Nuclear Safety and Security Programme

Working to Protect People, Society and the Environment

IAEA Safety Standards
The Global Reference for Protecting People and the Environment from Harmful Effects of Radiation

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Background

Radioactivity is a natural phenomenon and natural sources of radiation are features of the environment. Radiation and radioactive substances have many beneficial applications, ranging from power generation to uses in medicine, industry and agriculture. The radiation risks to workers, patients, the public and the environment that may arise from these applications have to be assessed and, if necessary, controlled. Therefore, activities such as medical uses of radiation, the operation of nuclear installations, the production, transport and use of radioactive material, and the management of radioactive waste must be subject to standards of safety. The prime responsibility for safety must rest with the person or organization responsible for these activities.

The IAEA is required by its Statute to promote international cooperation. Regulating safety is a national responsibility. However, radiation risks may transcend national borders, and international cooperation serves to promote and enhance safety globally by exchanging experience and by improving capabilities to control hazards, to prevent accidents, to respond to emergencies and to mitigate any harmful consequences.

Safety through International Standards

While regulating safety is a national responsibility, IAEA international safety standards and harmonized approaches to safety will promote consistency, help to provide assurance that nuclear and radiation related technologies are used safely, and facilitate international technical cooperation, commerce and trade.

The standards also provide support for States in meeting their international obligations. Specific legally binding obligations on Contracting States are set out in international safety related conventions.

The internationally agreed IAEA safety standards provide a basis for States to demonstrate their performance in fulfilling these obligations. The IAEA safety standards are a cornerstone of the Global Nuclear Safety Framework, which supports the implementation of binding international instruments and national nuclear safety infrastructures.

The IAEA Safety Standards

The IAEA safety standards have a status derived from the IAEA’s Statute, which authorizes the IAEA “To establish or adopt, in consultation and, where appropriate, in collaboration with the competent organs of the United Nations and with the specialized agencies concerned, standards of safety for protection of health and minimization of danger to life and property...and to provide for the application of these standards”.

The IAEA safety standards provide a robust framework of fundamental principles, requirements and guidance to ensure safety. They are developed through an open and transparent process for gathering, integrating and sharing the knowledge and experience gained from the actual use of technologies and from the application of the safety standards, including emerging trends
and issues of regulatory importance. They contribute to the establishment of a harmonized high level of safety worldwide by serving as the global reference for protecting people and the environment.

Hierarchy

Safety Fundamentals
As the primary publication in the Safety Standards Series, the IAEA publication Fundamental Safety Principles (SF-1) establishes the fundamental safety objective and principles of protection and safety.

Safety Requirements
An integrated and consistent set of stable Safety Requirements publications establish the requirements that must be met to ensure the protection of people and the environment, both now and in the future. The requirements are governed by the objectives and principles of the Safety Fundamentals. If they are not met, measures must be taken to reach or restore the required level of safety. Their format and style facilitate their use by Member States for the establishment, in a harmonized manner, of their national regulatory framework.

Safety Guides
IAEA Safety Guides provide recommendations and guidance on how to comply with the requirements. They indicate an international consensus that it is necessary to take the measures recommended (or equivalent alternative measures). The Safety Guides present international good practices, and increasingly they reflect best practices, to help users striving to achieve high levels of safety.

Underpinning Safety and Security – Enhancing the Safety and Security Interface

Safety and security both require continued vigilance. Safety measures and security measures for facilities and activities must be designed and implemented in an integrated manner, so that security measures do not compromise safety and safety measures do not compromise security. International safety standards and security guidelines and recommendations provide practical advice to States on how to meet their international obligations in this regard.

A new Nuclear Security Guidance Committee (NSGC) was established in 2012 to review drafts for publication in the IAEA Nuclear Security Series. An Interface Group decides whether, for each proposal for a new or revised publication in the Safety Standards Series or the Nuclear Security Series, there is an interface between safety and security, and if so, which review committees should be involved in the review and approval of the draft.

Main Users of the IAEA Safety Standards

The users of safety standards in Member States differ depending on the category of safety standards. In any case, the principal users are the regulatory bodies and other relevant national authorities. The safety standards are also used by co-sponsoring organizations, by many organizations that design, manufacture and operate nuclear facilities, as well as by organizations involved in the use of radiation related technologies. The standards are used by the IAEA itself in its safety reviews and for developing education and training courses.

Development Process for the Standards

The preparation and review of safety standards involves the IAEA Secretariat and the review committees for nuclear safety (NUSSC), radiation safety (RASSC), the safety of radioactive waste (WASSC) and the safe transport of radioactive material (TRANSICC), and also, in the case of an interface of safety with security, the NSGC. The Commission on Safety Standards (CSS) oversees the entire safety standards programme. The members of the CSS are appointed by the Director General and include senior government officials having responsibility for establishing national standards and regulations. All IAEA Member States may nominate experts for the safety standards committees and are consulted during the drafting stage. Another important aspect of the development process is interaction with other international organizations.

Scope and Application

The IAEA safety standards are applicable, as relevant, throughout the entire lifetime of facilities and activities — existing and new — utilized for peaceful purposes and to protective actions to reduce existing radiation risks.

The scientific considerations underlying the IAEA safety standards provide an objective basis for decisions concerning safety; however, decision makers must also make informed judgements and determine how best to balance the benefits of an action or an activity against the associated radiation risks.

The IAEA Statute makes the safety standards binding on the IAEA in relation to its own operations. Any State entering into an agreement with the IAEA concerning any form of IAEA assistance is required to comply with the requirements of the standards that pertain to the activities covered by the agreement.

The IAEA safety standards also form the basis for all of the IAEA safety services, such as the Integrated Regulatory Review Service, the Operational Safety Assessment Review Team and other review services.

International conventions contain requirements similar to those in
the standards, and make them binding on Contracting Parties. The safety standards, supplemented by international conventions, industry standards and detailed national requirements, establish a consistent basis for protecting people and the environment.

However, there will also be special aspects of safety that need to be assessed case by case at the national level, for example, the safety standards addressing planning or design aspects of safety are intended to apply primarily to new facilities and activities.

The requirements specified in the IAEA safety standards might not be fully met at some facilities built to earlier standards. The way in which the safety standards are to be applied to such facilities is a decision for individual States.

Interpretation of the Text

The Safety Requirements use 'shall' statements for all statements of requirements. Many requirements are not addressed to a specific party, the implication being that the appropriate party or parties should be responsible for fulfilling them.

Recommendations are provided in Safety Guides and are expressed as 'should' statements, indicating an international consensus that it is necessary to take the measures recommended (or equivalent alternative measures) for complying with the requirements. Safety related terms are to be understood as defined in the IAEA Safety Glossary, available in Arabic, Chinese, English, French, Russian and Spanish (http://www-ns.iaea.org/standards/safety-glossary.htm).

IAEA Safety Standards Web Page

The safety standards web page at http://www-ns.iaea.org/standards/ provides general information on the IAEA safety standards and the processes for their establishment and approval.

A status list is provided and updated regularly. It provides information on published safety standards and the status of those under development. It includes links to the available publications in English and in the IAEA’s other official languages.

For providing feedback or seeking additional information, please see the web page under ‘How are the Safety Standards developed?’ or contact the Safety Standards and Application Unit, Department of Nuclear Safety and Security, International Atomic Energy Agency, Vienna International Centre, PO Box 100, 1400 Vienna, Austria. Email: Safety.Standards@iaea.org.

The members of the CSS and the safety standards committees may also be contacted as national sources of information on the IAEA safety standards.

IAEA Action Plan on Nuclear Safety: Reviewing and Strengthening the IAEA Safety Standards and Improving their Implementation

The IAEA Action Plan on Nuclear Safety (GOV/2011/59-GC(55)/14), adopted in 2011, includes the following actions:

- The Commission on Safety Standards and the IAEA Secretariat to review, and revise as necessary using the existing process in a more efficient manner, the relevant IAEA safety standards in a prioritized sequence.
- Member States to utilize as broadly and effectively as possible the IAEA safety standards in an open, timely and transparent manner.
- The IAEA Secretariat to continue providing support and assistance in the implementation of IAEA safety standards.

Consultation and Collaboration with International Organizations

The findings of the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) and the recommendations of international expert bodies, notably the International Commission on Radiological Protection (ICRP), are taken into account in developing the standards. Some standards are developed in cooperation with other international organizations, including the European Commission (EC), the Food and Agriculture Organization of the United Nations (FAO), the International Labour Organization (ILO), the International Maritime Organization (IMO), the OECD Nuclear Energy Agency (OECD/NEA), the Pan American Health Organization (PAHO), the United Nations Environment Programme (UNEP) and the World Health Organization (WHO).

For further information:
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