

DOCUMENT PREPARATION PROFILE

1. IDENTIFICATION

Document Category:	Specific Safety Guide
Working ID:	DS454
Proposed title:	Predisposal Management of Waste from the Use of Radioactive Materials in Medicine, Industry, Research, Agriculture and Education
Proposed action:	Revision of existing SG
Existing Series number(s):	Safety Standards Series No. WS-G-2.7
Published title(s)	<i>Management of Waste from the Use of Radioactive Materials in Medicine, Industry, Research, Agriculture and Education Safety Guide.</i>
Year of publication:	2005
Review Committee(s):	WASSC (leading committee), RASSC
Technical Officer:	Kai Moeller

2. BACKGROUND/RATIONALE

The original version of the Safety Guide WS-G-2.7 “Management of Waste from the Use of Radioactive Materials in Medicine, Industry, Research, Agriculture and Education Safety Guide” was published in 2005, in line with the Safety Series 111-F and WS-R-2. Since the publication of this Safety Guide, there have been significant developments in the requirements for the management of radioactive waste and disused sealed radioactive sources (DSRS):

- In 2006, the IAEA, jointly with 8 other sponsoring international organizations, published the Fundamental Safety Principles (SF-1). The 10 principles in SF-1 constitute the basis of safety requirements for protection of people and the environment from harmful effects of ionizing radiation, now and in the future.
- In 2010, the IAEA published General Safety Requirements Part 5 (GSR Part 5). The 22 requirements in GSR Part 5 apply to the predisposal management of radioactive waste of all types and covers all the steps in its management from its generation up to its disposal, and addresses the entire facility lifecycle from siting to shutdown of facilities.

- During 2005–2011, the IAEA, jointly with 7 other international organizations, performed a review and revision of the International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources (BSS) (DS379) and in 2011 it was approved by the Board of Governors and published as GSR Part 3.

Radioactive waste is generated in nuclear power plants, nuclear fuel cycle facilities, and also in a broad range of activities involving the use of radioactive material in medicine, industry, agriculture, research and education. While the principles and safety requirements for managing radioactive waste are the same, a number of issues have to be considered specifically in organizations conducting activities in which only small amounts of waste are generated. This is the case in particular in respect of disused sealed radioactive sources (DSRS) due to their high hazard potential, as well as in respect of difficulties some countries are experiencing with disposal of their radioactive waste inventories. The safe management of radioactive waste in these situations/countries should therefore be given specific consideration. This (e.g. the treatment of small amounts of radioactive waste) would lead to a different focus in comparison to the Safety Guides on the management of radioactive waste generated by fuel cycle facilities.

In order to address these issues and with a view towards the long-term structure of the safety standards, it is proposed to update this safety guide to address the predisposal management of small amounts of waste from the use of radioactive material in medicine, industry, agriculture, research and education taking into account all interdependencies until disposal. It is considered that this will provide developers and operators of such facilities, and the regulatory authorities responsible for their licensing, with comprehensive guidance and recommendations on how the safety requirements for predisposal management of radioactive waste can be fulfilled. This in turn should help with development of safety cases for waste management programmes at different facilities, and with the regulatory review and approval of such programmes.

3. OBJECTIVE

This safety guide will provide up-to-date recommendations on the predisposal management of small amounts of all types of radioactive waste generated, associated with the use of radioactive material, in a broad range of activities involving the use of radioactive material in medicine, industry, agriculture, research and education. Staff of organizations generating and/or managing small amounts of waste may have limited knowledge staff of the safety issues related to radioactive waste management. This safety guide is also applicable to the management of limited quantities of waste containing naturally occurring radionuclides. It is intended to address the specific recommendations for safety in design, construction, operation, and decommissioning, including the safety case and safety assessment (as far as needed taking into account a graded approach) and management systems for the management of these radioactive waste, taking due account of existing IAEA Safety Standards, specifically the recently published Safety Requirements for Predisposal Management of Radioactive Waste. It is also an objective of this safety guide, during its development process, to take into account the experience gained in the application of the Safety Standards Series No. WS-G-2.7. Non-radiological safety issues that cannot impact on radiological safety are not included within the scope of this Guide.

This revised standard is intended to provide guidance to regulators and operators (including the waste generators) of many activities, including diagnostic, therapeutic and research applications in medicine; process control and measurement in industry; and numerous uses of radioactive material in agriculture, geological exploration, construction and other fields on meeting and demonstrating compliance with the Safety Requirements on the Predisposal Management of Radioactive Waste in a systematic and comprehensive manner. It will cover aspects related to the site selection and evaluation, design, construction, operation, shutdown and decommissioning including the safety case, its supporting safety assessments and the regulatory process, while those aspects will also need to consider differential risk among facilities. Consideration will also be given to the safety of existing facilities that were commissioned prior to present day standards. Further consideration will be given to harmonizing safety and security in handling and management of waste particularly DSRS.

4. JUSTIFICATION

The Safety Standards Series No WS-G-2.7 “Management of Waste from the Use of Radioactive Materials in Medicine, Industry, Research, Agriculture and Education” was published in 2005. Since the publication of this Safety Guide, there have been significant developments in the IAEA guidance and requirements for management of radioactive waste (namely SF-1, SSR-5, GSR Part 5, and the draft BSS). The update of the proposed safety guide will consider the experience of Member States and will ensure consistency with current IAEA guidance on the management of radioactive waste.

5. PLACE IN THE OVERALL STRUCTURE OF THE RELEVANT SERIES AND INTERFACES WITH EXISTING AND/OR PLANNED PUBLICATIONS

The revised Safety Guide will be developed as part of the IAEA Safety Standards Series. Due account will be given to existing safety standards, for example the generic ones on governmental infrastructure, management systems, assessment and verification, radiation protection, decommissioning and transport, and in particular those specific to facilities/activities. It is necessary to liaise and coordinate with the development of relevant new safety standards, as necessary.

The reviewed Safety Guide will be based on the relevant Safety Requirements, i.e. (GS-R-Part 5 and DS379). It should also be consistent with the new Safety Fundamentals (SF-1) and the Joint Convention on the Safe Management of Radioactive Waste and Spent Nuclear Fuel. This Standard will also interface with the relevant Safety Guides including RS-G-1.10 and RS-G-1.7 and DS 284.

Supersedes: *Management of Waste from the Use of Radioactive Materials in Medicine, Industry, Research, Agriculture and Education Safety Guide*, Safety Standards Series No. WS-G-2.7 (2005).

6. OVERVIEW

The Safety Requirements for Predisposal Management of Radioactive Waste (GSR Part 5) is concerned with the application of the fundamental radiation protection and waste management principles in SF-1, and establishes 22 requirements. The new safety guide will provide guidance on how to meet the new Safety Requirements. It is proposed that the Safety Guide adopts a structure that allows for the consideration of, and provides continuity with the Safety Requirements. The Requirements will be identified in the Safety Guide and will be referenced, as much as possible, as they appear in the Safety Requirements publication. The guide will not provide a detailed technical narrative; rather it will describe how the various activities and issues are connected with the Safety Requirements.

A provisional table of contents of the proposed safety guide is attached.

It is intended to co-operate with NEFW in the preparation of the new SG.

7. PRODUCTION SCHEDULE:

Approval of DPP by the Coordination Committee	April 2011
Approval of DPP by the Safety Standards Committees* or the relevant group where appropriate	June 2011
Approval of DPP by the CSS*	November 2011
Approval of draft by the Coordination Committee	4Q 2012
Approval by the Safety Standards Committees for submission to Member States for comments* or the relevant group where appropriate	1Q 2013
Approval of the revised draft by the Coordination Committee Review in NS-SSCS	2Q 2013
Approval by the Safety Standards Committees for submission to the CSS* or the relevant group where appropriate	3Q 2013
Endorsement by the CSS*	1Q 2014
Approval by the Publications Committee Approval by the Board of Governors, as appropriate	2Q 2014
Target publication date	4Q 2014

Note: * is necessary only for the Safety Standards.

8. RESOURCES

Staff: 52 staff weeks

Consultant: 20 consultant weeks

Member States: 10 Member State weeks for each Member State

ATTACHMENT
Proposal for the content of the draft safety guide on
“Predisposal Management of Waste from the Use of Radioactive Material in Medicine,
Industry, Agriculture, Research and Education”

1. Introduction

- Background
- Objective
- Scope
- Structure

2. Protection of human health and the environment

- Radioactive waste management
- Radiation protection
- Environmental concerns

3. Responsibilities associated with the management of radioactive waste

- General
- National policy and strategy on radioactive waste management
- Responsibilities of the regulatory body
- Responsibilities of the operator (including the waste producer)
- Integrated approach to safety
- Interdependences

4. Steps in the management of radioactive waste

- General
- Radioactive waste management and control including minimization
- Characterization and classification of radioactive waste
- Processing of radioactive waste
- Storage of radioactive waste
- Radioactive waste acceptance criteria for processing, storage and/or disposal

5. Safety Case and Safety Assessment

- General
- Approach to safety
- Preparation of the safety case and supporting safety assessment
- Scope of the safety case and supporting safety assessment
- Documentation of the safety case and supporting safety assessment
- Periodic safety reviews

6. Development and operation of facilities and activities

- General
- Development of facilities
- Location and design of facilities
- Construction and commissioning of the facilities
- Facility operation
- Safety and Security
- Shutdown and decommissioning of facilities
- Existing facilities

7. Management Systems

General

Resource Management

Process Implementation

Record keeping

References

Contributors to Drafting and review

Bodies for the Endorsement of Safety Standards