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Document Preparation Profile (DPP)
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1. IDENTIFICATION

Document Category or batch of publications to be revised in a concomitant manner

General Safety Guide

Working ID: **DS534**

Proposed Title: **Protection Strategy for a Nuclear or Radiological Emergency**

Proposed Action: **New publication**

Review Committee(s) or Group: **EPReSC, NUSSC, RASSC, TRANSCC, WASSC, NSGC**

Technical Officer(s): **Ms KOUTS Katerina, NS-IEC**

2. BACKGROUND

Requirement 44 of IAEA Safety Standards Series No. GSR Part 3, Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards and Requirement 5 of IAEA Safety Standards Series No. GSR Part 7, Preparedness and Response for a Nuclear or Radiological Emergency require the Member States to ensure that protection strategies are developed, justified and optimized, at the preparedness stage[1] for taking protective actions and other response actions effectively in a nuclear or radiological emergency.

The concept of the protection strategy, comprising a suite of justified and optimized protective actions and other response actions, has evolved from the previously recommended approach (IAEA Basic Safety Standard No. 115 (1996), IAEA Safety Standards Series No. GS-R-2 (2002)) in which interventions (i.e. individual protective actions) were individually justified on the basis of the dose that is avertable by that action, using the concept of intervention levels on the basis of the ICRP recommendations valid at that time (ICRP Publication 60 (1991) and ICRP Publication 63 (1992)). The concept of the protection strategy, as addressed in the most recent IAEA safety standards, involves consideration of protective actions and other response actions, individually and in combination, on the basis of the reference level and generic criteria, expressed in terms of residual and projected or received doses, respectively, abandoning the concept of intervention levels and avertable dose to solely justify the need for protective actions.

Although the concept of the protection strategy is not novel, the approach used for its justification and optimization as well as the combined use of reference levels and generic criteria within a protection strategy is relatively new and could benefit from further ~~has risen a need for~~ clarification. Understanding the concept of protection strategy has been further complicated by the fact that the term ‘protection strategy’ is commonly used to refer to both a framework and its documentation, i.e. the same term is applied to:

- A framework under which the justified and optimized set of protective actions and other response actions in an emergency response are implemented (through execution of pre-established emergency arrangements); and

[1] Note: the term ‘planning stage’ is used in GSR Part 3.

- A document (or set of documents) that describes the goals to be achieved, the decision making basis, and the set of justified and optimized emergency response actions that comprise or set the framework.

In order to improve the common understanding of the concept of protection strategy and to support Member States in the implementation of Requirement 44 of GSR Part 3 and Requirement 5 of GSR Part 7, IAEA has published a publication within Emergency Preparedness and Response (EPR) Series entitled 'Considerations in the Development of a Protection Strategy for a Nuclear and Radiological Emergency' (EPR Protection strategy 2020). This publication provides technical guidance on the concept of protection strategy, on the implementation of the reference levels and generic criteria within the protection strategy and its development, justification and optimization taking into account societal, economic and environmental impacts as well as other factors and impacts.

3. JUSTIFICATION FOR THE PRODUCTION OF THE PUBLICATION

Despite technical guidance addressing the protection strategy for a nuclear or radiological emergency or various aspects associated with it (such as operational criteria) is available within EPR series, the concept of protection strategy, its development, justification and optimization, as required in the latest IAEA safety standards, have not been covered at the level of safety guide in sufficient detail yet. The existing safety guides in EPR (GS-G-2.1 (2007), GSG-2 (2011), ~~GSG-11 (2018),~~ GSG-14 (2020)) have well defined scope (as such or their revision, if initiated) in terms of the requirements of GSR Part 7 for which they provide guidance for, with Requirement 5 of GSR Part 7 being outside their scope.

Although a particular emphasis is placed on the specifics of the protection strategy for the transition phase in GSG-11 (2018), GSG-11 does not describe the concept of protection strategy in a comprehensive manner, and it does not address all the phases of a nuclear or radiological emergency.

Due to the comprehensiveness of the topic and the current status of EPR safety standards, there is a need to address this topic in a new safety guide to provide recommendations on all relevant aspects underpinning the development, justification and optimization of the protection strategy.

The need to develop a guidance on the protection strategy at a safety guide level was discussed as early as during the 9th meeting of EPReSC in 2019. During the 12th meeting of EPReSC, the Committee approved proposal to proceed with upgrading ~~identified the need to upgrade~~the EPR Protection Strategy 2020 to the status of a Safety Guide and suggested that the Secretariat work on preparing a DPP.

The feedback received from the application of the EPR Protection Strategy 2020 publication (from e.g. conducted workshops, expert missions or, as appropriate, ~~to be obtained~~ through NSS OUI[2]) will provide essential input to the development of the proposed new safety guide.

4. OBJECTIVE

The objective of this Safety Guide is to provide Member States with guidance and recommendations on the development, justification and optimization as well as implementation of a protection strategy for a nuclear or radiological emergency. This will cover the overall concept of the protection strategy as well as the application of reference levels, generic criteria and operational criteria within the protection strategy.

[2] https://nucleus-apps.iaea.org/nss-oui/

The publication will be beneficial for operating organizations, response organizations, regulatory body and other relevant competent authorities involved in emergency preparedness and response, either directly or through the national coordinating mechanism. The target audience for this publication ~~is~~ are decision makers (or emergency ~~managers~~response commanders~~),~~) and emergency planners (at the facility, local, regional and national levels), emergency response coordinators, qualified experts/radiation protection officers (e.g. radiological assessors, technical advisers to decision makers) and relevant staff of different response organizations at all levels with roles and responsibilities in preparedness and response for a nuclear or radiological emergency~~.~~.

5. SCOPE

The Safety Guide will apply to any nuclear or radiological emergency that could occur in relation to a facility, an activity or a source, irrespective of the cause. The Safety Guide will cover all the phases of the nuclear or radiological emergency, from the urgent response phase to the transition phase.

This safety Guide will not apply for managing existing exposure situations after the emergency is declared ended and for long term recovery. However, the basic concepts and approaches contained in this Safety Guide will support, within the context of overall emergency preparedness, planning for the protection strategy for the existing exposure situation after the termination of the nuclear or radiological emergency.

This publication will not provide detailed recommendations and guidance on generic and operational criteria (such as observables, emergency action levels and operational intervention levels) for use in emergency preparedness and response, despite they constitute part of the protection strategy. Detailed recommendations and guidance on criteria are given in GSG-2, which is currently under revision.

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

Within the IAEA Safety Standards Series, this Safety Guide will be part of the General Safety Guides supporting primarily GSR Part 7 as well as Section IV on emergency exposure situations of GSR Part 3.

This Safety Guide will interface with at least the following IAEA Safety Standards:

1. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL CIVIL AVIATION ORGANIZATION, INTERNATIONAL LABOUR ORGANIZATION, INTERNATIONAL MARITIME ORGANIZATION, INTERPOL, OECD NUCLEAR ENERGY AGENCY, PAN AMERICAN HEALTH ORGANIZATION, PREPARATORY COMMISSION FOR THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY ORGANIZATION, UNITED NATIONS ENVIRONMENT PROGRAMME, UNITED NATIONS OFFICE FOR THE CO¬ORDINATION OF HUMANITARIAN AFFAIRS, WORLD HEALTH ORGANIZATION, WORLD METEOROLOGICAL ORGANIZATION, Preparedness and Response for a Nuclear or Radiological Emergency, IAEA Safety Standards Series No. GSR Part 7, IAEA, Vienna (2015);
2. EUROPEAN COMMISSION, FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL LABOUR ORGANIZATION, OECD NUCLEAR ENERGY AGENCY, PAN AMERICAN HEALTH ORGANIZATION, UNITED NATIONS ENVIRONMENT PROGRAMME, WORLD HEALTH ORGANIZATION, Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, IAEA Safety Standards Series No. GSR Part 3, IAEA, Vienna (2014);

3. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL LABOUR OFFICE, PAN AMERICAN HEALTH ORGANIZATION, UNITED NATIONS OFFICE FOR THE COORDINATION OF HUMANITARIAN AFFAIRS, WORLD HEALTH ORGANIZATION, Arrangements for Preparedness for a Nuclear or Radiological Emergency, IAEA Safety Standards Series No. GS-G-2.1, IAEA, Vienna (2007) (under revision).
4. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL LABOUR OFFICE, PAN AMERICAN HEALTH ORGANIZATION, WORLD HEALTH ORGANIZATION, Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency, IAEA Safety Standards Series No. GSG-2, IAEA, Vienna (2011) (under revision).
5. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL CIVIL AVIATION ORGANIZATION, INTERNATIONAL LABOUR OFFICE, INTERNATIONAL MARITIME PORGANIZATION, INTERPOL, OECD NUCLEAR ENERGY AGENCY, UNITED NATIONS OFFICE FOR THE COORDINATION OF HUMANITARIAN AFFAIRS, WORLD HEALTH ORGANIZATION, WORLD METEOROLOGICAL ORGANIZATION, Arrangements for the Termination of a Nuclear or Radiological Emergency, IAEA Safety Standards Series No. GSG 11, IAEA, Vienna (2018).
6. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL CIVIL AVIATION ORGANIZATION, INTERPOL, PREPARATORY COMMISSION FOR THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY ORGANIZATION, AND UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS, Arrangements for Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency, IAEA Safety Standards Series No GSG 14, IAEA, Vienna (2020).

The document will be an interface document as it will address nuclear or radiological emergencies irrespective of the cause. However, this Safety Guide will keep its focus on the strategy to protect the public in a nuclear or radiological emergency and its preparation, while highlighting the considerations to be given from nuclear security perspective consistently with GSR Part 7.

All relevant sections in the IAEA's Department of Nuclear Safety and Security will be consulted, as appropriate, throughout the drafting and review process.

7. OVERVIEW

The Safety Guide is expected to cover the following contents:

1. Introduction

(This Section is expected to cover the Background, Objective, Scope and Structure of the Safety Guide).

2. Protection Strategy: Concept and Approaches

(This Section is expected to address the concept of protection strategy and to provide guidance and recommendations on the elements of the protection strategy, documenting the strategy at national level and its place within national EPR framework).

3. Development of Protection Strategy

(This Section is expected to address the development of the protection strategy and to provide guidance and recommendations on the ~~.~~ planning basis~~,~~ to enable development of the strategy and on steps to be taken).

4. Implementation of Protection Strategy

(This Section is expected to address the implementation of the pre-planned strategy and to provide guidance and recommendations on how to implement the strategy during different phases of the emergency, ~~and~~ the implications for its development and means for assessing the effectiveness of the protection strategy and for its adjustment as the emergency evolves).

5. Justification and Optimisation of Protection Strategy

(This Section is expected to address processes for justification and optimization and to provide guidance and recommendations on the processes for justification and optimization and on various factors and impacts to be considered to support informed decisions regarding protection and safety).

6. Consultation with Interested Parties

(This Section is expected to address the consultation with interested parties and to provide guidance and recommendations on the consultation processes during development and implementation of the protection strategy, relevant interested parties, consultation mechanism and means to be used for this).

7. Appendix

(The Safety Guide is expected to have a number of Appendices that expect to cover topics such as suggested contents of the protection strategy).

8. Annexes

(The Safety Guide is expected to also have a number of Annexes that provide information supporting the guidance and recommendations addressing topics such as factors for justification and optimisation).

Interest for co-sponsoring this Safety Guide is expected by the relevant international organizations that are already co-sponsoring GSR Part 7 (i.e. FAO, ICAO, ILO, IMO, INTERPOL, OECD/NEA, PAHO, CTBTO, UNEP, OCHA, WHO and WMO). Almost all of them are members of the Inter-agency Committee for Radiological and Nuclear Emergencies (IACRNE). The interactions with these organizations will be coordinated by the Technical Officer within the framework of IACRNE.

8. PRODUCTION SCHEDULE: Provisional schedule for preparation of the publication, outlining realistic expected dates for each step *(fill the column corresponding to your proposed publication and delete the other columns)*:

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STEP 1: Preparing a DPP	DONE
STEP 2: Internal review of the DPP (Approval by the Coordination Committee)	Q3 2021
STEP 3: Review of the DPP by the review Committee(s) (Approval by review Committee(s))	Q4 2021
STEP 4: Review of the DPP by the CSS (approval by CSS) or information of the CSS on the DPP	Q2 2022
STEP 5: Preparing the draft publication	Q2 2022 – Q1 2023
STEP 6: First internal review of the draft publication (Approval by the Coordination Committee)	Q1 2023
STEP 7: First review of the draft publication by the review Committee(s) (Approval for submission to Member States for comments)	Q2 2023
STEP 8: Soliciting comments by Member States	Q3 – Q4 2023
STEP 9: Addressing comments by Member States	Q4 2023 – Q1 2024
STEP 10: Second internal review of the draft publication (Approval by the Coordination Committee)	Q1 2024
STEP 11: Second review of the draft publication by the review Committee(s) (Approval of the draft)	Q3 2024
STEP 12: (For Safety Standards) Editing of the draft publication in MTCD and endorsement of the draft publication by the CSS	Q4 2024

(For nuclear security guidance) DDG's decision on whether additional consultation is needed, establishment by the Publications Committee and editing	
STEP 13: Approval by the Board of Governors (for SF and SR only)	NA
STEP 14: Target publication date	Q3 2025

9. RESOURCES

Estimated resources involved by the Secretariat (person-weeks) and the Member States (number and type of meetings)

- Secretariat: 40 person-weeks
- Member States: 3 consultancy meetings and 1 Technical Meeting plus upload of comments to NSS-OUI