1. IDENTIFICATION

Document Category: Safety Guide

Working ID:

Proposed Title: Arrangements for the termination of a nuclear or radiological emergency

Proposed Action: New Document

Review Committee(s) or Group: RASSC, WASSC, TRANSSC, NUSSC

Technical Officer(s): Elena Buglova, NS-IEC, Svetlana Nestoroska Madjunarova, NS-IEC

2. BACKGROUND

The IAEA General Safety Requirements No. GSR Part 3 (Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, Interim Edition), following the 2007 Recommendations of the International Commission on Radiological Protection (ICRP Publication 103) defines three different types of exposure situations, i.e. planned, emergency and existing exposure situations, recommending that the management of long-term exposures following a nuclear or radiological emergency be treated as an existing exposure situation. Although the transition from an emergency exposure situation to an existing exposure situation is based on an administrative decision made by the authority responsible for the overall response, the IAEA General Safety Requirements No. GSR Part 3 recognizes that the transition requires planning in advance and such planning is to be undertaken as part of the overall emergency preparedness process. Nevertheless, the IAEA Safety Requirements Publication, Preparedness and Response for a Nuclear or Radiological Emergency No. GS-R-2 (2002), as part of the functional requirement on conducting recovery operations, requires arrangements to be in place for a planned transition from the emergency phase operations to routine long term recovery operations.

In order to facilitate the implementation of the IAEA requirements related to termination of an emergency phase by transition from an emergency exposure situation to an existing exposure situation and/or by returning to a planned exposure situation, this topic needs to be further elaborated in a Safety Guide.

3. JUSTIFICATION FOR THE PRODUCTION OF THE DOCUMENT


The current IAEA Safety Requirements publication, Preparedness and Response for a Nuclear or Radiological Emergency No. GS-R-2 is under revision to take into account the developments and experience gained since its publication in 2002 including, but not limited to, lessons identified in the response to the accident at TEPCO’s Fukushima Daiichi nuclear power plant. In the new structure of the IAEA Safety Standards Series, the revised safety requirements in Preparedness and Response for a Nuclear or Radiological Emergency are to be Part 7 of...
the General Safety Requirements (GSR Part 7). This revision considers recommendations provided in the ICRP publications 103 and 109 and the IAEA Safety Requirements contained in GSR Part 3 for emergency exposure situations, including those for the transition from an emergency exposure situation to an existing exposure situation. As the termination of an emergency phase and subsequent transition to an existing exposure situation and/or subsequent returning to a planned exposure situation have not been addressed in the existing safety guides, additional guidance is required.

The need for a specific guidance on the transition from an emergency exposure situation to an existing exposure situation was identified at two meetings convened by the IAEA: (1) Technical Meeting for Review of the Draft Safety Requirements in Emergency Preparedness and Response, held 12-16 November 2012; and (2) International Experts Meeting on Decommissioning and Remediation after a Nuclear Accident, held 28 January – 1 February 2013.

4. OBJECTIVE AND SCOPE
The objective of this Safety Guide is to provide guidance to the Member States on meeting requirements on developing arrangements for preparedness to respond to a nuclear or radiological emergency in relation to the termination of an emergency phase which happens simultaneously with either transition to an existing exposure situation or returning to a planned exposure situation, as appropriate.

This Safety Guide will be applicable for any nuclear or radiological emergency that could occur at a facility or an activity in relation to the emergency arrangements to be in place for ensuring clear termination of an emergency phase through smooth either transition to an existing exposure situation or returning to a planned exposure situation, as appropriate.

5. 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 the Part 7 of the General Safety Requirements on emergency preparedness and response (revised GS-R-2, currently under development as DS457) and the Section IV on emergency exposure situations of the Part 3 of the General Safety Requirements on radiation protection and safety of radiation sources.

This Safety Guide will interface with the following international conventions and the IAEA Safety Standards:

1. INTERNATIONAL ATOMIC ENERGY AGENCY, Convention on Early Notification of a Nuclear Accident and Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, Legal Series No. 14, IAEA, Vienna (1987);

2. 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 OFFICE FOR THE COORDINATION OF HUMANITARIAN AFFAIRS, WORLD HEALTH ORGANIZATION, Preparedness and Response for a Nuclear or Radiological Emergency, IAEA Safety Standards Series No. GS-R-2, IAEA, Vienna (2002) (under revision, DS457);


5. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL LABOUR ORGANIZATION, PAN AMERICAN HEALTH ORGANIZATION, UNITED NATIONS OFFICE FOR THE CO-ORDINATION 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);

6. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL LABOUR ORGANIZATION, 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);


8. INTERNATIONAL ATOMIC ENERGY AGENCY, Environmental and Source Monitoring for Purposes of Radiation Protection, IAEA Safety Standards Series No. RS-G-1.8, IAEA, Vienna (2005);


The Safety Guide will interface with the following documents under development:

10. General Safety Requirements No. GSR Part 7 (revision of GS-R-2, DS457);

11. General Safety Requirements No. GSR Part 1 Rev. 1 (revision through addition of addendum, DS462);

12. Planning and Preparing for Response to Transport Events Involving Radioactive Material, Safety Guide (revision of TS-G-1.2, DS469);


The following recommendations publications of the ICRP will also support the development of this Safety Guide:


No interface with security is expected. While RASSC will co-ordinate the document preparation, WASSC, TRANSSC and NUSSC should participate since emergency preparedness and response issues are cross-cutting.

6. OVERVIEW

This Safety Guide is expected to cover the following contents:

1. Introduction
   - Background
   - Objective
   - Scope
   - Structure
2. Termination of an emergency phase
EMERGENCY PHASE

OBJECTIVES AND CONDITIONS TO BE MET

RECOMMENDATIONS

APPLYING A GRADED APPROACH

3. ARRANGEMENTS FOR THE TERMINATION OF AN EMERGENCY AT PREPAREDNESS STAGE

- Allocation of responsibilities and other organizational aspects
- Characterization of the exposure situation and exposure pathways
  - Methods for assessing radiological consequences
- Adjusting the protective actions and remediation actions
- Radioactive waste management activities
- Use of:
  - Reference levels
  - Generic criteria as a target dose for enabling the transition to an existing exposure situation
  - Predetermined operational criteria
- Application of the principles on justification and optimization
- Consideration of the non-radiological consequences
- Protection of emergency workers and helpers in an emergency taking actions aimed at enabling the termination of an emergency phase
- Review of the hazard assessment
- Involvement of the public and other interested parties

REFERENCES

Annex: Case study (e.g. Chernobyl Accident; Accident at the TEPCO’s Fukushima Daiichi Nuclear Power Plant; radiological accident at Goiânia, Brazil; accidental overexposure of patients, Panama; radiological accident in Nueva Aldea, Chile; PAKS NPP fuel damage in Hungary)

- Contributors to drafting and review
- Bodies for endorsement of the IAEA Safety Standards.

Interest for co-sponsoring this Safety Guide is expected by the relevant international organizations - members of the Inter-agency Committee for Radiological and Nuclear Emergencies (IACRNE) that are already co-sponsoring GS-R-2 or have already expressed their interest to co-sponsor GSR Part 7 (revised GS-R-2). The interactions with these organizations will be coordinated through the IACRNE Secretary.

7. PRODUCTION SCHEDULE:

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8. RESOURCES

Estimated resources involved by the:

- **Secretariat**: 40 person-weeks
- **Member States**: five (5) consultants’ meetings and one (1) technical meeting.