Impact of Stressors

INPRO Manual

IAEA Nuclear Energy Series No. NG-T-3.15

This publication provides guidance on assessing of sustainability of a nuclear energy system (NES) in the area of environmental impact of stressors. The INPRO methodology is a comprehensive tool for the assessment of sustainability of an NES. Basic principles, user requirements and criteria have been defined in different areas of the INPRO methodology. These include economics, infrastructure, waste management, proliferation resistance, environmental impact of stressors, environmental impact from depletion of resources, and safety of nuclear reactors and fuel cycle facilities. The ultimate goal of the application of the INPRO methodology is to check whether the assessed NES fulfils all the criteria, and hence the user requirements and basic principles, and therefore presents a system for a Member State that is sustainable in the long term.

(94 pp., 5 figs; 2016) • ISBN 978-92-0-101616-4 • STI/PUB/1733 • €38.00

International Safeguards in the Design of Conversion Plants

IAEA Nuclear Energy Series No. NF-T-4.8

This publication is the fourth in the IAEA Nuclear Energy Series to provide guidance on the inclusion of safeguards in nuclear facility design and construction. It is principally intended for designers and operators of conversion plants; however, vendors, national authorities and financial backers can also benefit from the information provided. The publication complements the general considerations addressed in International Safeguards in Nuclear Facility Design and Construction, IAEA Nuclear Energy Series No. NP-T-2.8.

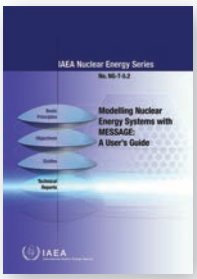
(Forthcoming) • ISBN 978-92-0-100517-5 • STI/PUB/1766 • €30.00

Managing the Financial Risk Associated with the Financing of New Nuclear Power Plant Projects

IAEA Nuclear Energy Series No. NG-T-4.6

Mitigation of the financial risks attendant on a nuclear power plant new-build project is a key to ensuring project viability. This publication emphasizes how various risks — including those typically considered to be 'engineering risks' — will give rise to such financial risks. It then introduces the linkage between efficient financial risk allocation/mitigation and the cost of capital, and sets out a range of mechanisms which can be used to manage and allocate risks efficiently, thereby minimizing the cost of capital and enhancing project economics. At a practical level the publication provides an insight into the concerns, modes of thinking, and language which a nuclear new-build proponent may expect to encounter within the financing community as they seek to develop their project.

(Forthcoming) • ISBN 978-92-0-100317-1 • STI/PUB/1765 • €32.00



Modelling Nuclear Energy Systems with MESSAGE: A User's Guide

IAEA Nuclear Energy Series No. NG-T-5.2

Assessing nuclear energy transition scenarios requires appropriate modelling tools. The IAEA tool, Model for Energy Supply System Alternatives and their General Environmental Impacts (MESSAGE), is described in this publication. The tool simulates the development of a complete energy system and provides a convenient platform for modelling and analysing nuclear energy systems (NESs), as it can efficiently model nuclear technologies with their specific features. Among other things, the tool can help produce a description of an entire NES with time dependent parameters for long term planning; confirm the feasibility of a NES through correlation and consistency of all NES components, taking into account all constraints and boundary conditions imposed on the system; and balance fissile material in a closed fuel cycle and determine fuel cycle requirements. In addition, it assists the user in the choice of alternatives by comparison of different options relating to fuel requirements and volume and toxicity of waste. The publication provides a detailed guidance on how to build mathematical models representing complex nuclear energy systems within the framework of the MESSAGE tool.

(126 pp., 110 figs; 2016) • ISBN 978-92-0-109715-6 • STI/PUB/1718 • €39.00

Sustainable Electricity Supply Scenarios for West Africa

IAEA TECDOC Series No. 1793

This publication covers topics relevant to Member States in the process of evaluation of future electricity supply options and strategies, from resource evaluation to electricity demand analysis and connections to overall social, economic and demographic developments. It is an outcome of a study carried out in West Africa, providing a coherent sub regional platform for the development of a robust policy framework for an enhanced and sustainable provision of electricity services to support socioeconomic growth.

(127 pp., 49 figs; 2016) • ISBN 978-92-0-104316-0 • IAEA-TECDOC-1793 • €18.00

NUCLEAR POWER OPERATIONS

Application of the Management System for Facilities and Activities

Safety Guide

IAEA Safety Standards Series No. GS-G-3.1

This publication provides guidance for following the requirements for management systems that integrate safety, health, security, quality assurance and environmental objectives. A successful management system ensures that nuclear safety matters are not dealt with in isolation but are considered within the context of all these objectives. The aim of this publication is to assist Member States to establish and implement effective management systems that coherently integrate all aspects of managing nuclear facilities and activities.

English Edition (123 pp., 1 fig.; 2006) • ISBN 92-0-106606-6 • STI/PUB/1253 • €31.00
Russian Edition (116 pp., 1 fig.; 2009) • ISBN 978-92-0-401309-2 • STI/PUB/1253 • €31.00
Spanish Edition (109 pp., 1 fig.; 2016) • ISBN 978-92-0-307516-9 • STI/PUB/1253 • €31.00

High Burnup Fuel: Implications and Operational Experience

Proceedings of a Technical Meeting Held in Buenos Aires, 26–29 November 2013

IAEA TECDOC Series No. 1798

This publication reports on the outcome of a technical meeting on high burnup fuel experience and economics, held in Buenos Aires, Argentina in 2013. The purpose of the meeting was to revisit and update the current operational experience and economic conditions associated with high burnup fuel. International experts with significant experience in experimental programmes on high burnup fuel discussed and evaluated physical limitations at pellet, cladding and structural component levels, with a wide focus including fabrication, core behaviour, transport and intermediate storage for most types of commercial nuclear power plants.

CD Edition (2016) • ISBN 978-92-0-155316-4 • IAEA-TECDOC-CD-1798 • €18.00

Industrial Safety Guidelines for Nuclear Facilities

IAEA Nuclear Energy Series No. NP-T-3.3

These IAEA guidelines on industrial safety for nuclear facilities are co-sponsored by the International Labour Organization. Specific review of industrial safety practices at nuclear plants have been part of the IAEA OSART (Operational Safety Review Team) missions for decades, and supplementary guidance for such reviews has been available since 1990. This publication presents the latest good practices that nuclear organizations have put into place to implement high quality industrial safety programmes.

(Forthcoming) • ISBN 978-92-0-101617-1 • STI/PUB/1774 • €60.00

Maintenance Optimization Programme for Nuclear Power Plants

IAEA Nuclear Energy Series No. NP-T-3.8

This publication deals with the latest nuclear power plant maintenance optimization programmes and provides key requirements and strategies for successful implementation. It documents shared proven maintenance optimization methods and techniques from Member States, including more detailed examples in the annexes of this publication.

(Forthcoming) • ISBN 978-92-0-110916-3 • STI/PUB/1757 • €39.00

Non-baseload Operations in Nuclear Power Plants: Load Following and Frequency Control Modes of Flexible Operations

IAEA Nuclear Energy Series No. NP-T-3.23

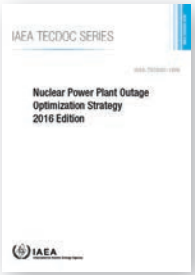
This publication aims to address all relevant aspects of flexible (non-baseload) operation of nuclear power plants (NPPs) specifically focusing on changing electrical output to match the electrical demand and to control the frequency of the electrical system. It provides collective guidance based on current knowledge and operational experience, for the decision making, preparation and implementation of flexible operation for Member States who are considering future flexible operations of their NPPs.

(Forthcoming) • ISBN 978-92-0-110816-6 • STI/PUB/1756 • €40.00

Nuclear Power Plant Operating Experience 2012–2014 from the IAEA/NEA International Reporting System for Operating Experience

The International Reporting System for Operating Experience (IRS) is an essential element of the international operating experience feedback system for nuclear power plants. Its fundamental objective is to contribute to improving safety of commercial nuclear power plants which are operated worldwide. IRS reports contain information on events of safety significance with important lessons learned which assist in reducing recurrence of events at other plants. This sixth publication, covering the period 2012–2014, follows the structure of the previous editions. It highlights important lessons based on a review of the approximately 240 event reports received from the participating countries over this period.

(Forthcoming) • ISBN 978-92-0-102417-6 • STI/PUB/1780 • €28.00



Nuclear Power Plant Outage Optimization Strategy

2016 Edition

IAEA TECDOC Series No. 1806

Nuclear power plant outage management is a key factor for safe and economic nuclear power plant performance. This publication discusses plant outage strategy and how this strategy is actually implemented. The main areas that are important for outage optimization that were identified by the utilities and government organizations participating in this report are: (1) organization and management; (2) outage planning and preparation; (3) outage execution; (4) safety outage review; and (5) counter measures to avoid the extension of outages and to facilitate the work in forced outages. Good outage management practices cover many different areas of work and this publication aims to communicate these good practices in a way that they can be used effectively by operators and utilities.

(110 pp., 33 figs; 2016) • ISBN 978-92-0-107816-2 • IAEA-TECDOC-1806 • €18.00

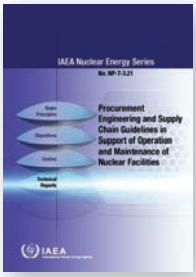
Operating Experience with Nuclear Power Stations in Member States in 2015

2016 Edition

Operating Experience

This CD-ROM contains the 47th edition of the IAEA's series of annual reports on operating experience with nuclear power plants in Member States. It is a direct output from the IAEA's Power Reactor Information System (PRIS) and contains information on electricity production and overall performance of individual plants during 2015. In addition to annual information, the report contains a historical summary of performance during the lifetime of individual plants and figures illustrating worldwide performance of the nuclear industry. The CD-ROM also contains an overview of design characteristics and dashboards of all operating nuclear power plants worldwide.

CD Edition (2016) • ISBN 978-92-0-155016-3 • STI/PUB/1752 • €75.00



Procurement Engineering and Supply Chain Guidelines in Support of Operation and Maintenance of Nuclear Facilities

IAEA Nuclear Energy Series No. NP-T-3.21

Procurement must be effectively managed to ensure availability of design functions throughout a nuclear facility's service life. Ineffective control of procurement process can jeopardize facility safety, reduce reliability, or can result in increased costs to operating organizations. This publication provides an overview of nuclear procurement processes, issues of special concern, and provides guidance for good practices to set up and manage a high quality procurement organization. Lessons learned for organizations considering new build nuclear projects are also included.

(252 pp., 68 figs; 2016) • ISBN 978-92-0-107315-0 • STI/PUB/1725 • €56.00

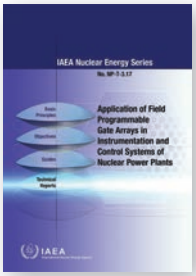
REACTOR TECHNOLOGY

Accelerator Simulation and Theoretical Modelling of Radiation Effects (SMoRE)

IAEA Nuclear Energy Series No. NF-T-2.2

This publication summarizes the findings and conclusions of the IAEA coordinated research project (CRP) on accelerator simulation and theoretical modelling of radiation effects, aimed at supporting Member States in the development of advanced radiation resistant structural materials for implementation in innovative nuclear systems. This aim can be achieved through enhancement of both experimental neutron-emulation capabilities of ion accelerators and improvement of the predictive efficiency of theoretical models and computer codes. This dual approach is challenging but necessary, because outputs of accelerator simulation experiments need adequate theoretical interpretation, and theoretical models and codes need high dose experimental data for their verification. Both ion irradiation investigations and computer modelling have been the specific subjects of the CRP, and the results of these studies are presented in this publication which also includes state of the art reviews of four major aspects of the project: challenges and trends of structural materials development for present and future reactor designs, accelerator methodologies for material testing, multiscale modelling tools, and advanced examination techniques.

(Forthcoming) • ISBN 978-92-0-107415-7 • STI/PUB/1732 • €39.00

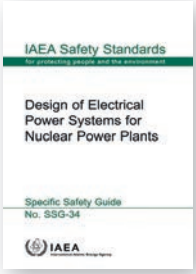


Application of Field Programmable Gate Arrays in Instrumentation and Control Systems of Nuclear Power Plants

IAEA Nuclear Energy Series No. NP-T-3.17

Field programmable gate arrays (FPGAs) are gaining increased attention worldwide for application in nuclear power plant (NPP) instrumentation and control (I&C) systems, particularly for safety and safety related applications, but also for non-safety ones. NPP operators and equipment suppliers see potential advantages of FPGA based digital I&C systems as compared to microprocessor based applications. This is because FPGA based systems can be made simpler, more testable and less reliant on complex software (e.g. operating systems), and are easier to qualify for safety and safety related applications. This publication results from IAEA consultancy meetings covering the various aspects, including design, qualification, implementation, licensing, and operation, of FPGA based I&C systems in NPPs.

(80 pp., 6 figs; 2016) • ISBN 978-92-0-103515-8 • STI/PUB/1701 • €33.00



Design of Electrical Power Systems for Nuclear Power Plants

Specific Safety Guide

IAEA Safety Standards Series No. SSG-34

This Safety Guide provides recommendations on the necessary characteristics of electrical power systems for nuclear power plants, and of the processes for developing these systems, in order to meet the safety requirements of IAEA Safety Standards Series No. SSR-2/1 (Rev. 1). It reflects the changes that have been made to SSR-2/1, in particular to Requirement 68 on emergency power supply.

(120 pp., 9 figs; 2016) • ISBN 978-92-0-109314-1 • STI/PUB/1673 • €47.00

Digital Instrumentation and Control Systems for New Facilities and Modernization of Existing Research Reactors

IAEA Nuclear Energy Series No. NP-T-5.7

This publication draws on the results of a technical meeting which addressed key areas of modernization projects for instrumentation and control (I&C) systems in research reactors. The meeting provided a forum for international experts to exchange information on the technical and managerial aspects of I&C systems and modernization projects specifically related to I&C and to discuss all technical areas relevant to the complex process of research reactor I&C system modernization and the use of digital I&C in new research reactor projects. The publication includes a summary of all papers and provides detailed guidance to research reactor operators intending to upgrade existing facilities from analogue to digital or older digital to newer digital technology, and to governments or agencies seeking to construct a new research facility with the latest digital I&C systems.

(Forthcoming) • ISBN 978-92-0-103015-3 • STI/PUB/1696 • €58.00

Instrumentation and Control Systems for Advanced Small Modular Reactors

IAEA Nuclear Energy Series No. NP-T-3.19

This publication emphasizes the key cross cutting technological issues associated with instrumentation and control systems and human system interfaces that arise from the specific behaviour and operational characteristics of advanced small modular reactors (SMRs). It is intended to assist Member States in understanding current knowledge, practices, design and architecture, implementation, operating and maintenance related aspects with I&C systems in SRMs, as well as for discussing the challenges and issues that need to be resolved in this field in the first phases of design and implementation by Member States active in SMR development.

(Forthcoming) • ISBN 978-92-0-101217-3 • STI/PUB/1770 • €39.00

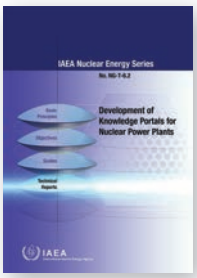
Preparing and Conducting Review Missions of Instrumentation and Control Systems in Nuclear Power Plants

IAEA TECDOC Series No. 1662/Rev. 1

The IERICS (Independent Engineering Review of Instrumentation and Control Systems) mission is a comprehensive engineering review service directly addressing strategy and the key elements for implementation of modern instrumentation and control (I&C) systems, noting in applicable cases, specific concerns related to the implementation of advanced digital I&C systems and the use of software and/or digital logic in safety applications of a nuclear power plant. The guidelines outlined in this publication provide a basic structure, common reference and checklist across the various areas covered by an IERICS mission. Publications referenced in these guidelines could provide additional useful information for the counterpart while preparing for the IERICS mission. A structure for the mission report is given in the Appendix. In 2016, this publication was revised by international experts who had participated in previous IERICS missions. The revision reflects experiences and lessons learned from the preparation and conduct of those missions.

(102 pp., 3 figs; 2016) • ISBN 978-92-0-105816-4 • IAEA-TECDOC-1662/Rev. 1 • €18.00

QUALIFICATION AND TRAINING OF PERSONNEL



Development of Knowledge Portals for Nuclear Power Plants

IAEA Nuclear Energy Series No. NG-T-6.2

This publication supports earlier IAEA publications on knowledge management in proposing guidelines for the development of a knowledge portal for nuclear power plants (NPPs), and covers the main design principles and the typical content of such a knowledge portal. The information provided is based upon actual experiences of NPP operating organizations in Member States as well as of other related industries.

English Edition (38 pp., 16 figs; 2009) • ISBN 978-92-0-113008-2 • STI/PUB/1377 • €15.00
Russian Edition (39 pp., 16 figs; 2016) • ISBN 978-92-0-405115-5 • STI/PUB/1377 • €15.00

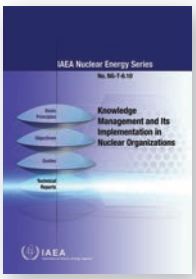
International Conference on Human Resource Development for Nuclear Power Programmes: Building and Sustaining Capacity

Summary of an International Conference Held in Vienna, Austria, 12–16 May 2014

Proceedings Series

This publication presents the summary of an international conference on human resource development for nuclear power programmes. The conference provided a forum for information exchange and best practices across governments, industry and education and research institutions. Main topics addressed challenges in human resource development (HRD), education and training, nuclear knowledge management, the establishment of knowledge networks and preparing the next generation of nuclear professionals. The meeting participants reviewed developments in the area of human resources globally, emphasized the importance of human resources and capacity building programmes, and highlighted practices and issues regarding HRD at the organizational and international level. Key findings, recommendations as well as the conclusions of the chairperson are presented. An accompanying CD-ROM contains all papers presented during the conference.

(Forthcoming) • ISBN 978-92-0-102516-6 • STI/PUB/1739 • €50.00



Knowledge Management and Its Implementation in Nuclear Organizations

IAEA Nuclear Energy Series No. NG-T-6.10

The IAEA's nuclear knowledge management activities provide guidance in knowledge management and assist in transferring and preserving knowledge, exchanging information, establishing and supporting cooperative networks and in training the next generation of nuclear experts. This publication shares best practices and experiences based on the knowledge management assist visit programme undertaken by IAEA expert teams during the period 2005–2013. These visits have involved different types of organizations, including nuclear power plants, nuclear R&D organizations and nuclear based educational establishments such as universities. Based on the records of these visits, a secondary aim of this publication is to provide feedback and recommendations for future development of the assessment tool(s) and participating organizations for improving future assistance.

(52 pp., 4 figs; 2016) • ISBN 978-92-0-107215-3 • STI/PUB/1724 • €31.00

Knowledge Management for Nuclear Research and Development Organizations

IAEA TECDOC Series No. 1675

This publication elaborates on the role of nuclear knowledge management in a research and development (R&D) context, and on the importance of facilitating innovation and future development of nuclear technologies for nuclear power, its associated fuel cycles, and nuclear applications in medicine, industry and agriculture. It highlights aspects such as transferring and preserving knowledge, exchanging information, establishing and supporting cooperative networks, and training the next generation of nuclear experts. It concludes with basic concepts, trends and key drivers for nuclear knowledge management for R&D project managers and other workers from nuclear R&D organizations.

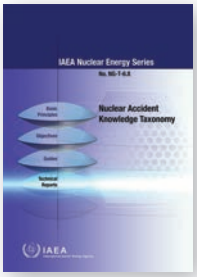
English Edition (72 pp., 10 figs; 2012) • ISBN 978-92-0-125510-5 • IAEA-TECDOC-1675 • €18.00
Russian Edition (68 pp., 10 figs; 2016) • ISBN 978-92-0-408315-6 • IAEA-TECDOC-1675 • €18.00

Leadership, Human Performance and Internal Communication for Nuclear Emergencies

IAEA Nuclear Energy Series No. NG-T-1.5

This publication focuses on the challenges and their possible solutions in the areas of leadership, human performance and internal communication in a severe nuclear emergency. It presents a brief overview of some of the key concepts, especially how they relate to an organization's ability to successfully manage an emergency event. The target audience for this publication are those officials and senior managers dealing with emergency response in the operating organization, government, local authorities and the regulatory body. Those who have an influence on the style of leadership and personnel development and training that is applied in their organizations and who are involved in emergency preparedness and response will also benefit from this publication.

(Forthcoming) • ISBN 978-92-0-103317-8 • STI/PUB/1789 • €30.00



Nuclear Accident Knowledge Taxonomy

IAEA Nuclear Energy Series No. NG-T-6.8

There is a need to categorize and structure knowledge related to nuclear accidents. Development of the structure is challenging unless conducted with consideration of the experience of people who were involved in the accidents. In order to support those activities, the IAEA has taken a leading role to assist in the development of a knowledge organization system and associated taxonomy for nuclear accident knowledge domain, which could be implemented and applied by Member States' nuclear organizations. This publication is intended to support Member State activity in managing knowledge from serious nuclear accidents, providing a description of knowledge organization system features, information about the developed system taxonomy, and details on the methodology to organize knowledge in this area.

(37 pp., 5 figs; 2016) • ISBN 978-92-0-101416-0 • STI/PUB/1730 • €28.00

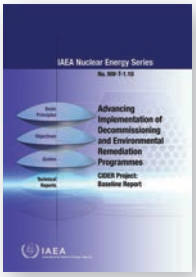
Practical Approaches to Risk Management of Knowledge Loss in Nuclear Organizations

IAEA Nuclear Energy Series No. NG-T-6.11

This publication provides a methodology to enable knowledge loss risk management to ensure safe, reliable and efficient operation of nuclear facilities. It focuses on aspects of knowledge loss risks associated with employee attrition and provides guidance to mitigate them. The described methodology has proved itself in nuclear power plants and can be adopted by any other nuclear related organization. The publication also provides examples of best practices (case studies) of effective knowledge loss risk management gathered from the nuclear power plants and nuclear related organizations as outlined in annexes I-V.

(Forthcoming) • ISBN 978-92-0-101816-8 • STI/PUB/1734 • €30.00

NUCLEAR FUEL CYCLE AND WASTE MANAGEMENT



Advancing Implementation of Decommissioning and Environmental Remediation Programmes

CIDER Project: Baseline Report

IAEA Nuclear Energy Series No. NW-T-1.10

Despite significant progress having been achieved in recent years, much remains to be done in terms of addressing the legacies from the early development of nuclear energy, including the dismantling of redundant research and fuel cycle facilities, research reactors and power plants, and the remediation of sites affected by past uranium mining and processing operations. Some countries are moving forward with dealing with these legacies, and accordingly have built up appropriate technical resources and expertise, but many national programmes still face very significant challenges. This publication discusses the barriers that prevent the implementation of decommissioning and environmental remediation (D&ER) projects and provides potential solutions to overcome the identified barriers and thereby facilitates a better implementation of D&ER programmes.

(99 pp., 7 figs; 2016) • ISBN 978-92-0-101316-3 • STI/PUB/1729 • €37.00

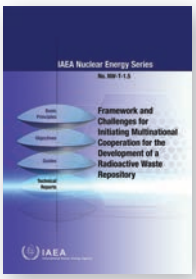
Advancing the Global Implementation of Decommissioning and Environmental Remediation Programmes

Proceedings of an International Conference Held in Madrid, Spain, 23–27 May 2016

Proceedings Series

These proceedings present the outcome of a conference on decommissioning and environmental remediation (D&ER) programmes, at which challenges, achievements and lessons learned in the implementation of such programmes during the past decade were shared and reviewed. The decision to combine D&ER in one conference reflects the significant synergies that exist between the two activities; the conference aimed to explore those synergies to foster and optimize the implementation of D&ER worldwide. Key goals were to raise awareness of the importance of addressing the legacies from past activities, to identify current priority needs and to provide recommendations on the strategies and approaches that can enable and enhance safe, secure and cost effective implementation of national and international programmes in the future. The conference was organized around seven themes: National policies and strategies; regulatory framework and standards; decision making process; technical and technological aspects; waste management; project management; and international cooperation. The publication provides a detailed synthesis of the presentations made and the panel discussions which took place during the conference. The main ideas and messages expressed and discussed at the conference are presented in the President's report, which is included in the publication.

(Forthcoming) • ISBN 978-92-0-111416-7 • STI/PUB/1759 • €40.00



Framework and Challenges for Initiating Multinational Cooperation for the Development of a Radioactive Waste Repository

IAEA Nuclear Energy Series No. NW-T-1.5

This publication is concerned with radioactive waste that requires geological disposal. It discusses the partnership arrangements necessary for the development of a multinational repository for disposal of this waste, but it also emphasizes that countries should not rely solely on a multinational solution and should in addition have coherent national plans for disposal (a dual track strategy). The publication focuses on multinational approaches based on the IAEA scenario for cooperation among countries in joint projects for the establishment of a shared geological repository. It describes the phased approach that would be needed, indicating the decision processes to be undertaken by partners in the multinational project, both within a national context and in the scope of the joint endeavour. It highlights a wide range of legal and institutional aspects, including the contractual obligations among partners, the economic and financial arrangements, liabilities, nuclear security, regulatory and legislative aspects, waste transportation arrangements, and social issues. It also addresses the uncertainties and risks involved in the implementation of a multinational repository.

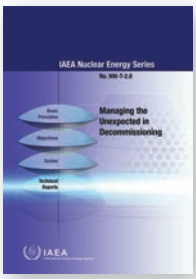
(45 pp., 1 fig.; 2016) • ISBN 978-92-0-111115-9 • STI/PUB/1722 • €32.00

International Safeguards in the Design of Conversion Plants

IAEA Nuclear Energy Series No. NF-T-4.8

This publication is the fifth in the IAEA Nuclear Energy Series to provide guidance on the inclusion of safeguards in nuclear facility design and construction. It is principally intended for designers and operators of conversion plants; however, vendors, national authorities and financial backers can also benefit from the information provided. The publication complements the general considerations addressed in International Safeguards in Nuclear Facility Design and Construction, IAEA Nuclear Energy Series No. NP-T-2.8.

(Forthcoming) • ISBN 978-92-0-100517-5 • STI/PUB/1766 • €30.00

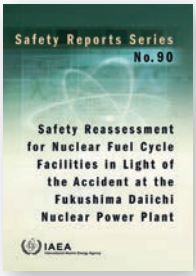


Managing the Unexpected in Decommissioning

IAEA Nuclear Energy Series No. NW-T-2.8

This publication explores the implications of decommissioning in the light of unexpected events and the trade-off between activities to reduce them and factors militating against any such extra work. It classifies and sets out some instances where unexpected findings in a decommissioning programme led to a need to either stop, or reconsider the work, re-think the options, or move forward on a different path. It provides practical guidance in planning and management of decommissioning taking into account unexpected events. This guidance includes an evaluation of the experience and lessons learned in tackling decommissioning that is often neglected. Thus it will enable future decommissioning teams to adopt the relevant lessons to reduce additional costs, time delays and radiation exposures.

(157 pp., 36 figs; 2016) • ISBN 978-92-0-103615-5 • STI/PUB/1702 • €35.00



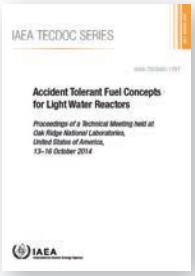
Safety Reassessment for Nuclear Fuel Cycle Facilities in Light of the Accident at the Fukushima Daiichi Nuclear Power Plant

Safety Reports Series No. 90

This publication provides guidance on performing safety reassessments, in the light of the accident at the Fukushima Daiichi nuclear power plant and in accordance with a graded approach, for nuclear fuel cycle facilities of all types. Although this publication primarily focuses on nuclear fuel cycle facilities that are in operation, the guidance it provides also applies to facilities that are in the design and construction phases. It is not intended to replace or supersede any of the requirements or guidance provided by the relevant IAEA safety standards, including those covering safety analysis, evaluation of seismic and external hazards, and emergency preparedness and response for nuclear fuel cycle facilities. However, this publication should be used in close conjunction with these safety standards.

(45 pp., 2 figs; 2016) • ISBN 978-92-0-101916-5 • STI/PUB/1726 • €40.00

FUEL FABRICATION AND PERFORMANCE



Accident Tolerant Fuel Concepts for Light Water Reactors

Proceedings of a Technical Meeting Held at Oak Ridge National Laboratories, United States of America, 13–16 October 2014

IAEA TECDOC Series No. 1797

This publication provides a record of a Technical Meeting on Accident Tolerant Fuel Concepts for Light Water Reactors, held at Oak Ridge National Laboratories in 2014, to consider the early stages of research and development into accident tolerant fuel. Following the Fukushima Daiichi accident, a review of fuel behaviour has been initiated. Zirconium alloy clad fuel operates successfully to high burnup and is the result of 40 years of continuous development and improvement. However, under severe accident conditions, the high temperature zirconium–steam interaction can be a major source of damage to the power plant. This publication considers different ways to ameliorate this problem without sacrificing the good behaviour of fuel in normal operation. Options range from making the cladding more resistant to the high temperature steam oxidation through to completely new fuel designs with ceramic cladding and different fuel materials.

(372 pp., 240 figs; 2016) • ISBN 978-92-0-105216-2 • IAEA-TECDOC-1797 • €18.00

Research Reactors for Development of Materials and Fuels for Innovative Nuclear Energy Systems: A Compendium

IAEA Nuclear Energy Series No. NP-T-5.8

This publication presents an overview of research reactor capabilities and capacities in the development of fuels and materials for innovative nuclear reactors, such as GenIV reactors. The compendium provides comprehensive information on the potential for materials and fuel testing research of 30 research reactors, both operational and in development. This information includes their power levels, mode of operation, current status, availability and historical overview of their utilization. A summary of these capabilities and capacities is presented in the overview tables of section 6. Papers providing a technical description of the research reactors, including their specific features for utilization are collected as profiles on a CD-ROM and represent an integral part of this publication. The publication is intended to foster wider access to information on existing research reactors with capacity for advanced material testing research and thus ensure their increased utilization in this particular domain. It is expected that it can also serve as a supporting tool for the establishment of regional and international networking through research reactor coalitions and IAEA designated international centres based on research reactors.

(Forthcoming) • ISBN 978-92-0-100816-9 • STI/PUB/1728 • €32.00

SPENT FUEL MANAGEMENT

Available Reprocessing and Recycling Services for Research Reactor Spent Nuclear Fuel

IAEA Nuclear Energy Series No. NW-T-1.11

The high enriched uranium (HEU) take back programmes will soon have achieved their goals. When there are no longer HEU inventories at research reactors and no commerce in HEU for research reactors, the primary driver for the take back programmes will cease. However, research reactors will continue to operate in order to meet their various mission objectives. As a result, inventories of low enriched uranium spent nuclear fuel (LEU SNF) will continue to be created during the research reactors lifetime and, therefore, there is a need to develop national final disposition routes. This publication is designed to address the issues of available reprocessing and recycling services for research reactor spent fuel and discusses the various back end management aspects of the research reactor fuel cycle.

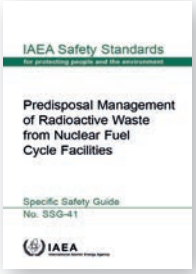
(Forthcoming) • ISBN 978-92-0-103216-4 • STI/PUB/1746 • €38.00

International Safeguards in the Design of Facilities for Long Term Spent Fuel Management

IAEA Nuclear Energy Series No. NF-T-3.1

This publication is the fifth in the IAEA Nuclear Energy Series to provide guidance on the inclusion of safeguards in nuclear facility design and construction. It is principally intended for designers and operators of facilities for long term spent fuel; however, vendors, national authorities and financial backers can also benefit from the information provided. The publication complements the general considerations addressed in International Safeguards in Nuclear Facility Design and Construction, IAEA Nuclear Energy Series No. NP-T-2.8.

(Forthcoming) • ISBN 978-92-0-100717-9 • STI/PUB/1767 • €36.00



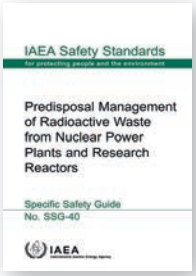
Predisposal Management of Radioactive Waste from Nuclear Fuel Cycle Facilities

Specific Safety Guide

IAEA Safety Standards Series No. SSG-41

This Safety Guide provides guidance on the predisposal management of all types of radioactive waste (including spent nuclear fuel declared as waste and high level waste) generated at nuclear fuel cycle facilities. These waste management facilities may be located within larger facilities or may be separate, dedicated waste management facilities (including centralized waste management facilities). The Safety Guide covers all stages in the lifetime of these facilities, including their siting, design, construction, commissioning, operation, and shutdown and decommissioning. It covers all steps carried out in the management of radioactive waste following its generation up to (but not including) disposal, including its processing (pretreatment, treatment and conditioning). Radioactive waste generated both during normal operation and in accident conditions is considered.

(93 pp., 3 figs; 2016) • ISBN 978-92-0-110315-4 • STI/PUB/1720 • €43.00



Predisposal Management of Radioactive Waste from Nuclear Power Plants and Research Reactors

Specific Safety Guide

IAEA Safety Standards Series No. SSG-40

This Safety Guide provides operating organizations that generate and manage radioactive waste as well as regulatory bodies and government bodies with recommendations on how to meet the requirements for the predisposal management of radioactive waste generated at nuclear power plants and research reactors (including subcritical and critical assemblies). It covers all stages in the lifetime of waste management facilities, including their siting, design, construction, commissioning, operation, and shutdown and decommissioning. It covers all steps carried out in the management of radioactive waste following its generation up to (but not including) disposal, including its processing (pre-treatment, treatment and conditioning). Radioactive waste generated during normal operation and in accident conditions is considered.

(83 pp., 4 figs; 2016) • ISBN 978-92-0-109815-3 • STI/PUB/1719 • €42.00

Processing of Irradiated Graphite to Meet Acceptance Criteria for Waste Disposal

Results of a Coordinated Research Project

IAEA TECDOC Series No. 1790

Graphite is widely used in the nuclear industry and in research facilities and this has led to increasing amounts of irradiated graphite residing in temporary storage facilities pending disposal. This publication arises from a coordinated research project (CRP) on the processing of irradiated graphite to meet acceptance criteria for waste disposal. It presents the findings of the CRP, the general conclusions and recommendations. The topics covered include graphite management issues, characterization of irradiated graphite, processing and treatment, immobilization and disposal. Included on the attached CD-ROM are formal reports from the participants.

(148 pp., 26 figs; 2016) • ISBN 978-92-0-104016-9 • IAEA-TECDOC-1790 • €18.00

PLASMA PHYSICS AND NUCLEAR FUSION

Utilization of a Network of Small Magnetic Confinement Fusion Devices for Mainstream Fusion Research

IAEA TECDOC Series No. 1807

Small magnetic confinement fusion devices have played and continue to play an important role in fusion research. Thanks to their compactness, flexibility and low operation costs, they can support scientific and technology developments, modelling analysis, and training and education. This publication presents the outcome of an IAEA coordinated research project on utilization of a network of small magnetic confinement fusion devices for mainstream fusion research and reports on the research work accomplished within the framework of the project. It presents the contribution of these devices in research in a wide range of areas such as plasma confinement and energy transport, plasma stability in different magnetic configurations, plasma turbulence and its impact on local and global plasma parameters, processes at the plasma edge and plasma-wall interaction, scenarios with additional heating and non-inductive current drive.

(180 pp., 201 figs; 2016) • ISBN 978-92-0-110416-8 • IAEA-TECDOC-1807 • €18.00

International Safeguards in the Design of Conversion Plants

IAEA Nuclear Energy Series No. NF-T-4.8

This publication is the fourth in the IAEA Nuclear Energy Series to provide guidance on the inclusion of safeguards in nuclear facility design and construction. It is principally intended for designers and operators of conversion plants; however, vendors, national authorities and financial backers can also benefit from the information provided. The publication complements the general considerations addressed in International Safeguards in Nuclear Facility Design and Construction, IAEA Nuclear Energy Series No. NP-T-2.8.

(Forthcoming) • ISBN 978-92-0-100517-5 • STI/PUB/1766 • €30.00

International Safeguards in the Design of Facilities for Long Term Spent Fuel Management

IAEA Nuclear Energy Series No. NF-T-3.1

This publication is the fifth in the IAEA Nuclear Energy Series to provide guidance on the inclusion of safeguards in nuclear facility design and construction. It is principally intended for designers and operators of facilities for long term spent fuel; however, vendors, national authorities and financial backers can also benefit from the information provided. The publication complements the general considerations addressed in International Safeguards in Nuclear Facility Design and Construction, IAEA Nuclear Energy Series No. NP-T-2.8.

(Forthcoming) • ISBN 978-92-0-100717-9 • STI/PUB/1767 • €36.00

International Safeguards in the Design of Fuel Fabrication Plants

IAEA Nuclear Energy Series No. NF-T-4.7

This publication is the third in a series from the IAEA that provides guidance on the early consideration of safeguards requirements in the design and construction of nuclear facilities. It is principally intended for designers and operators of nuclear fuel fabrication facilities; however, vendors, state authorities and investors may also benefit from the information provided. This guidance is introductory rather than comprehensive; more detailed information on IAEA safeguards implementation can be found in the Guidance for States Implementing Comprehensive Safeguards Agreements and Additional Protocols (IAEA Services Series No. 21, May 2016) and other publications in that series. This publication expands upon the general considerations addressed in International Safeguards in Nuclear Facility Design and Construction (IAEA Nuclear Energy Series No. NP-T-2.8, April 2013).

(Forthcoming) • ISBN 978-92-0-103315-4 • STI/PUB/1699 • €30.00

Developing Regulations and Associated Administrative Measures for Nuclear Security

Implementing Guide

IAEA Nuclear Security Series No. 29-G

This publication aims to assist States to identify the responsibilities of those involved in nuclear security so that suitable regulations, agreements and associated administrative measures may be developed for establishing and sustaining an effective nuclear security regime. The publication is structured to provide an overview of the most important aspects to be covered by a State's legislative and regulatory framework for governing nuclear security. States may therefore use this publication to undertake a gap analysis of their legislative and regulatory framework for nuclear security in order to take actions to update their framework as necessary.

(Forthcoming) • ISBN 978-92-0-111716-8 • STI/PUB/1762 • €39.00

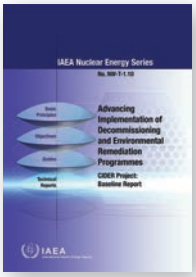
The 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage — Explanatory Texts (Rev. 1)

IAEA International Law Series No. 3 (Revised)

This publication reproduces the explanatory texts on the nuclear liability instruments adopted in 1997 under the IAEA's auspices. Finalized by the international expert group on nuclear liability (INLEX), these texts constitute a comprehensive study and authoritative interpretation of the IAEA's nuclear liability regime. More particularly, the texts deal with the Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage and the Convention on Supplementary Compensation for Nuclear Damage. The publication also presents an overview and brings together the texts of the IAEAs' nuclear liability instruments. Finally, it includes a matrix of comparative provisions in the various nuclear liability instruments, as well as the recommendations on how to achieve a global nuclear liability regime, which were adopted by INLEX in 2012 following a request by the IAEA Action Plan on Nuclear Safety.

(Forthcoming) • ISBN 978-92-0-100817-6 • STI/PUB/1768 • €52.00

ENVIRONMENT



Advancing Implementation of Decommissioning and Environmental Remediation Programmes

CIDER Project: Baseline Report

IAEA Nuclear Energy Series No. NW-T-1.10

Despite significant progress having been achieved in recent years, much remains to be done in terms of addressing the legacies from the early development of nuclear energy, including the dismantling of redundant research and fuel cycle facilities, research reactors and power plants, and the remediation of sites affected by past uranium mining and processing operations. Some countries are moving forward with dealing with these legacies, and accordingly have built up appropriate technical resources and expertise, but many national programmes still face very significant challenges. This publication discusses the barriers that prevent the implementation of decommissioning and environmental remediation (D&ER) projects and provides potential solutions to overcome the identified barriers and thereby facilitates a better implementation of D&ER programmes.

(99 pp., 7 figs; 2016) • ISBN 978-92-0-101316-3 • STI/PUB/1729 • €37.00

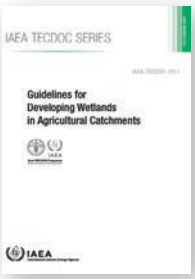
Advancing the Global Implementation of Decommissioning and Environmental Remediation Programmes

Proceedings of an International Conference Held in Madrid, Spain, 23–27 May 2016

Proceedings Series

These proceedings present the outcome of a conference on decommissioning and environmental remediation (D&ER) programmes, at which challenges, achievements and lessons learned in the implementation of such programmes during the past decade were shared and reviewed. The decision to combine D&ER in one conference reflects the significant synergies that exist between the two activities; the conference aimed to explore those synergies to foster and optimize the implementation of D&ER worldwide. Key goals were to raise awareness of the importance of addressing the legacies from past activities, to identify current priority needs and to provide recommendations on the strategies and approaches that can enable and enhance safe, secure and cost effective implementation of national and international programmes in the future. The conference was organized around seven themes: National policies and strategies; regulatory framework and standards; decision making process; technical and technological aspects; waste management; project management; and international cooperation. The publication provides a detailed synthesis of the presentations made and the panel discussions which took place during the conference. The main ideas and messages expressed and discussed at the conference are presented in the President's report, which is included in the publication.

(Forthcoming) • ISBN 978-92-0-111416-7 • STI/PUB/1759 • €40.00

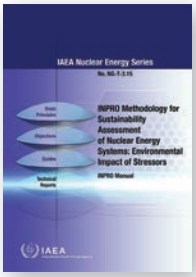


Guidelines for Developing Wetlands in Agricultural Catchments

IAEA TECDOC Series No. 1811

This publication presents the results of an international research project on optimizing the capture and storage of water by assessing nutrient using water conservation zones in agricultural landscapes. Eight countries from Asia Pacific, Africa and Europe participated in the project. Field studies were established in all participating countries using isotopic and nuclear techniques to assess three types of water conservation zones that are used to harvest water for irrigation, crop production and improve downstream water quality. In addition, isotopic and nuclear techniques were used to collect data to identify the ideal locations in the landscapes for developing wetlands. The publication provides information to researchers working in the area of soil and water management, natural resource managers, policy makers and farmers. For those working to develop wetlands, information is provided to support planning, monitoring and evaluation.

(68 pp., 16 figs; 2017) • ISBN 978-92-0-100917-3 • IAEA-TECDOC-1811 • €18.00



INPRO Methodology for Sustainability Assessment of Nuclear Energy Systems: Environmental Impact of Stressors

INPRO Manual

IAEA Nuclear Energy Series No. NG-T-3.15

This publication provides guidance on assessing of sustainability of a nuclear energy system (NES) in the area of environmental impact of stressors. The INPRO methodology is a comprehensive tool for the assessment of sustainability of an NES. Basic principles, user requirements and criteria have been defined in different areas of the INPRO methodology. These include economics, infrastructure, waste management, proliferation resistance, environmental impact of stressors, environmental impact from depletion of resources, and safety of nuclear reactors and fuel cycle facilities. The ultimate goal of the application of the INPRO methodology is to check whether the assessed NES fulfils all the criteria, and hence the user requirements and basic principles, and therefore presents a system for a Member State that is sustainable in the long term.

(94 pp., 5 figs; 2016) • ISBN 978-92-0-101616-4 • STI/PUB/1733 • €38.00

Performance of Models in Radiological Impact Assessment for Normal Operation

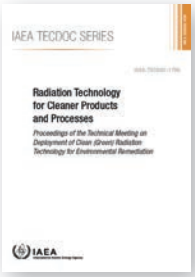
Report of Working Group 1 Reference Methodologies for Controlling Discharges of Routine Releases of EMRAS II Topical Heading Reference Approaches for Human Dose Assessment

Environmental Modelling for Radiation Safety (EMRAS II) Programme

IAEA TECDOC Series No. 1808

This publication provides the results from Working Group 1, on Reference Methodologies for Controlling Discharges of Routine Releases, of the IAEA's EMRAS II (Environmental Modelling for Radiation Safety) programme, which ran from 2009 to 2011. This Working Group carried out an intercomparison of methods used for assessing radiological impacts to people and the environment due to authorized releases of radionuclides during normal operation of nuclear facilities. Three important types of exposure scenarios were considered, those related to atmospheric, marine and river releases. The publication describes the details of the hypothetical radioactive release scenarios, the environmental pathways considered, the environmental transfer models applied, the calculation methods and the results obtained. An analysis of the results and the main findings and conclusions relevant for the use of the described input data and methodologies in regulatory applications is included. The publication also presents considerations on selection of the 'representative person' and a summary of the different approaches in some States for the regulatory control of radioactive discharges. Input data is included in the annex.

(98 pp., 15 figs; 2017) • ISBN 978-92-0-112616-0 • IAEA-TECDOC-1808 • €18.00



Radiation Technology for Cleaner Products and Processes

Proceedings of the Technical Meeting on Deployment of Clean (Green) Radiation Technology for Environmental Remediation

IAEA TECDOC Series No. 1786

The development of appropriate green technologies capable of reducing the use and release of pollutants is becoming increasingly important in order to meet improved environmental regulations. The application of radiation technologies has proven to offer many advantages in lessening the environmental impact of processes and in the green development of new products. Examples include industrial effluents and municipal waste treatment, materials modification and the sterilization of equipment. This publication presents the proceedings of a technical meeting on the deployment of clean radiation technology for environmental remediation. The meeting provided a forum for presenting recent developments and reviewing global, regional and national level initiatives. Papers provided detailed practical experience and lessons learned in the use of radiation technologies for the treatment of environmental pollutants and in the development of new materials and other products. Economic and regulatory issues were addressed. Consideration was also given to future developments and roadmaps for integrating radiation technology with conventional technologies on a larger scale.

(244 pp., 128 figs; 2016) • ISBN 978-92-0-101016-2 • IAEA-TECDOC-1786 • €18.00

The Environmental Behaviour of Polonium

Technical Reports Series No. 484

This publication covers polonium behaviour in the terrestrial, freshwater and marine environments, dose considerations and mitigation and remediation options. Additionally, case studies are presented. The primary objective is to provide Member States with information for use in the radiological assessment of accidental releases and routine discharges of polonium in the environment, and in remediation planning for areas contaminated by polonium.

(Forthcoming) • ISBN 978-92-0-112116-5 • STI/DOC/010/484 • €80.00

NUCLEAR SECURITY AND PHYSICAL PROTECTION OF RADIOACTIVE MATERIAL

Building Capacity for Nuclear Security

Implementing Guide

IAEA Nuclear Security Series No. 31-G

Each State has the primary responsibility to build the capacity of organizations and people in order to develop, implement, and sustain a nuclear security regime. To discharge its responsibilities, the State has to strengthen its capacity at national, organisational and individual levels. Specifically, the State has to be able to enhance the competences and capabilities of relevant stakeholders in fulfilling their responsibilities within the nuclear security regime. Such endeavour involves various elements in capacity building, ranging from education and training to the development of knowledge network. This publication is intended to serve as a reference document for Member States to develop a national capacity building strategy for nuclear security. It addresses all organizations involved in nuclear security and reflects the multi-disciplinary and cross-institutional nature of this task, as well as the long term efforts that are required.

(Forthcoming) • ISBN 978-92-0-111916-2 • STI/PUB/1764 • €40.00

Computer Security Incident Response Planning at Nuclear Facilities

The purpose of this publication is to assist Member States in developing comprehensive contingency plans for computer security incidents with the potential to impact nuclear security and/or nuclear safety. It provides an outline and recommendations for establishing a computer security incident response capability as part of a computer security programme, and considers the roles and responsibilities of the system owner, operator, competent authority, and national technical authority in responding to a computer security incident with possible nuclear security repercussions.

(62 pp., 4 figs; 2016) • ISBN 978-92-0-104416-7 • IAEA-TDL-005 • €18.00

Computer Security of Instrumentation and Control Systems at Nuclear Facilities

Technical Guidance

IAEA Nuclear Security Series No. 33-T

Computer Security as a discipline is challenged by increasing threat vectors targeting a dynamic technological environment. This publication establishes guidance addressing the challenge of applying computer security measures to instrumentation and control (I&C) systems at nuclear facilities. The measures are intended to protect these I&C systems throughout their entire lifecycles against malicious acts perpetrated by threat actors. The technical basis and methodologies for the application of these computer security measures are considered. The publication also addresses the application of such measures to the development, simulation and maintenance environments of these I&C systems. In addition, account is taken of developments in human factors engineering and nuclear safety. This Technical Guide references and takes into account other IAEA Safety Guides and Nuclear Security Series publications that provide guidance relating to I&C design.

(Forthcoming) • ISBN 978-92-0-103117-4 • STI/PUB/1787 • €42.00

Developing Regulations and Associated Administrative Measures for Nuclear Security

Implementing Guide

IAEA Nuclear Security Series No. 29-G

This publication aims to assist States to identify the responsibilities of those involved in nuclear security so that suitable regulations, agreements and associated administrative measures may be developed for establishing and sustaining an effective nuclear security regime. The publication is structured to provide an overview of the most important aspects to be covered by a State's legislative and regulatory framework for governing nuclear security. States may therefore use this publication to undertake a gap analysis of their legislative and regulatory framework for nuclear security in order to take actions to update their framework as necessary.

(Forthcoming) • ISBN 978-92-0-111716-8 • STI/PUB/1762 • €39.00

Conducting Computer Security Assessments at Nuclear Facilities

Computer security is increasingly recognized as a key component in nuclear security. As technology advances, it is anticipated that computer and computing systems will be used to an even greater degree in all aspects of plant operations including safety and security systems. A rigorous and comprehensive assessment process can assist in strengthening the effectiveness of the computer security programme. This publication outlines a methodology for conducting computer security assessments at nuclear facilities. The methodology can likewise be easily adapted to provide assessments at facilities with other radioactive materials.

(64 pp., 4 figs; 2016) • ISBN 978-92-0-104616-1 • IAEA-TDL-006 • €18.00

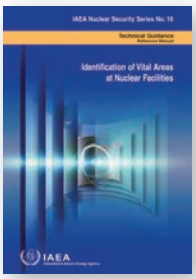
Establishing a System for Control of Nuclear Material for Nuclear Security Purposes at a Facility during Use, Storage and Movement

Technical Guidance

IAEA Nuclear Security Series No. 32-T

Control of nuclear material comprises the administrative and technical measures applied to ensure that nuclear material is not misused or removed from its assigned location without approval and/or without proper accounting. This publication, which builds upon the Implementing Guide IAEA Nuclear Security Series No. 25-G, focuses on the control of nuclear material during storage, use and movement using a facility's nuclear material accounting and control (NMAC) system. It describes practical measures for controlling nuclear material for nuclear security purposes during all activities at a facility, including movements, and how to use a graded approach in applying such measures. The technical guidance provided is targeted at States and their competent authorities on how to use individual elements of the NMAC system, but will be also useful for persons responsible for designing, operating and assessing nuclear security systems, physical protection of nuclear facilities, nuclear security management, operators and managers of NMAC systems; as well as for those preparing associated regulations; and persons responsible for computer security at nuclear facilities.

(Forthcoming) • ISBN 978-92-0-103017-7 • STI/PUB/1786 • €38.00



Identification of Vital Areas at Nuclear Facilities

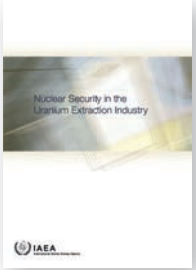
Technical Guidance

Reference Manual

IAEA Nuclear Security Series No. 16

This publication provides detailed guidance with regard to the identification of vital areas at nuclear facilities. It presents a structured approach to identifying those areas that contain equipment, systems and components to be protected against sabotage. The process for selection of a specific set of vital areas to be protected is based on consideration of the potential radiological consequences of sabotage, and on the design, operational and safety features of a nuclear facility. The method builds upon safety analysis to develop logic models for sabotage scenarios that could cause unacceptable radiological consequences. The sabotage actions represented in the logic models are linked to the areas from which they can be accomplished. The logic models are then analysed to determine areas that should be protected to prevent these unacceptable radiological consequences. The publication is part of a set of supporting publications in the IAEA Nuclear Security Series with the aim of assisting States in the design, implementation and evaluation of their physical protection systems for nuclear material and nuclear facilities.

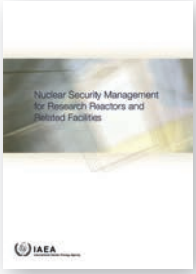
English Edition (37 pp., 2 figs; 2013) • ISBN 978-92-0-114410-2 • STI/PUB/1505 • €22.00
French Edition (39 pp., 2 figs; 2016) • ISBN 978-92-0-210915-5 • STI/PUB/1505 • €22.00



Nuclear Security in the Uranium Extraction Industry

This publication provides States and operators with advice for defining, implementing, maintaining or enhancing their nuclear security regime for the protection of uranium ore concentrate against unauthorized removal. It defines prudent management practice as required by IAEA Nuclear Security Series No. 13, Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Revision 5), for this category of material. This advice can be adopted in the form of regulations or applied as voluntary standards. States, regulatory bodies, and industry may choose to tailor their implementation of this advice to meet their national circumstances.

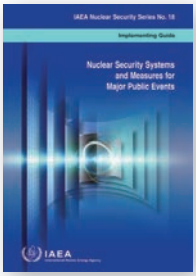
(68 pp.; 2016) • ISBN 978-92-0-110815-9 • IAEA-TDL-003 • €18.00



Nuclear Security Management for Research Reactors and Related Facilities

This publication provides a single source guidance to assist those responsible for the implementation of nuclear security measures at research reactors and associated facilities in developing and maintaining an effective and comprehensive programme covering all aspects of nuclear security on the site. It is based on national experience and practices as well as on publications in the field of nuclear management and security. The scope includes security operations, security processes, and security forces and their relationship with the State's nuclear security regime. The guidance is provided for consideration by States, competent authorities and operators.

(84 pp., 2 figs; 2016) • ISBN 978-92-0-111315-3 • IAEA-TDL-004 • €18.00



Nuclear Security Systems and Measures for Major Public Events

Implementing Guide

IAEA Nuclear Security Series No. 18

This publication provides an overview, based on practical experience and lessons learned, for establishing nuclear security systems and measures for major public events. It covers technical and administrative nuclear security measures for developing the necessary organizational structure, developing plans, strategies and concepts of operations, and making arrangements for implementing the developed plans, strategies and concepts.

Arabic Edition (60 pp., 14 figs; 2016) • ISBN 978-92-0-610716-4 • STI/PUB/1546 • €30.00
English Edition (56 pp., 14 figs; 2012) • ISBN 978-92-0-127010-8 • STI/PUB/1546 • €30.00
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Implementing Guide

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This publication provides guidance to Member States for the development, or improvement of nuclear security systems and measures for the detection of criminal or unauthorized acts with nuclear security implications involving nuclear and other radioactive material out of regulatory control. It describes the elements of an effective nuclear security detection architecture which is comprised of an integrated set of nuclear security systems and measures, and is based on an appropriate legal and regulatory framework for the implementation of the national detection strategy. The publication is an Implementing Guide within the IAEA Nuclear Security Series and is intended for use by national policy makers, legislative bodies, competent authorities, institutions, and individuals involved in the establishment, implementation, maintenance or sustainability of nuclear security systems and measures for the detection of nuclear and other radioactive material out of regulatory control.

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Implementing Guide

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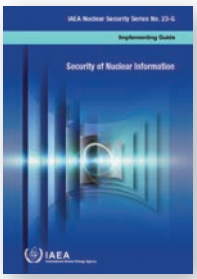

Security of Nuclear Information

Implementing Guide

IAEA Nuclear Security Series No. 23-G

This publication provides guidance on implementing the principle of confidentiality and on the broader aspects of information security (i.e. integrity and availability). It assists States in bridging the gap between existing government and industry standards on information security, the particular concepts and considerations that apply to nuclear security and the special provisions and conditions that exist when dealing with nuclear material and other radioactive material. Specifically it seeks to assist States in the identification, classification, and assignment of appropriate security controls to information that could adversely impact nuclear security if compromised.

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Self-assessment of Nuclear Security Culture in Facilities and Activities

Technical Guidance

IAEA Nuclear Security Series No. 28-T

The IAEA has developed a comprehensive methodology for evaluating nuclear security culture. When implemented by a State, this methodology will help to make nuclear security culture sustainable. It will also promote cooperation and the sharing of good practices related to nuclear security culture. This publication is the first guidance for assessing nuclear security culture and analysing its strengths and weaknesses in a facility or activity, or in an organization. It reflects, within the context of assessment, the nuclear security culture model, principles and criteria set out in the Implementing Guide, IAEA Nuclear Security Series No. 7. This guidance will be useful for organizations and operating facilities in conducting the self-assessment of nuclear security culture by providing practical methods and tools. It will also help regulatory bodies and other competent authorities to understand the self-assessment methodology used by operators, encourage operators to start the self-assessment process or, if appropriate, conduct independent assessments of nuclear security culture.

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IAEA International Law Series No. 3 (Revised)	The 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage — Explanatory Texts (Rev. 1)	57

IAEA Nuclear Energy Series

IAEA Nuclear Energy Series No. NF-T-1.4	In Situ Leach Uranium Mining: An Overview of Operations	13
IAEA Nuclear Energy Series No. NF-T-1.6	Uranium Geology, Exploration, Resources, Production and Related Activities Volume 1: Africa	13
IAEA Nuclear Energy Series No. NF-T-1.7	Uranium Geology, Exploration, Resources, Production and Related Activities Volume 2: Central, Eastern and Southeast Europe	14
IAEA Nuclear Energy Series No. NF-T-1.8	Uranium Geology, Exploration, Resources, Production and Related Activities Volume 3: Southeast Asia, East Asia and the Pacific	14
IAEA Nuclear Energy Series No. NF-T-2.2	Accelerator Simulation and Theoretical Modelling of Radiation Effects (SMoRE)	10, 46
IAEA Nuclear Energy Series No. NF-T-3.1	International Safeguards in the Design of Facilities for Long Term Spent Fuel Management	51, 55
IAEA Nuclear Energy Series No. NF-T-4.7	International Safeguards in the Design of Fuel Fabrication Plants	22, 55
IAEA Nuclear Energy Series No. NF-T-4.8	International Safeguards in the Design of Conversion Plants	43, 50, 55
IAEA Nuclear Energy Series No. NG-T-1.5	Leadership, Human Performance and Internal Communication for Nuclear Emergencies	32, 48
IAEA Nuclear Energy Series No. NG-T-3.2 (Rev. 1)	Evaluation of the Status of National Nuclear Infrastructure Development	41
IAEA Nuclear Energy Series No. NG-T-3.4	Industrial Involvement to Support a National Nuclear Power Programme	42
IAEA Nuclear Energy Series No. NG-T-3.14	Building a National Position for a New Nuclear Power Programme	41
IAEA Nuclear Energy Series No. NG-T-3.15	INPRO Methodology for Sustainability Assessment of Nuclear Energy Systems: Environmental Impact of Stressors	42, 60
IAEA Nuclear Energy Series No. NG-T-3.16	Strategic Planning for Research Reactors	12
IAEA Nuclear Energy Series No. NG-T-4.6	Managing the Financial Risk Associated with the Financing of New Nuclear Power Plant Projects	43
IAEA Nuclear Energy Series No. NG-T-5.2	Modelling Nuclear Energy Systems with MESSAGE: A User's Guide	43
IAEA Nuclear Energy Series No. NG-T-6.2	Development of Knowledge Portals for Nuclear Power Plants	47
IAEA Nuclear Energy Series No. NG-T-6.8	Nuclear Accident Knowledge Taxonomy	32, 48
IAEA Nuclear Energy Series No. NG-T-6.10	Knowledge Management and Its Implementation in Nuclear Organizations	48
IAEA Nuclear Energy Series No. NG-T-6.11	Practical Approaches to Risk Management of Knowledge Loss in Nuclear Organizations	48
IAEA Nuclear Energy Series No. NP-T-2.10	Commissioning Guidelines for Nuclear Power Plants	41
IAEA Nuclear Energy Series No. NP-T-3.3	Industrial Safety Guidelines for Nuclear Facilities	25, 44

IAEA Nuclear Energy Series No. NP-T-3.5	Ageing Management of Concrete Structures in Nuclear Power Plants	40
IAEA Nuclear Energy Series No. NP-T-3.8	Maintenance Optimization Programme for Nuclear Power Plants	44
IAEA Nuclear Energy Series No. NP-T-3.17	Application of Field Programmable Gate Arrays in Instrumentation and Control Systems of Nuclear Power Plants	46
IAEA Nuclear Energy Series No. NP-T-3.19	Instrumentation and Control Systems for Advanced Small Modular Reactors	47
IAEA Nuclear Energy Series No. NP-T-3.20	Buried and Underground Piping and Tank Ageing Management for Nuclear Power Plants	40
IAEA Nuclear Energy Series No. NP-T-3.21	Procurement Engineering and Supply Chain Guidelines in Support of Operation and Maintenance of Nuclear Facilities	45
IAEA Nuclear Energy Series No. NP-T-3.23	Non-baseload Operations in Nuclear Power Plants: Load Following and Frequency Control Modes of Flexible Operations	44
IAEA Nuclear Energy Series No. NP-T-3.24	Handbook of Ageing Management for Nuclear Power Plants	42
IAEA Nuclear Energy Series No. NP-T-4.1	Opportunities for Cogeneration with Nuclear Energy	40
IAEA Nuclear Energy Series No. NP-T-4.3	Industrial Applications of Nuclear Energy	15, 39
IAEA Nuclear Energy Series No. NP-T-5.7	Digital Instrumentation and Control Systems for New Facilities and Modernization of Existing Research Reactors	46
IAEA Nuclear Energy Series No. NP-T-5.8	Research Reactors for Development of Materials and Fuels for Innovative Nuclear Energy Systems: A Compendium	51
IAEA Nuclear Energy Series No. NW-T-1.5	Framework and Challenges for Initiating Multinational Cooperation for the Development of a Radioactive Waste Repository	50
IAEA Nuclear Energy Series No. NW-T-1.10	Advancing Implementation of Decommissioning and Environmental Remediation Programmes	49, 59
IAEA Nuclear Energy Series No. NW-T-1.11	Available Reprocessing and Recycling Services for Research Reactor Spent Nuclear Fuel	51
IAEA Nuclear Energy Series No. NW-T-2.8	Managing the Unexpected in Decommissioning	50

IAEA Nuclear Security Series

IAEA Nuclear Security Series No. 16	Identification of Vital Areas at Nuclear Facilities	19, 65
IAEA Nuclear Security Series No. 18	Nuclear Security Systems and Measures for Major Public Events	20, 65
IAEA Nuclear Security Series No. 21	Nuclear Security Systems and Measures for the Detection of Nuclear and Other Radioactive Material out of Regulatory Control	66
IAEA Nuclear Security Series No. 23-G	Security of Nuclear Information	21, 66
IAEA Nuclear Security Series No. 27-G	Physical Protection of Nuclear Material and Nuclear Facilities	66
IAEA Nuclear Security Series No. 28-T	Self-assessment of Nuclear Security Culture in Facilities and Activities	21, 66
IAEA Nuclear Security Series No. 29-G	Developing Regulations and Associated Administrative Measures for Nuclear Security	19,57,64
IAEA Nuclear Security Series No. 30-G	Sustaining a Nuclear Security Regime	22, 66
IAEA Nuclear Security Series No. 31-G	Building Capacity for Nuclear Security	17, 63
IAEA Nuclear Security Series No. 32-T	Establishing a System for Control of Nuclear Material for Nuclear Security Purposes at a Facility during Use, Storage and Movement	64
IAEA Nuclear Security Series No. 33-T	Computer Security of Instrumentation and Control Systems at Nuclear Facilities	18, 64

IAEA Radiation Technology Series

IAEA Radiation Technology Series No. 6	Uses of Ionizing Radiation for Conservation for Tangible Cultural Heritage	9

IAEA Radioisotopes and Radiopharmaceuticals Reports

IAEA Radioisotopes and Radiopharmaceuticals Reports No. 1	**Cyclotron Produced Radionuclides: Emerging Positron Emitters for Medical Applications: 64Cu and 124I**	**3**
IAEA Radioisotopes and Radiopharmaceuticals Reports No. 2	**Accelerator Based Alternatives to Non-HEU Production of Technetium-99m**	**3, 11**

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The IAEA Safety Standards Series comprises publications of a regulatory nature covering nuclear safety, radiation protection, radioactive waste management, the transport of radioactive material, the safety of nuclear fuel cycle facilities and management systems. These publications are issued under the terms of Article III of the IAEA's Statute, which authorizes the IAEA to establish "standards of safety for protection of health and minimization of danger to life and property". Safety standards are categorized into:

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- Safety Requirements, establishing the requirements that must be fulfilled to ensure safety; and
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Please note that this index does not detail all available safety standards. Only titles published in 2016 and 2017 and those forthcoming in 2017 and 2018 are shown. For a full list, please visit the IAEA books website: *www.iaea.org/books* or email: *sales.publications@iaea.org.*

General Safety Standards (applicable to all facilites and activites)

IAEA Safety Standards Series No. GSR Part 1 (Rev. 1)	**Governmental, Legal and Regulatory Framework for Safety**	**38**
IAEA Safety Standards Series No. GSR Part 2	**Leadership and Management for Safety**	**20**
IAEA Safety Standards Series No. GSR Part 3	**Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards**	**21**
IAEA Safety Standards Series No. GSR Part 4 (Rev. 1)	**Safety Assessment for Facilities and Activities**	**36**
IAEA Safety Standards Series No. GSR Part 6	**Decommissioning of Facilities**	**18, 33**
IAEA Safety Standards Series No. GSR Part 7	**Preparedness and Response for a Nuclear or Radiological Emergency**	**33**
IAEA Safety Standards Series No. GS-G-2.1	**Arrangements for Preparedness for a Nuclear or Radiological Emergency**	**32**
IAEA Safety Standards Series No. GS-G-3.1	**Application of the Management System for Facilities and Activities**	**24, 44**
IAEA Safety Standards Series No. GSG-5	**Justification of Practices, Including Non-Medical Human Imaging**	**31**
IAEA Safety Standards Series No. GSG-6	**Communication and Consultation with Interested Parties by the Regulatory Body**	**37**
IAEA Safety Standards Series No. GSG-7	**Occupational Radiation Protection**	**31**
IAEA Safety Standards Series No. GSG-8	**Radiation Protection of the Public and the Environment**	**31**
IAEA Safety Standards Series No. RS-G-1.8	**Environmental and Source Monitoring for Purposes of Radiation Protection**	**30, 34**

Specific Safety Standards (applicable to specified facilites and activities)

Nuclear Power Plants

IAEA Safety Standards Series No. NS-R-3 (Rev. 1)	**Site Evaluation for Nuclear Installations**	**21**
IAEA Safety Standards Series No. SSR-2/1 (Rev. 1)	**Safety of Nuclear Power Plants: Design**	**28**
IAEA Safety Standards Series No. SSR-2/2 (Rev. 1)	**Safety of Nuclear Power Plants: Commissioning and Operation**	**27**
IAEA Safety Standards Series No. NS-G-2.15	**Severe Accident Management Programmes for Nuclear Power Plants**	**28**

IAEA Safety Standards Series No. SSG-25	Periodic Safety Review for Nuclear Power Plants	26
IAEA Safety Standards Series No. SSG-28	Commissioning for Nuclear Power Plants	24
IAEA Safety Standards Series No. SSG-34	Design of Electrical Power Systems for Nuclear Power Plants	25, 46
IAEA Safety Standards Series No. SSG-39	Design of Instrumentation and Control Systems for Nuclear Power Plants	25
IAEA Safety Standards Series No. SSG-40	Predisposal Management of Radioactive Waste from Nuclear Power Plants and Research Reactors	34, 52

Fuel Cycle Facilities

IAEA Safety Standards Series No. NS-R-3 (Rev. 1)	Site Evaluation for Nuclear Installations	21
IAEA Safety Standards Series No. NS-R-5 (Rev. 1)	Safety of Nuclear Fuel Cycle Facilities	23
IAEA Safety Standards Series No. SSG-41	Predisposal Management of Radioactive Waste from Nuclear Fuel Cycle Facilities	34, 52
IAEA Safety Standards Series No. SSG-42	Safety of Nuclear Fuel Reprocessing Facilities	23
IAEA Safety Standards Series No. SSG-43	Safety of Nuclear Fuel Cycle Research and Development Facilities	23

Application of Radiation Sources

IAEA Safety Standards Series No. SSG-36	Radiation Safety for Consumer Products	32
IAEA Safety Standards Series No. SSG-44	Establishing the Infrastructure for Radiation Safety	19
IAEA Safety Standards Series No. SSG-45	Predisposal Management of Radioactive Waste from the Use of Radioactive Material in Medicine, Industry, Agriculture, Research and Education	35
IAEA Safety Standards Series No. SSG-46	Radiation Protection and Safety in Medical Uses of Ionizing Radiation	3, 31

Research Reactors

IAEA Safety Standards Series No. NS-R-3 (Rev. 1)	Site Evaluation for Nuclear Installations	21
IAEA Safety Standards Series No. SSR-3	Safety of Research Reactors	29
IAEA Safety Standards Series No. SSG-40	Predisposal Management of Radioactive Waste from Nuclear Power Plants and Research Reactors	34, 52

Transport of Radioactive Material

IAEA Safety Standards Series No. SSG-26	Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (2012 Edition)	29

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IAEA TECDOC Series No. 1675	**Knowledge Management for Nuclear Research and Development Organizations**	**48**
IAEA TECDOC Series No. 1685	**Application of the Risk Matrix Method to Radiotherapy**	**2, 35**
IAEA TECDOC Series No. 1772	**Guidelines for the Development of a Quality Management System (QMS) on Training and Certification of Personnel for Non-destructive Testing (NDT)**	**10**
IAEA TECDOC Series No. 1783	**Supporting Sampling and Sample Preparation Tools for Isotope and Nuclear Analysis**	**6, 11**
IAEA TECDOC Series No. 1784	**Management and Area-wide Evaluation of Water Conservation Zones in Agricultural Catchments for Biomass Production, Water Quality and Food Security**	**6**
IAEA TECDOC Series No. 1785	**Design Safety Considerations for Water Cooled Small Modular Reactors Incorporating Lessons Learned from the Fukushima Daiichi Accident**	**25**
IAEA TECDOC Series No. 1786	**Radiation Technology for Cleaner Products and Processes**	**15, 61**
IAEA TECDOC Series No. 1787	**Application of the Safety Classification of Structures, Systems and Components in Nuclear Power Plants**	**24**
IAEA TECDOC Series No. 1788	**Criteria for Radionuclide Activity Concentrations for Food and Drinking Water**	**30**
IAEA TECDOC Series No. 1789	**Impacts of Electricity Market Reforms on the Choice of Nuclear and Other Generation Technologies**	**42**
IAEA TECDOC Series No. 1790	**Processing of Irradiated Graphite to Meet Acceptance Criteria for Waste Disposal**	**52**
IAEA TECDOC Series No. 1791	**Considerations on the Application of the IAEA Safety Requirements for the Design of Nuclear Power Plants**	**25**
IAEA TECDOC Series No. 1792	**Proceedings of the International Conference on the Safe and Secure Transport of Radioactive Material: The Next Fifty Years**	**29**
IAEA TECDOC Series No. 1793	**Sustainable Electricity Supply Scenarios for West Africa**	**43**
IAEA TECDOC Series No. 1794	**Guidelines on Devising a Programme for Competence Acquisition and Development among Nuclear Regulators**	**38**

IAEA TECDOC Series No. 1795	Volcanic Hazard Assessments for Nuclear Installations: Methods and Examples in Site Evaluation	37
IAEA TECDOC Series No. 1796	Seismic Hazard Assessment in Site Evaluation for Nuclear Installations: Ground Motion Prediction Equations and Site Response	37
IAEA TECDOC Series No. 1797	Accident Tolerant Fuel Concepts for Light Water Reactors	23, 51
IAEA TECDOC Series No. 1798	High Burnup Fuel: Implications and Operational Experience	44
IAEA TECDOC Series No. 1799	Environmental Change in Post-closure Safety Assessment of Solid Radioactive Waste Repositories	29
IAEA TECDOC Series No. 1800	Development of Radiometric and Allied Analytical Methods and Strategies to Strengthen National Residue Control Programmes for Antibiotic and Anthelmintic Veterinary Drug Residues	7
IAEA TECDOC Series No. 1801	Management of the Interface between Nuclear Safety and Security for Research Reactors	28
IAEA TECDOC Series No. 1802	Integrated Soil, Water and Nutrient Management for Sustainable Rice–Wheat Cropping Systems in Asia	6
IAEA TECDOC Series No. 1803	Trends of Synchrotron Radiation Applications in Cultural Heritage, Forensics and Materials Science	11
IAEA TECDOC Series No. 1804	Attributes of Full Scope Level 1 Probabilistic Safety Assessment (PSA) for Applications in Nuclear Power Plants	24
IAEA TECDOC Series No. 1805	Use of Phosphorus Isotopes for Improving Phosphorus Management in Agricultural Systems	7
IAEA TECDOC Series No. 1806	Nuclear Power Plant Outage Optimization Strategy	45
IAEA TECDOC Series No. 1807	Utilization of a Network of Small Magnetic Confinement Fusion Devices for Mainstream Fusion Research	53
IAEA TECDOC Series No. 1808	Performance of Models in Radiological Impact Assessment for Normal Operation	36, 60
IAEA TECDOC Series No. 1809	Cosmic Ray Neutron Sensing: Use, Calibration and Validation for Soil Moisture Estimation	6, 9
IAEA TECDOC Series No. 1810	Status of Radon Related Activities in Member States Participating in Technical Cooperation Projects in Europe	22
IAEA TECDOC Series No. 1811	Guidelines for Developing Wetlands in Agricultural Catchments	5, 60

INSAG Series

INSAG Series No. 26	Licensing the First Nuclear Power Plant	20, 26
INSAG Series No. 27	Ensuring Robust National Nuclear Safety Systems — Institutional Strength in Depth	19

Operating Experience

	Operating Experience with Nuclear Power Stations in Member States in 2015	45

Proceedings Series

	International Conference on Effective Nuclear Regulatory Systems: Sustaining Improvements Globally	38
	International Conference on Human Resource Development for Nuclear Power Programmes: Building and Sustaining Capacity	47
	Advancing the Global Implementation of Decommissioning and Environmental Remediation Programmes	49, 59

Reference Data Series

Reference Data Series No. 1	Energy, Electricity and Nuclear Power Estimates for the Period up to 2050	41
Reference Data Series No. 2	Nuclear Power Reactors in the World	40

Safety Reports Series

Safety Reports Series No. 83	Performing Safety Culture Self-assessments	37
Safety Reports Series No. 86	Safety Aspects of Nuclear Power Plants in Human Induced External Events: General Considerations	27
Safety Reports Series No. 87	Safety Aspects of Nuclear Power Plants in Human Induced External Events: Assessment of Structures	26
Safety Reports Series No. 88	Safety Aspects of Nuclear Power Plants in Human Induced External Events: Margin Assessment	26
Safety Reports Series No. 89	Diffuse Seismicity in Seismic Hazard Assessment for Site Evaluation of Nuclear Installations	35
Safety Reports Series No. 90	Safety Reassessment for Nuclear Fuel Cycle Facilities in Light of the Accident at the Fukushima Daiichi Nuclear Power Plant	36, 50
Safety Reports Series No. 91	Impact of Open Phase Conditions on Electrical Power Systems of Nuclear Power Plants	25
Safety Reports Series No. 92	Consideration of External Hazards in Probabilistic Safety Assessment for Single Unit and Multi-unit Nuclear Power Plants	24, 35
Safety Reports Series No. 93	A Methodology for Establishing a National Strategy for Education and Training in Radiation, Transport and Waste Safety	17

Technical Reports Series

Technical Reports Series No. 481	Manual of Good Practice in Food Irradiation	5
Technical Reports Series No. 482	History, Development and Future of TRIGA Research Reactors	11
Technical Reports Series No. 483	Dosimetry of Small Static Fields Used in External Beam Radiotherapy: An International Code of Practice for Reference and Relative Dose Determination Prepared Jointly by the IAEA and AAPM	1
Technical Reports Series No. 484	The Environmental Behaviour of Polonium	10, 61
Technical Reports Series No. 485	Improvement of the Reliability and Accuracy of Heavy Ion Beam Analysis	10

STOCKLIST OF PUBLICATIONS 2014–2017

Series & No.	Title	Language	ISBN	OldSymbol	Published	PriceEuro
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Series & No.	Title	Language	ISBN	OldSymbol	Published	PriceEuro
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Series & No.	Title	Language	ISBN	OldSymbol	Published	PriceEuro
IAEA Safety Standards Series No. SSG-13	Chemistry Programme for Water Cooled Nuclear Power Plants Specific Safety Guide	R	978-92-0-400914-9	STI/PUB/1469	2014	25.00
IAEA Safety Standards Series No. GSG-1	Classification of Radioactive Waste General Safety Guide	R	978-92-0-403514-8	STI/PUB/1419	2014	24.00
IAEA Safety Standards Series No. GSG-1	Classification of Radioactive Waste General Safety Guide	S	978-92-0-307414-8	STI/PUB/1419	2015	24.00
IAEA Human Health Series No. 32	Clinical PET/CT Atlas: A Casebook of Imaging in Oncology	E	978-92-0-101115-2	STI/PUB/1680	2015	70.00
IAEA Safety Standards Series No. SSG-28	Commissioning for Nuclear Power Plants Specific Safety Guide	E	978-92-0-140110-6	STI/PUB/1595	2014	40.00
IAEA Safety Standards Series No. SSG-28	Commissioning for Nuclear Power Plants Specific Safety Guide	R	978-92-0-406016-4	STI/PUB/1595	2016	40.00
IAEA TECDOC Series No. 1583	Commissioning of Radiotherapy Treatment Planning Systems: Testing for Typical External Beam Treatment Techniques Report of the Coordinated Research Project on Development of Procedures for Quality Assurance of Dosimetry Calculations in Radiotherapy	R	978-92-0-400616-2	IAEA-TECDOC-1583	2016	18.00
IAEA Nuclear Energy Series No. NW-T-3.5	Communication and Stakeholder Involvement in Environmental Remediation Projects	E	978-92-0-145210-8	STI/PUB/1629	2014	28.00
IAEA TECDOC Series No. 1743	Compendium of Neutron Beam Facilities for High Precision Nuclear Data Measurements	E	978-92-0-106614-5	IAEA-TECDOC-1743	2014	18.00
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IAEA Safety Standards Series No. SSG-38	Construction for Nuclear Installations Specific Safety Guide	E	978-92-0-102715-3	STI/PUB/1693	2015	42.00
IAEA Safety Standards Series No. SSG-17	Control of Orphan Sources and Other Radioactive Material in the Metal Recycling and Production Industries Specific Safety Guide	A	978-92-0-606914-1	STI/PUB/1509	2014	31.00
IAEA Safety Standards Series No. SSG-17	Control of Orphan Sources and Other Radioactive Material in the Metal Recycling and Production Industries Specific Safety Guide	F	978-92-0-209114-6	STI/PUB/1509	2014	31.00
IAEA Nuclear Energy Series No. NW-T-2.4	Cost Estimation for Research Reactor Decommissioning	E	978-92-0-140210-3	STI/PUB/1596	2014	22.00
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	Country Nuclear Power Profiles 2016 Edition	E	978-92-0-156916-5	IAEA-CNPP/2016/CD	2016	95.00
IAEA TECDOC Series No. 1788	Criteria for Radionuclide Activity Concentrations for Food and Drinking Water	E	978-92-0-103816-6	IAEA-TECDOC-1788	2016	18.00
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IAEA Safety Standards Series No. GSR Part 6	Decommissioning of Facilities General Safety Requirements	E	978-92-0-102614-9	STI/PUB/1652	2014	25.00
IAEA Safety Standards Series No. GSR Part 6	Decommissioning of Facilities General Safety Requirements	C	978-92-0-510215-3	STI/PUB/1652	2015	25.00
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IAEA Safety Standards Series No. GSR Part 6	Decommissioning of Facilities General Safety Requirements	A	978-92-0-600216-2	STI/PUB/1652	2016	25.00
IAEA Nuclear Energy Series No. NW-T-2.6	Decommissioning of Pools in Nuclear Facilities	E	978-92-0-103115-0	STI/PUB/1697	2015	55.00
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IAEA Safety Standards Series No. SSG-39	Design of Instrumentation and Control Systems for Nuclear Power Plants Specific Safety Guide	E	978-92-0-102815-0	STI/PUB/1694	2016	54.00
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IAEA Safety Standards Series No. SSG-16	Establishing the Safety Infrastructure for a Nuclear Power Programme Specific Safety Guide	R	978-92-0-405614-3	STI/PUB/1507	2015	40.00

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IAEA TECDOC Series No. 1781	Evaluation of Conditions for Hydrogen Induced Degradation of Zirconium Alloys during Fuel Operation and Storage Final Report of a Coordinated Research Project 2011–2015	E	978-92-0-110715-2	IAEA-TECDOC-1781	2015	18.00
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IAEA Nuclear Energy Series No. NG-T-3.2 (Rev. 1)	Evaluation of the Status of National Nuclear Infrastructure Development	E	978-92-0-102316-2	STI/PUB/1737	2016	29.00
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IAEA TECDOC Series No. 1782	Good Practice for Introducing Radiopharmaceuticals for Clinical Use	E	978-92-0-111215-6	IAEA-TECDOC-1782	2015	18.00
IAEA Safety Standards Series No. GSR Part 1 (Rev. 1)	Governmental, Legal and Regulatory Framework for Safety General Safety Requirements	A	978-92-0-611216-8	STI/PUB/1713	2016	48.00
IAEA Safety Standards Series No. GSR Part 1 (Rev. 1)	Governmental, Legal and Regulatory Framework for Safety General Safety Requirements	C	978-92-0-509716-9	STI/PUB/1713	2016	48.00
IAEA Safety Standards Series No. GSR Part 1 (Rev. 1)	Governmental, Legal and Regulatory Framework for Safety General Safety Requirements	E	978-92-0-108815-4	STI/PUB/1713	2016	48.00
IAEA Safety Standards Series No. GSR Part 1 (Rev. 1)	Governmental, Legal and Regulatory Framework for Safety General Safety Requirements	R	978-92-0-409516-6	STI/PUB/1713	2016	48.00
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IAEA TECDOC Series No. 1794	Guía para la Elaboración de un Programa de Creación y Desarrollo de Competencias de Reguladores de Reactores Nucleares	S	978-92-0-304716-6	IAEA-TECDOC-1794	2016	18.00

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IAEA TECDOC Series No. 1741	Guidelines for Using Fallout Radionuclides to Assess Erosion and Effectiveness of Soil Conservation Strategies	E	978-92-0-105414-2	IAEA-TECDOC-1741	2014	18.00
IAEA TECDOC Series No. 1741	Guidelines for Using Fallout Radionuclides to Assess Erosion and Effectiveness of Soil Conservation Strategies	E	978-92-0-155814-5	IAEA-TECDOC-CD-1741	2014	18.00
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IAEA Nuclear Energy Series No. NG-T-4.5	Indicators for Nuclear Power Development	E	978-92-0-107115-6	STI/PUB/1712	2015	37.00

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IAEA Nuclear Energy Series No. NG-T-3.4	Industrial Involvement to Support a National Nuclear Power Programme	E	978-92-0-103715-2	STI/PUB/1703	2016	36.00
IAEA Nuclear Energy Series No. NG-T-4.4	INPRO Methodology for Sustainability Assessment of Nuclear Energy Systems: Economics INPRO Manual	E	978-92-0-102714-6	STI/PUB/1653	2014	40.00
IAEA Nuclear Energy Series No. NG-T-3.13	INPRO Methodology for Sustainability Assessment of Nuclear Energy Systems: Environmental Impact from Depletion of Resources	E	978-92-0-103415-1	STI/PUB/1700	2015	33.00
IAEA Nuclear Energy Series No. NG-T-3.15	INPRO Methodology for Sustainability Assessment of Nuclear Energy Systems: Environmental Impact of Stressors INPRO Manual	E	978-92-0-101616-4	STI/PUB/1733	2016	38.00
IAEA Nuclear Energy Series No. NG-T-3.12	INPRO Methodology for Sustainability Assessment of Nuclear Energy Systems: Infrastructure INPRO Manual	E	978-92-0-106214-7	STI/PUB/1668	2014	33.00
IAEA Safety Standards Series No. SSG-37	Instrumentation and Control Systems and Software Important to Safety for Research Reactors Specific Safety Guide	E	978-92-0-102615-6	STI/PUB/1692	2015	41.00
IAEA TECDOC Series No. 1779	Integrated Nuclear Infrastructure Review (INIR) Missions: The First Six Years	E	978-92-0-110615-5	IAEA-TECDOC-1779	2015	18.00
IAEA TECDOC Series No. 1802	Integrated Soil, Water and Nutrient Management for Sustainable Rice–Wheat Cropping Systems in Asia	E	978-92-0-106616-9	IAEA-TECDOC-1802	2016	18.00
IAEA TECDOC Series No. 1749	International Conference on Topical Issues in Nuclear Installation Safety: Defence in Depth — Advances and Challenges for Nuclear Installation Safety Proceedings of an International Conference Held in Vienna, Austria, 21–24 October 2013	E	978-92-0-158214-0	IAEA-TECDOC-CD-1749	2014	18.00
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IAEA Safety Standards Series No. GSG-5	Justification of Practices, Including Non-Medical Human Imaging General Safety Guide	E	978-92-0-102414-5	STI/PUB/1650	2014	32.00
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IAEA Nuclear Energy Series No. NG-T-6.10	Knowledge Management and Its Implementation in Nuclear Organizations	E	978-92-0-107215-3	STI/PUB/1724	2016	31.00
IAEA TECDOC Series No. 1675	Knowledge Management for Nuclear Research and Development Organizations	R	978-92-0-408315-6	IAEA-TECDOC-1675	2016	18.00
IAEA Safety Standards Series No. GSR Part 2	Leadership and Management for Safety General Safety Requirements	A	978-92-0-612716-2	STI/PUB/1750	2016	30.00

Series & No.	Title	Language	ISBN	OldSymbol	Published	PriceEuro
IAEA Safety Standards Series No. GSR Part 2	Leadership and Management for Safety General Safety Requirements	C	978-92-0-510316-7	STI/PUB/1750	2016	30.00
IAEA Safety Standards Series No. GSR Part 2	Leadership and Management for Safety General Safety Requirements	E	978-92-0-104516-4	STI/PUB/1750	2016	30.00
IAEA Safety Standards Series No. GSR Part 2	Leadership and Management for Safety General Safety Requirements	F	978-92-0-208216-8	STI/PUB/1750	2016	30.00
IAEA Nuclear Energy Series No. NW-T-3.6	Lessons Learned from Environmental Remediation Programmes	E	978-92-0-145310-5	STI/PUB/1630	2014	27.00
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IAEA Nuclear Energy Series No. NW-T-1.3	Management of Disused Sealed Radioactive Sources	E	978-92-0-103214-0	STI/PUB/1657	2014	46.00
INSAG Series No. 13	Management of Operational Safety in Nuclear Power Plants A Report by the International Nuclear Safety Group	R	978-92-0-401215-6	STI/PUB/1083	2015	14.50
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IAEA TECDOC Series No. 1801	Management of the Interface between Nuclear Safety and Security for Research Reactors	E	978-92-0-106316-8	IAEA-TECDOC-1801	2016	18.00
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IAEA Nuclear Energy Series No. NG-T-2.7	Managing Human Performance to Improve Nuclear Facility Operation	E	978-92-0-144610-7	STI/PUB/1623	2014	18.00
IAEA Nuclear Energy Series No. NG-T-1.1	Managing Organizational Change in Nuclear Organizations	E	978-92-0-140910-2	STI/PUB/1603	2014	45.00

Series & No.	Title	Language	ISBN	OldSymbol	Published	PriceEuro
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IAEA Nuclear Energy Series No. NW-T-2.8	Managing the Unexpected in Decommissioning	E	978-92-0-103615-5	STI/PUB/1702	2016	35.00
Technical Reports Series No. 481	Manual of Good Practice in Food Irradiation	E	978-92-0-105215-5	STI/DOC/010/481	2015	48.00
Technical Reports Series No. 481	Manual of Good Practice in Food Irradiation	S	978-92-0-306116-2	STI/DOC/010/481	2017	48.00
IAEA TECDOC Series No. 1777	Methodology for Safety Assessment Applied to Predisposal Waste Management Report of the Results of the International Project on Safety Assessment Driving Radioactive Waste Management Solutions (SADRWMS) (2004–2010)	E	978-92-0-109215-1	IAEA-TECDOC-1777	2015	18.00
IAEA TECDOC Series No. 1757	Methodology for the Systematic Assessment of the Regulatory Competence Needs (SARCoN) for Regulatory Bodies of Nuclear Installations	E	978-92-0-110514-1	IAEA-TECDOC-1757	2014	18.00
IAEA Nuclear Energy Series No. NG-G-3.1 (Rev. 1)	Milestones in the Development of a National Infrastructure for Nuclear Power	E	978-92-0-104715-1	STI/PUB/1704	2015	40.00
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IAEA TECDOC Series No. 1732	Model Regulations for the Use of Radiation Sources and for the Management of the Associated Radioactive Waste Supplement to IAEA Safety Standards Series No. GS-G-1.5	S	978-92-0-300915-7	IAEA-TECDOC-1732	2015	18.00
IAEA Nuclear Energy Series No. NG-T-5.2	Modelling Nuclear Energy Systems with MESSAGE: A User's Guide	E	978-92-0-109715-6	STI/PUB/1718	2016	39.00
IAEA TECDOC Series No. 1737	Modelling of Biota Dose Effects Report of Working Group 6 Biota Dose Effects Modelling of EMRAS II Topical Heading Reference Approaches for Biota Dose Assessment Environmental Modelling for Radiation Safety (EMRAS II) Programme	E	978-92-0-101114-5	IAEA-TECDOC-1737	2014	18.00
IAEA TECDOC Series No. 1775	Modelling of Water Cooled Fuel Including Design Basis and Severe Accidents Proceedings of a Technical Meeting Held in Chengdu, China, 28 October–1 November 2013	E	978-92-0-158615-5	IAEA-TECDOC-CD-1775	2015	18.00
IAEA Nuclear Energy Series No. NW-T-1.4	Modular Design of Processing and Storage Facilities for Small Volumes of Low and Intermediate Level Radioactive Waste including Disused Sealed Sources	E	978-92-0-145110-1	STI/PUB/1628	2014	55.00
IAEA Safety Standards Series No. SSG-31	Monitoring and Surveillance of Radioactive Waste Disposal Facilities Specific Safety Guide	E	978-92-0-115513-9	STI/PUB/1640	2014	40.00
IAEA Radiation Technology Reports No. 5	Nanoscale Radiation Engineering of Advanced Materials for Potential Biomedical Applications	E	978-92-0-101815-1	STI/PUB/1684	2015	49.00

Series & No.	Title	Language	ISBN	OldSymbol	Published	PriceEuro
IAEA Safety Standards Series No. SSG-19	National Strategy for Regaining Control over Orphan Sources and Improving Control over Vulnerable Sources Specific Safety Guide	F	978-92-0-210314-6	STI/PUB/1510	2015	35.00
Proceedings Series	Naturally Occurring Radioactive Material (NORM VII) Proceedings of an International Symposium Held in Beijing, China, 22–26 April 2013	E	978-92-0-104014-5	STI/PUB/1664	2015	95.00
IAEA Safety Standards Series No. SSG-29	Near Surface Disposal Facilities for Radioactive Waste Specific Safety Guide	E	978-92-0-114313-6	STI/PUB/1637	2014	36.00
IAEA TECDOC Series No. 1753	New Technologies for Seawater Desalination Using Nuclear Energy	E	978-92-0-100115-3	IAEA-TECDOC-1753	2015	18.00
IAEA Nuclear Energy Series No. NG-T-6.8	Nuclear Accident Knowledge Taxonomy	E	978-92-0-101416-0	STI/PUB/1730	2016	28.00
IAEA Human Health Series No. 23 (Rev. 1)	Nuclear Cardiology: Guidance on the Implementation of SPECT Myocardial Perfusion Imaging	E	978-92-0-107616-8	STI/PUB/1753	2016	46.00
IAEA Nuclear Energy Series No. NG-T-6.4	Nuclear Engineering Education: A Competence Based Approach to Curricula Development	E	978-92-0-144910-8	STI/PUB/1626	2014	20.00
IAEA Nuclear Security Series No. 2-G (Rev. 1)	Nuclear Forensics in Support of Investigations Implementing Guide	E	978-92-0-102115-1	STI/PUB/1687	2015	38.00
	Nuclear Medicine Physics	E	978-92-0-143810-2	STI/PUB/1617	2015	105.00
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IAEA TECDOC Series No. 1778	Nuclear Power in Countries with Limited Electrical Grid Capacities: The Case of Armenia A Report of the International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO)	E	978-92-0-110415-1	IAEA-TECDOC-1778	2015	18.00
IAEA TECDOC Series No. 1806	Nuclear Power Plant Outage Optimization Strategy 2016 Edition	E	978-92-0-107816-2	IAEA-TECDOC-1806	2016	18.00
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Reference Data Series No. 2	Nuclear Power Reactors in the World 2015 Edition	E	978-92-0-104915-5	IAEA-RDS-2/35	2015	15.00
Reference Data Series No. 2	Nuclear Power Reactors in the World 2016 Edition	E	978-92-0-103716-9	IAEA-RDS-2/36	2016	15.00
INSAG Series No. 22	Nuclear Safety Infrastructure for a National Nuclear Power Programme Supported by the IAEA Fundamental Safety Principles A Report by the International Nuclear Safety Group	R	978-92-0-406714-9	STI/PUB/1350	2014	20.00
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IAEA Nuclear Security Series No. 18	Nuclear Security Systems and Measures for Major Public Events Implementing Guide	R	978-92-0-401414-3	STI/PUB/1546	2014	30.00
IAEA Nuclear Security Series No. 18	Nuclear Security Systems and Measures for Major Public Events Implementing Guide	A	978-92-0-610716-4	STI/PUB/1546	2016	30.00

Series & No.	Title	Language	ISBN	OldSymbol	Published	PriceEuro
IAEA Nuclear Security Series No. 21	Nuclear Security Systems and Measures for the Detection of Nuclear and Other Radioactive Material out of Regulatory Control Implementing Guide	A	978-92-0-605515-1	STI/PUB/1613	2015	30.00
Proceedings Series	Nuclear Security: Enhancing Global Efforts Proceedings of an International Conference Held in Vienna, Austria, 1–5 July 2013	E	978-92-0-101514-3	STI/PUB/1643	2014	90.00
IAEA Nuclear Security Series No. 20	Objective and Essential Elements of a State's Nuclear Security Regime Nuclear Security Fundamentals	A	978-92-0-606114-5	STI/PUB/1590	2014	20.00
IAEA Nuclear Security Series No. 20	Objective and Essential Elements of a State's Nuclear Security Regime Nuclear Security Fundamentals	C	978-92-0-505514-5	STI/PUB/1590	2014	20.00
IAEA Nuclear Security Series No. 20	Objective and Essential Elements of a State's Nuclear Security Regime Nuclear Security Fundamentals	F	978-92-0-205714-2	STI/PUB/1590	2014	20.00
IAEA Nuclear Security Series No. 20	Objective and Essential Elements of a State's Nuclear Security Regime Nuclear Security Fundamentals	R	978-92-0-404814-8	STI/PUB/1590	2014	20.00
IAEA Nuclear Security Series No. 20	Objective and Essential Elements of a State's Nuclear Security Regime Nuclear Security Fundamentals	S	978-92-0-307014-0	STI/PUB/1590	2014	20.00
IAEA TECDOC Series No. 1762	Operating Experience from Events Reported to the IAEA Incident Reporting System for Research Reactors	E	978-92-0-100615-8	IAEA-TECDOC-1762	2015	18.00
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	Operating Experience with Nuclear Power Stations in Member States in 2014 2015 Edition (CD-ROM)	E	978-92-0-155015-6	STI/PUB/1707	2015	75.00
	Operating Experience with Nuclear Power Stations in Member States in 2015 2016 Edition (CD-ROM)	E	978-92-0-155016-3	STI/PUB/1752	2016	75.00
IAEA TECDOC Series No. 1721	Optimizing Productivity of Food Crop Genotypes in Low Nutrient Soils Prepared by the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture	E	978-92-0-113113-3	IAEA-TECDOC-1721	2014	18.00
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Safety Reports Series No. 83	Performing Safety Culture Self-assessments	E	978-92-0-101515-0	STI/PUB/1682	2016	63.00

Series & No.	Title	Language	ISBN	OldSymbol	Published	PriceEuro
IAEA Safety Standards Series No. SSG-25	Periodic Safety Review for Nuclear Power Plants Specific Safety Guide	R	978-92-0-405416-3	STI/PUB/1588	2016	37.00
IAEA Human Health Series No. 27	PET/CT Atlas on Quality Control and Image Artefacts	E	978-92-0-101014-8	STI/PUB/1642	2014	60.00
IAEA TECDOC Series No. 1755	Planning and Design Considerations for Geological Repository Programmes of Radioactive Waste	E	978-92-0-109914-3	IAEA-TECDOC-1755	2014	18.00
IAEA Human Health Series No. 14	Planning National Radiotherapy Services: A Practical Tool	R	978-92-0-407615-8	STI/PUB/1462	2015	34.00
IAEA Nuclear Energy Series No. NP-T-3.18	Plant Life Management Models for Long Term Operation of Nuclear Power Plants	E	978-92-0-103014-6	STI/PUB/1655	2015	38.00
IAEA Nuclear Energy Series No. NW-G-3.1	Policy and Strategies for Environmental Remediation	E	978-92-0-103314-7	STI/PUB/1658	2015	20.00
IAEA TECDOC Series No. 1774	Potential Interface Issues in Spent Fuel Management	E	978-92-0-108715-7	IAEA-TECDOC-1774	2015	18.00
IAEA Safety Standards Series No. SSG-41	Predisposal Management of Radioactive Waste from Nuclear Fuel Cycle Facilities Specific Safety Guide	E	978-92-0-110315-4	STI/PUB/1720	2016	43.00
IAEA Safety Standards Series No. SSG-40	Predisposal Management of Radioactive Waste from Nuclear Power Plants and Research Reactors Specific Safety Guide	E	978-92-0-109815-3	STI/PUB/1719	2016	42.00
IAEA Nuclear Energy Series No. NG-T-3.3	Preparation of a Feasibility Study for New Nuclear Power Projects	E	978-92-0-145610-6	STI/PUB/1633	2014	39.00
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IAEA Safety Standards Series No. GSR Part 7	Preparedness and Response for a Nuclear or Radiological Emergency General Safety Requirements	A	978-92-0-609816-5	STI/PUB/1708	2016	45.00
IAEA Safety Standards Series No. GSR Part 7	Preparedness and Response for a Nuclear or Radiological Emergency General Safety Requirements	C	978-92-0-506716-2	STI/PUB/1708	2016	45.00
IAEA Safety Standards Series No. GSR Part 7	Preparedness and Response for a Nuclear or Radiological Emergency General Safety Requirements	R	978-92-0-408916-5	STI/PUB/1708	2016	45.00
IAEA TECDOC Series No. 1662/ Rev. 1	Preparing and Conducting Review Missions of Instrumentation and Control Systems in Nuclear Power Plants	E	978-92-0-105816-4	IAEA-TECDOC-1662/ Rev. 1	2016	18.00
IAEA TECDOC Series No. 1751	Pressurized Heavy Water Reactor Fuel: Integrity, Performance and Advanced Concepts Proceedings of the Technical Meetings Held in Bucharest, 24–27 September 2012, and in Mumbai, 8–11 April 2013	E	978-92-0-158414-4	IAEA-TECDOC-CD-1751	2014	18.00
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Series & No.	Title	Language	ISBN	OldSymbol	Published	PriceEuro
IAEA Nuclear Energy Series No. NP-T-3.21	Procurement Engineering and Supply Chain Guidelines in Support of Operation and Maintenance of Nuclear Facilities	E	978-92-0-107315-0	STI/PUB/1725	2016	56.00
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IAEA TECDOC Series No. 1748	Project Experiences in Research Reactor Ageing Management, Modernization and Refurbishment	E	978-92-0-107814-8	IAEA-TECDOC-1748	2014	18.00
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IAEA Nuclear Energy Series No. NF-G-2.1	Quality and Reliability Aspects in Nuclear Power Reactor Fuel Engineering	E	978-92-0-103114-3	STI/PUB/1656	2015	40.00
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IAEA TECDOC Series No. 1745	Radiation Processed Materials in Products from Polymers for Agricultural Applications	E	978-92-0-106414-1	IAEA-TECDOC-1745	2014	18.00
IAEA Safety Standards Series No. GSR Part 3	Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards General Safety Requirements	E	978-92-0-135310-8	STI/PUB/1578	2014	68.00
IAEA Safety Standards Series No. GSR Part 3	Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards General Safety Requirements	A	978-92-0-605815-2	STI/PUB/1578	2015	68.00
IAEA Safety Standards Series No. GSR Part 3	Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards General Safety Requirements	C	978-92-0-505615-9	STI/PUB/1578	2015	68.00
IAEA Safety Standards Series No. GSR Part 3	Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards General Safety Requirements	R	978-92-0-409915-7	STI/PUB/1578	2015	68.00
IAEA Safety Standards Series No. GSR Part 3	Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards General Safety Requirements	F	978-92-0-200316-3	STI/PUB/1578	2016	68.00
IAEA Safety Standards Series No. GSR Part 3	Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards General Safety Requirements	S	978-92-0-307915-0	STI/PUB/1578	2016	68.00
Proceedings Series	Radiation Protection in Medicine: Setting the Scene for the Next Decade Proceedings of an International Conference Held in Bonn, Germany, 3–7 December 2012	E	978-92-0-103914-9	STI/PUB/1663	2015	130.00

Series & No.	Title	Language	ISBN	OldSymbol	Published	PriceEuro
Safety Reports Series No. 84	Radiation Protection of Itinerant Workers	E	978-92-0-102215-8	STI/PUB/1688	2015	41.00
IAEA Safety Standards Series No. SSG-36	Radiation Safety for Consumer Products Specific Safety Guide	E	978-92-0-102515-9	STI/PUB/1691	2016	52.00
IAEA Safety Standards Series No. SSG-11	Radiation Safety in Industrial Radiography Specific Safety Guide	S	978-92-0-338710-1	STI/PUB/1466	2014	33.00
IAEA Safety Standards Series No. SSG-8	Radiation Safety of Gamma, Electron and X Ray Irradiation Facilities Specific Safety Guide	S	978-92-0-304314-4	STI/PUB/1454	2015	30.00
IAEA TECDOC Series No. 1786	Radiation Technology for Cleaner Products and Processes Proceedings of the Technical Meeting on Deployment of Clean (Green) Radiation Technology for Environmental Remediation	E	978-92-0-101016-2	IAEA-TECDOC-1786	2016	18.00
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IAEA Human Health Reports No. 10	Radiotherapy Facilities: Master Planning and Concept Design Considerations	R	978-92-0-407515-1	STI/PUB/1645	2015	29.00
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IAEA Nuclear Security Series No. 24-G	Risk Informed Approach for Nuclear Security Measures for Nuclear and Other Radioactive Material out of Regulatory Control Implementing Guide	E	978-92-0-100315-7	STI/PUB/1678	2015	41.00
IAEA Human Health Series No. 25	Roles and Responsibilities, and Education and Training Requirements for Clinically Qualified Medical Physicists	S	978-92-0-304514-8	STI/PUB/1610	2014	32.00
IAEA Human Health Series No. 25	Roles and Responsibilities, and Education and Training Requirements for Clinically Qualified Medical Physicists	F	978-92-0-207114-8	STI/PUB/1610	2015	32.00

Series & No.	Title	Language	ISBN	OldSymbol	Published	PriceEuro
IAEA Human Health Series No. 25	Roles and Responsibilities, and Education and Training Requirements for Clinically Qualified Medical Physicists	R	978-92-0-409414-5	STI/PUB/1610	2015	32.00
IAEA TECDOC Series No. 1756	Root Cause Analysis Following an Event at a Nuclear Installation: Reference Manual	E	978-92-0-110014-6	IAEA-TECDOC-1756	2014	18.00
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Proceedings Series	Safety and Security of Radioactive Sources: Maintaining Continuous Global Control of Sources throughout Their Life Cycle Proceedings of an International Conference Held in Abu Dhabi, United Arab Emirates, 27–31 October 2013	E	978-92-0-105214-8	STI/PUB/1667	2015	90.00
IAEA Safety Standards Series No. GSR Part 4 (Rev. 1)	Safety Assessment for Facilities and Activities General Safety Requirements	A	978-92-0-612816-9	STI/PUB/1714	2016	49.00
IAEA Safety Standards Series No. GSR Part 4 (Rev. 1)	Safety Assessment for Facilities and Activities General Safety Requirements	C	978-92-0-510116-3	STI/PUB/1714	2016	49.00
IAEA Safety Standards Series No. GSR Part 4 (Rev. 1)	Safety Assessment for Facilities and Activities General Safety Requirements	E	978-92-0-109115-4	STI/PUB/1714	2016	49.00
IAEA Safety Standards Series No. GSR Part 4 (Rev. 1)	Safety Assessment for Facilities and Activities General Safety Requirements	R	978-92-0-408816-8	STI/PUB/1714	2016	49.00
IAEA Safety Standards Series No. GSR Part 4 (Rev. 1)	Safety Assessment for Facilities and Activities General Safety Requirements	F	978-92-0-212216-1	STI/PUB/1714	2017	49.00
IAEA Safety Standards Series No. WS-G-5.2	Safety Assessment for the Decommissioning of Facilities Using Radioactive Material Safety Guide	R	978-92-0-404215-3	STI/PUB/1372	2015	25.00
IAEA Safety Standards Series No. SSG-30	Safety Classification of Structures, Systems and Components in Nuclear Power Plants Specific Safety Guide	E	978-92-0-115413-2	STI/PUB/1639	2014	22.00
IAEA Safety Standards Series No. NS-R-5 (Rev. 1)	Safety of Nuclear Fuel Cycle Facilities Safety Requirements	E	978-92-0-100114-6	STI/PUB/1641	2014	20.00
IAEA Safety Standards Series No. NS-R-5 (Rev. 1)	Safety of Nuclear Fuel Cycle Facilities Safety Requirements	A	978-92-0-606015-5	STI/PUB/1641	2015	20.00
IAEA Safety Standards Series No. NS-R-5 (Rev. 1)	Safety of Nuclear Fuel Cycle Facilities Safety Requirements	C	978-92-0-500515-7	STI/PUB/1641	2015	20.00

Series & No.	Title	Language	ISBN	OldSymbol	Published	PriceEuro
IAEA Safety Standards Series No. NS-R-5 (Rev. 1)	Safety of Nuclear Fuel Cycle Facilities Safety Requirements	F	978-92-0-207716-4	STI/PUB/1641	2016	20.00
IAEA Safety Standards Series No. NS-R-5 (Rev. 1)	Safety of Nuclear Fuel Cycle Facilities Safety Requirements	R	978-92-0-410015-0	STI/PUB/1641	2016	20.00
IAEA Safety Standards Series No. SSR-2/2 (Rev. 1)	Safety of Nuclear Power Plants: Commissioning and Operation Specific Safety Requirements	C	978-92-0-509116-7	STI/PUB/1716	2016	48.00
IAEA Safety Standards Series No. SSR-2/2 (Rev. 1)	Safety of Nuclear Power Plants: Commissioning and Operation Specific Safety Requirements	E	978-92-0-109415-5	STI/PUB/1716	2016	48.00
IAEA Safety Standards Series No. SSR-2/2 (Rev. 1)	Safety of Nuclear Power Plants: Commissioning and Operation Specific Safety Requirements	F	978-92-0-208316-5	STI/PUB/1716	2016	48.00
IAEA Safety Standards Series No. SSR-2/2 (Rev. 1)	Safety of Nuclear Power Plants: Commissioning and Operation Specific Safety Requirements	A	978-92-0-612416-1	STI/PUB/1716	2017	48.00
IAEA Safety Standards Series No. SSR-2/1 (Rev. 1)	Safety of Nuclear Power Plants: Design Specific Safety Requirements	A	978-92-0-600217-9	STI/PUB/1715	2016	50.00
IAEA Safety Standards Series No. SSR-2/1 (Rev. 1)	Safety of Nuclear Power Plants: Design Specific Safety Requirements	C	978-92-0-509316-1	STI/PUB/1715	2016	50.00
IAEA Safety Standards Series No. SSR-2/1 (Rev. 1)	Safety of Nuclear Power Plants: Design Specific Safety Requirements	E	978-92-0-109315-8	STI/PUB/1715	2016	50.00
IAEA Safety Standards Series No. SSR-2/1 (Rev. 1)	Safety of Nuclear Power Plants: Design Specific Safety Requirements	R	978-92-0-409016-1	STI/PUB/1715	2016	50.00
IAEA Safety Standards Series No. SSR-2/1 (Rev. 1)	Safety of Nuclear Power Plants: Design Specific Safety Requirements	S	978-92-0-312916-9	STI/PUB/1715	2016	50.00
IAEA Safety Standards Series No. SSR-3	Safety of Research Reactors Specific Safety Requirements	E	978-92-0-104816-5	STI/PUB/1751	2016	58.00
Safety Reports Series No. 90	Safety Reassessment for Nuclear Fuel Cycle Facilities in Light of the Accident at the Fukushima Daiichi Nuclear Power Plant	E	978-92-0-101916-5	STI/PUB/1726	2016	40.00
Safety Reports Series No. 80	Safety Reassessment for Research Reactors in the Light of the Accident at the Fukushima Daiichi Nuclear Power Plant	E	978-92-0-100814-5	STI/PUB/1615	2014	20.00
IAEA Safety Standards Series No. TS-G-1.6 (Rev. 1)	Schedules of Provisions of the IAEA Regulations for the Safe Transport of Radioactive Material (2009 Edition) Safety Guide	E	978-92-0-192510-7	STI/PUB/1614	2014	40.00
IAEA Safety Standards Series No. SSG-33	Schedules of Provisions of the IAEA Regulations for the Safe Transport of Radioactive Material (2012 Edition) Specific Safety Guide	E	978-92-0-104214-9	STI/PUB/1666	2015	61.00

Series & No.	Title	Language	ISBN	OldSymbol	Published	PriceEuro
IAEA Nuclear Security Series No. 23-G	Security of Nuclear Information Implementing Guide	E	978-92-0-110614-8	STI/PUB/1677	2015	30.00
IAEA Nuclear Security Series No. 23-G	Security of Nuclear Information Implementing Guide	A	978-92-0-612316-4	STI/PUB/1677	2016	30.00
IAEA Nuclear Security Series No. 26-G	Security of Nuclear Material in Transport Implementing Guide	E	978-92-0-102015-4	STI/PUB/1686	2015	48.00
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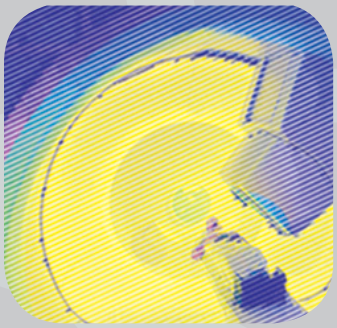

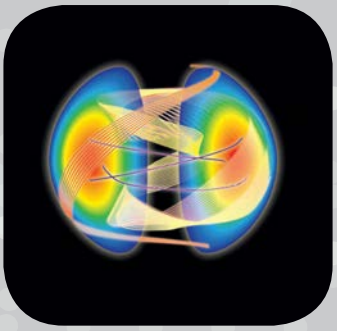

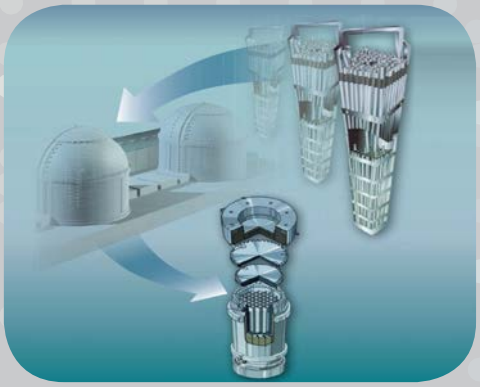

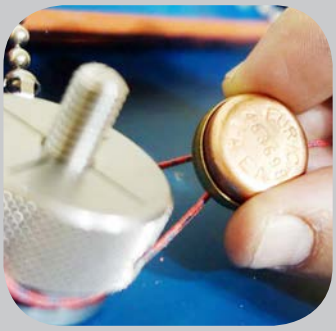

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