

IAEA Safety Standards

for protecting people and the environment

Decommissioning of Facilities Using Radioactive Material

Safety Requirements

No. WS-R-5



IAEA

International Atomic Energy Agency

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Other safety related IAEA publications are issued as **Radiological Assessment Reports**, the International Nuclear Safety Group's **INSAG Reports**, **Technical Reports** and **TECDOCs**. The IAEA also issues reports on radiological accidents, training manuals and practical manuals, and other special safety related publications. Security related publications are issued in the **IAEA Nuclear Security Series**.

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DECOMMISSIONING OF FACILITIES USING RADIOACTIVE MATERIAL

Safety standards survey

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The Agency's Statute was approved on 23 October 1956 by the Conference on the Statute of the IAEA held at United Nations Headquarters, New York; it entered into force on 29 July 1957. The Headquarters of the Agency are situated in Vienna. Its principal objective is "to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world".

IAEA SAFETY STANDARDS SERIES No. WS-R-5

DECOMMISSIONING OF FACILITIES USING RADIOACTIVE MATERIAL

SAFETY REQUIREMENTS

INTERNATIONAL ATOMIC ENERGY AGENCY
VIENNA, 2006

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Sales and Promotion, Publishing Section
International Atomic Energy Agency
Wagramer Strasse 5
P.O. Box 100
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FOREWORD

by Mohamed ElBaradei
Director General

The IAEA's Statute authorizes the Agency to establish safety standards to protect health and minimize danger to life and property — standards which the IAEA must use in its own operations, and which a State can apply by means of its regulatory provisions for nuclear and radiation safety. A comprehensive body of safety standards under regular review, together with the IAEA's assistance in their application, has become a key element in a global safety regime.

In the mid-1990s, a major overhaul of the IAEA's safety standards programme was initiated, with a revised oversight committee structure and a systematic approach to updating the entire corpus of standards. The new standards that have resulted are of a high calibre and reflect best practices in Member States. With the assistance of the Commission on Safety Standards, the IAEA is working to promote the global acceptance and use of its safety standards.

Safety standards are only effective, however, if they are properly applied in practice. The IAEA's safety services — which range in scope from engineering safety, operational safety, and radiation, transport and waste safety to regulatory matters and safety culture in organizations — assist Member States in applying the standards and appraise their effectiveness. These safety services enable valuable insights to be shared and I continue to urge all Member States to make use of them.

Regulating nuclear and radiation safety is a national responsibility, and many Member States have decided to adopt the IAEA's safety standards for use in their national regulations. For the Contracting Parties to the various international safety conventions, IAEA standards provide a consistent, reliable means of ensuring the effective fulfilment of obligations under the conventions. The standards are also applied by designers, manufacturers and operators around the world to enhance nuclear and radiation safety in power generation, medicine, industry, agriculture, research and education.

The IAEA takes seriously the enduring challenge for users and regulators everywhere: that of ensuring a high level of safety in the use of nuclear materials and radiation sources around the world. Their continuing utilization for the benefit of humankind must be managed in a safe manner, and the IAEA safety standards are designed to facilitate the achievement of that goal.

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1. INTRODUCTION

BACKGROUND

1.1. The term ‘decommissioning’ refers to the administrative and technical actions taken to allow the removal of some or all of the regulatory requirements from a facility (except for a repository, for which the term ‘closed’ and not ‘decommissioned’ is used). A facility, as used in this Safety Requirements publication, means a building and its associated land and equipment in which radioactive material is produced, processed, used, handled or stored on such a scale that consideration of safety is required. Decommissioning is increasingly becoming a major issue, since hundreds of facilities will end their operational lifetimes over the next 50 years.

1.2. Decommissioning activities are performed with an optimized approach to achieving a progressive and systematic reduction in radiological hazards, and are undertaken on the basis of planning and assessment to ensure the safety of workers and the public and protection of the environment, both during and after decommissioning operations.

1.3. A facility is considered decommissioned when an approved end state¹ has been reached. Subject to national legal and regulatory requirements, this end state encompasses partial or full decontamination and/or dismantlement, with or without restrictions on further use.

1.4. Decommissioning can be divided into preparatory and implementation phases, both of which are discussed in this publication. Preparations for decommissioning include the development of a decommissioning strategy, initial decommissioning planning and radiological characterization of the facility. Implementation of decommissioning includes preparation of a final decommissioning plan and its submission to the regulatory body for authorization or approval, management of the project and implementation of the plan, management of the waste and demonstration that the site meets the end state criteria defined in the plan.

¹ The end state is defined as a predetermined criterion defining the point at which a specific task or process (i.e. decommissioning) is to be considered completed. The actual end state is tailored to address the safety and environmental needs in each situation.