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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 Member States to ensure that protection strategies are developed, justified and optimized, at the preparedness stage¹ 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 a veritable 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 a veritable 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 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.

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

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

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50 **3. JUSTIFICATION FOR THE PRODUCTION OF THE PUBLICATION**

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52 Despite technical guidance addressing the protection strategy for a nuclear or radiological emergency or various
53 aspects associated with it (such as operational criteria) is available within EPR series, the concept of protection
54 strategy, its development, justification and optimization, as required in the latest IAEA safety standards, have not
55 been covered at the level of safety guide in sufficient detail yet. The existing safety guides in EPR (GS-G-2.1
56 (2007), GSG-2 (2011), GSG-11 (2018), GSG-14 (2020)) have well defined scope (as such or their revision, if
57 initiated) in terms of the requirements of GSR Part 7 for which they provide guidance for, with Requirement 5 of
58 GSR Part 7 being outside their scope.

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

62 During the 12th meeting of EPReSC, the Committee identified the need to upgrade EPR Protection Strategy 2020
63 to the status of a Safety Guide and suggested that the Secretariat work on preparing a DPP.

64 The feedback received from the application of EPR Protection Strategy 2020 publication (to be obtained through
65 NSS OUI) will provide essential input to the development of the proposed new safety guide.

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67 **4. OBJECTIVE**

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

73 The target audience for this publication is decision makers (emergency managers), emergency planners (at the
74 facility, local, regional and national level), emergency response coordinators, qualified experts/radiation protection
75 officers (radiological assessors, technical advisers to decision makers) and relevant staff of different response
76 organizations at all levels with roles and responsibilities in preparedness and response for a nuclear or radiological
77 emergency.

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79 **5. SCOPE**

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81 The Safety Guide will apply to any nuclear or radiological emergency that could occur in relation to a facility, an
82 activity or a source, irrespective of the cause.

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

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88 **6. PLACE IN THE OVERALL STRUCTURE OF THE RELEVANT SERIES AND** 89 **INTERFACES WITH EXISTING AND/OR PLANNED PUBLICATIONS**

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

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

- 94 1. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL
95 ATOMIC ENERGY AGENCY, INTERNATIONAL CIVIL AVIATION ORGANIZATION,
96 INTERNATIONAL LABOUR ORGANIZATION, INTERNATIONAL MARITIME ORGANIZATION,
97 INTERPOL, OECD NUCLEAR ENERGY AGENCY, PAN AMERICAN HEALTH ORGANIZATION,
98 PREPARATORY COMMISSION FOR THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY
99 ORGANIZATION, UNITED NATIONS ENVIRONMENT PROGRAMME, UNITED NATIONS OFFICE
100 FOR THE CO-ORDINATION OF HUMANITARIAN AFFAIRS, WORLD HEALTH ORGANIZATION,
101 WORLD METEOROLOGICAL ORGANIZATION, Preparedness and Response for a Nuclear or
102 Radiological Emergency, IAEA Safety Standards Series No. GSR Part 7, IAEA, Vienna (2015);
- 103 2. EUROPEAN COMMISSION, FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED
104 NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL LABOUR
105 ORGANIZATION, OECD NUCLEAR ENERGY AGENCY, PAN AMERICAN HEALTH
106 ORGANIZATION, UNITED NATIONS ENVIRONMENT PROGRAMME, WORLD HEALTH
107 ORGANIZATION, Radiation Protection and Safety of Radiation Sources: International Basic Safety
108 Standards, IAEA Safety Standards Series No. GSR Part 3, IAEA, Vienna (2014);
- 109 3. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL
110 ATOMIC ENERGY AGENCY, INTERNATIONAL LABOUR OFFICE, PAN AMERICAN HEALTH
111 ORGANIZATION, UNITED NATIONS OFFICE FOR THE COORDINATION OF HUMANITARIAN
112 AFFAIRS, WORLD HEALTH ORGANIZATION, Arrangements for Preparedness for a Nuclear or
113 Radiological Emergency, IAEA Safety Standards Series No. GS-G-2.1, IAEA, Vienna (2007) (under
114 revision).
- 115 4. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL
116 ATOMIC ENERGY AGENCY, INTERNATIONAL LABOUR OFFICE, PAN AMERICAN HEALTH
117 ORGANIZATION, WORLD HEALTH ORGANIZATION, Criteria for Use in Preparedness and Response
118 for a Nuclear or Radiological Emergency, IAEA Safety Standards Series No. GSG-2, IAEA, Vienna (2011)
119 (under revision).
- 120 5. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL
121 ATOMIC ENERGY AGENCY, INTERNATIONAL CIVIL AVIATION ORGANIZATION,
122 INTERNATIONAL LABOUR OFFICE, INTERNATIONAL MARITIME ORGANIZATION,
123 INTERPOL, OECD NUCLEAR ENERGY AGENCY, UNITED NATIONS OFFICE FOR THE
124 COORDINATION OF HUMANITARIAN AFFAIRS, WORLD HEALTH ORGANIZATION, WORLD

125 METEOROLOGICAL ORGANIZATION, Arrangements for the Termination of a Nuclear or Radiological
126 Emergency, IAEA Safety Standards Series No. GSG 11, IAEA, Vienna (2018).
127 6. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL
128 ATOMIC ENERGY AGENCY, INTERNATIONAL CIVIL AVIATION ORGANIZATION, INTERPOL,
129 PREPARATORY COMMISSION FOR THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY
130 ORGANIZATION, AND UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS, Arrangements for
131 Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency, IAEA Safety
132 Standards Series No GSG 14, IAEA, Vienna (2020).

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

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

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140 **7. OVERVIEW**

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142 The Safety Guide is expected to cover the following contents:

143 1. Introduction

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

145 2. Protection Strategy: Concept and Approaches

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

149 3. Development of Protection Strategy

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

152 4. Implementation of Protection Strategy

153 *(This Section is expected to address the implementation of the pre-planned strategy and to provide guidance and
154 recommendations on how to implement the strategy during different phases of the emergency and the
155 implications for its development).*

156 5. Justification and Optimisation of Protection Strategy

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

160 6. Consultation with Interested Parties

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

164 7. Appendix

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

167 8. Annexes

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

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

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177 **8. PRODUCTION SCHEDULE:** Provisional schedule for preparation of the publication, outlining
 178 realistic expected dates for each step *(fill the column corresponding to your proposed publication and delete the*
 179 *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 (For nuclear security guidance) DDG's decision on whether additional consultation is needed, establishment by the Publications Committee and editing	Q4 2024
STEP 13: Approval by the Board of Governors (for SF and SR only)	NA
STEP 14: Target publication date	Q3 2025

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181 **9. RESOURCES**

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

- 184
- Secretariat: 40 person-weeks
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- Member States: 3 consultancy meetings and 1 Technical Meeting plus upload of comments to NSS-OUI

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