DOCUMENT PREPARATION PROFILE

1. IDENTIFICATION

Document Category:	Safety Guide
Working ID:	
Proposed title:	Predisposal Management of Radioactive Waste from Fuel Cycle Facilities
Proposed action:	Revision of existing SG
Existing Series number(s):	Safety Standards Series No. WS-G-2.6
Published title(s)/ year(s) of publication:	*Predisposal Management of High Level Radioactive Waste Safety Guide*, (2003).
Review Committee(s):	WASSC (leading committee), RASSC, NUSSC
Technical Officer:	Monika Kinker

2. BACKGROUND/RATIONALE

The structure of the safety standards has been recently reviewed in the light of the ten Fundamental Safety Principles and the "ROADMAP on the Long-Term Structure of the safety standards". The main thrust of the new structure is the integration of the thematic Safety Requirements into a set of General Safety Requirements that are applicable to all facilities and activities, which are complemented by a series of facility- and activity- specific Safety Requirements. A new safety requirements document for predisposal management of radioactive waste (GSR Part 5) was recently published and applies to all facilities and activities where radioactive waste is generated, processed or stored. Guidance on meeting the requirements for predisposal management of radioactive waste was previously made available on a thematic basis (e.g. for low and intermediate level waste or high level waste), and also on a facility or activity specific basis (e.g. for storage of radioactive waste or for activities generating small amounts of waste). Shortcomings identified with the thematic approach were the limited consideration given to interdependencies and the need for holistic and optimized radioactive waste management programmes in particular facilities and activities.

While the most important waste stream from nuclear fuel cycle facilities is high-level waste (HLW) (e.g., vitrified waste from spent fuel reprocessing, including mixed oxide [MOX] fuel), large amounts of intermediate-level waste (ILW) which typically contain longer lived radionuclides, and low-level waste (LLW) are also produced. In addition, the approach to treating liquid and gaseous waste streams influences the amount of effluent generated for discharge, and the approach to clearance and recycling influences the amount of waste for storage and disposal, with a large influence in the optimization of the overall radioactive

waste management process (predisposal and disposal). However, the current suite of safety guides (namely WS-G-2.5 and WS-G-2. 6) for low and intermediate level waste and high-level waste, respectively, give limited consideration to the interdependencies inherent in the management of waste from generation to disposal.

In order to address these shortcomings and with a view towards the long-term structure of the safety standards, it is proposed that future guidance and recommendations should be focused on the holistic management of radioactive waste associated with different facilities and activities. 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 is 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

The objective of this safety guide is to provide up-to-date recommendations on the predisposal management of radioactive waste generated by fuel cycle facilities, both within larger facilities and at separate, dedicated waste management facilities (including centralized waste management facilities). It is intended to address the specific recommendations for safety in design, construction, operation, and decommissioning, including safety case (and supporting safety assessment) and management systems for the management of radioactive waste, taking due account of existing IAEA Safety Standards, including the recently published Safety Requirements for predisposal management of radioactive waste. It is also an objective of this safety guide to take new developments and their implications on safety into account, e.g., advanced fuel design and long-term storage of HLW. Non-radiological safety issues that cannot impact on radiological safety are not included within the scope of this Guide.

This new standard is intended to provide guidance to regulators and operators of fuel cycle facilities on meeting and demonstrating compliance with the Safety Requirements in the management of radioactive waste in a systematic and comprehensive manner. Consideration will also be given to the safety of existing facilities that were commissioned prior to present day standards.

4. JUSTIFICATION

Past Safety Series publications have covered one or another type of radioactive waste, however, not the integrated waste management system. This Guide is intended to address the suite of radioactive waste generated and managed by fuel cycle facilities within a single guidance document (excluding reactors, mining, and spent fuel storage facilities which are addressed under separate guidance documentation). It will take into consideration work underway on the common framework for radioactive waste management.

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

The proposed SG will be developed as part of the IAEA Safety Standards Series. Due account will be given to existing safety standards, for example the thematic ones, e.g. on governmental infrastructure, management systems, assessment and verification, radiation protection, decommissioning and transport, and in particular the ones specific to facilities and activities. It is necessary to liaise and co-ordinate with the development of relevant new safety standards, as necessary.

The new SG will be based on the relevant Safety Requirements, i.e. "Predisposal Management of Radioactive Waste" (SSS GS-R-5) and "Safety of Nuclear Fuel Cycle Facilities" (SSS NS-R-5). The existing Safety guides on HLW and ILW/LLW (Safety Guides No. WS-G-2.5 and WS-G-2.6), will be used as a basis for the preparation of the planned new SG. It should also be consistent with the new Safety Fundamentals (SF-1) and the Joint Convention.

Supercedes: *Predisposal Management of Low and Intermediate Level Radioactive Waste Safety Guide*, Safety Standards Series No. WS-G-2.5 (2003). *Predisposal Management of High Level Radioactive Waste Safety Guide*, Safety Standards Series No. WS-G-2.6 (2003).

6. OVERVIEW

The Safety Requirements for predisposal management of radioactive waste is concerned with the application of the fundamental radiation protection and waste management principles in SF-1, and establishes 22 requirements. It is proposed that the Guide should have a structure that allows for the consideration of, and provides continuity with the Safety Requirements. Requirements will be identified in the Guide and will be referenced as they appear in the Safety Requirements. 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 NSNI and NEFW in the preparation of the new SG.

7. PRODUCTION SCHEDULE:

Approval of DPP by the Coordination Committee	April 2010
Approval of DPP by the Safety Standards Committees	June 2010
Approval of DPP by the CSS	October 2010
Approval of draft by the Coordination Committee	1Q 2012
Approval by the Safety Standards Committees for submission to Member States for comments	2Q 2012
Approval of the revised draft by the Coordination Committee Review in NS-SSCS	1Q 2013
Approval by the Safety Standards Committees for submission to the CSS	2Q 2013
Endorsement by the CSS	3Q 2013
Approval by the Publications Committee	4Q 2013

Target publication date	2Q 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 Radioactive Waste from Fuel Cycle Facilities"

1. **Introduction**
   - Background
   - Objective
   - Scope
   - Structure

2. **Protection of human health and the environment**

3. **Roles and responsibilities**
   - General
   - Responsibilities of the government
   - Responsibilities of the operating organization
   - Integrated approach to safety

4. **Management System**
   - General
   - Resource Management
   - Process Implementation

5. **Safety Case and Safety Assessment**
   - Documentation of the Safety Case

6. **General safety considerations for management of waste from fuel cycle facilities**
   - General
     (Generation, processing, storage, acceptance criteria, discharge of effluents, clearance of materials, and interdependencies)
   - Development of facilities
     (Siting, design, construction, commissioning, operation, and decommissioning, existing facilities)

7. **Specific safety considerations for management of radioactive waste from uranium fuel fabrication facilities / MOX fuel fabrication facilities / uranium conversion and enrichment facilities/ Reprocessing facilities/ Research and Development FCF/ Vitrification facilities**
   The contents of these Sections should be developed in the drafting process. Certain sections may be omitted if safe management of radioactive waste from these specific facilities is coherent with safe management of radioactive waste from fuel cycle facilities.

References
Contributors to Drafting and review
Bodies for the Endorsement of Safety Standards