First Meeting of the Emergency Preparedness and Response Standards Committee (EPReSC)

30 November – 2 December 2015

Agenda Item EP3.1
Safety Standards in Emergency Preparedness and Response

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Contents

- Safety Standards in general
- Safety Standards in EPR
An international consensus on what constitutes a high level of safety for protecting people and the environment from harmful effects of ionizing radiation…
Safety Standards Categories

Safety Fundamentals:
Fundamental safety objective and principles for protecting people and environment

Safety Requirements:
Requirements that must be met to ensure protection of people and environment

Safety Guides:
Recommended ways of meeting the requirements
## Safety Standards

### Overall structure

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**Collection of Safety Guides**
Safety Standards in EPR Overview

- SF-1 • Fundamentals
- GSR Part 7 • Requirements
- GS-G-2.1 GSG-2 • Recommendations
Establishes the fundamental safety objective, safety principles and concepts that provide the bases for the IAEA’s safety standards and its safety related programme

- Published in 2006
- Cosponsored by Euratom, FAO, IAEA, ILO, IMO, OECD/NEA, PAHO, UNEP and WHO
**Principle 9:**
Emergency preparedness and response

“Arrangements must be made for emergency preparedness and response for nuclear or radiation incidents.”
Safety Requirements
No. GSR Part 7

- Establishes requirements for an adequate level of preparedness and response for a nuclear or radiological emergency, irrespective of its cause
  - Requirements level: ‘Shall’ or ‘What’ to be done
  - Approved in 2015
  - Co-sponsored by FAO, IAEA, ICAO, ILO, IMO, INTERPOL, OECD/NEA, PAHO, UNEP, UNOCHA, WHO, WMO, CTBTO
  - Supersedes No. GS-R-2 issued in 2002
Safety Requirements in EPR

Structure

Goals of emergency preparedness and response
Safety Requirements in EPR
General requirements

To be fulfilled before any emergency planning can start

- Emergency management system
- Roles and responsibilities
- Assessment of hazards
- Protection strategy
Safety Requirements in EPR
Functional requirements (1)

*Functions to be performed for response to be effective and goals of emergency response to be met*

- Managing emergency response operations
- Identifying, notifying and activating
- Taking mitigatory actions
- Taking urgent protective and other response actions
- Providing instructions, warning and relevant information to the public
Safety Requirements in EPR
Functional requirements (2)

- Protecting emergency workers and helpers
- Managing the medical response
- Communicating with the public
- Taking early protective and other actions
- Managing radioactive waste
- Mitigating the non-radiological consequences
- Requesting, providing and receiving int. assistance
- Terminating an emergency
- Analysis of emergency and the response
Safety Requirements in EPR

Requirements for infrastructure

Infrastructural elements essential for performing response functions

- Authority
- Organization and staffing
- Coordination
- Plans and procedures
- Logistical support and facilities
- Training, drills and exercises
- QM programme
IAEA Safety Requirements
No. GSR Part 3: Section 4

Relevant requirements in Section 4 on Emergency exposure situations

- Requirements level: ‘Shall’ or ‘What’ to be done
- Approved on September 2011 by IAEA Board of Governors
- Published 2014
- Co-sponsored by EC, FAO, IAEA, ILO, OECD\NEA, PAHO, UNEP, WHO
GS-G-2.1 provides recommendations on implementation of specific safety requirements established in GS-R-2

- Recommendations level: ‘Should’ or ‘How’ to be done
- Published in 2007
- Co-sponsored by FAO, IAEA, ILO, OCHA, WHO, PAHO
Safety Guides
GS-G-2.1 contents (1)

- **Basic concepts in EPR**
  - Types of potential nuclear or radiological emergencies
  - Overview of:
    - Radiation induced health effects
    - Exposure pathways
    - Protective actions and other response actions

- **Hazard (threat) assessment and categories**
  - Criteria for determining categories
  - Defines concept of dangerous source and provides D-values
  - Lists typical facilities and activities per category
  - Defines area and zone sizes and discusses the basis
Safety Guides
GS-G-2.1 contents (2)

- Roles and responsibilities
  - Defined at operator, off-site and international levels
    - All categories covered
  - Guidance for a coordinating mechanism
    - National Coordinating Authority
  - Guidance on integrated planning
    - All hazards approach
Safety Guides
GS-G-2.1 contents (3)

• Further guidance provided on infrastructural requirements
  • Including detailed description of recommended emergency response facilities and locations, their functions and characteristics

• Elaborated concept of operations for a range of postulated nuclear or radiological emergency
  • For categories I-V
Safety Guides
GS-G-2.1 contents (4)

- Further guidance on how to implement following functional requirements:
  - ✔ Identifying, notifying and activating
  - ✔ Taking urgent protective actions
  - ✔ Keeping the public informed
  - ✔ Managing the medical response
  - ✔ Taking early protective and other actions
  - ✔ Mitigating the non-radiological consequences
Safety Guides
Review of GS-G-2.1 (1)

• Supports GSR Part 7 too. However:
  • Its review may be useful to be initiated to assess:
    • Its adequacy in the light of recent developments:
      • Publishing of GSR Part 7 and GSG-2
      • Development of two new safety guides (DS474, DS475)
      • Experience and developments since 2007
    • Its objective, scope and structure in terms of its usefulness for Member States
Safety Guides
Review of GS-G-2.1 (2)

- Its review may be useful to be initiated to identify:
  - Needs for its revision
  - Possible way forward, e.g.:
    - As a single guide or separate targeted guides
    - Targeted revision to specific areas or revision of whole publication
  - Guiding principles for any necessary revision
GSG-2 provides guidance on criteria for taking protective actions and other response actions in a nuclear or radiological emergency.

- **Recommendations level:** ‘Should’ or ‘How’ to be done
- **Published in 2011**
- **Co-sponsored by FAO, IAEA, WHO, PAHO, ILO**
- **Supersede intervention levels and generic action levels contained in GS-R-2**
Safety Guides
GSG-2 contents (1)

- Elaborates framework for emergency response criteria at which specific emergency response actions need to be taken
  - Defines system of:
    - **Generic criteria**
    - **Operational criteria**
      - OILs, EALs, Observables
    - **Guidance values applicable for emergency workers**
Safety Guides
GSG-2 contents (2)

- Example of **default OILs** for:
  - Deposition
  - Individual contamination
  - Contamination of food, milk and drinking water

- **Plain language explanations** in support of the criteria

Dose rate above ground

Food, milk and water concentrations

Dose rate from skin contamination
Guidance on EALs development including example EALs for LWRs

Suggested radii for inner cordoned area for radiological emergency
Safety Guides
GSG-2 in the light of GSR Part 7

- Consistent with GSR Part 7
- In future, its contents may be expanded to address all the generic criteria contained in GSR Part 7 and associated OILs
Safety Guide
No. TS-G-1.2

- TS-G-1.2 provides guidance for developing and establishing emergency arrangements for dealing effectively and safely with transport accidents
  - Recommendations level: ‘Should’ or ‘How’ to be done
  - Published in 2002
Safety Guide
Revision of TS-G-1.2

• TS-G-1.2 is due for revision, *inter alia*:
  • To take into account and ensure consistency with EPR related Safety Standards
  • Document Preparation Profile (DPP) for the revision is due for approval
    • TRANSSC and EPR6SC to have major roles in its review and approval
Safety Guides in development
DS474

- **Arrangements for the Termination of a Nuclear or Radiological Emergency**
  - Recommendations and guidance on arrangements for termination of an emergency and subsequent transition to new exposure situation (either planned or existing)
  - Including primary objective of termination and prerequisites to be met during transition phase
Safety Guides in development
DS475

• Arrangements for Communications with the Public in Preparedness and Response for a Nuclear or Radiological Emergency (DS475)
  • Recommendations and guidance on communicating with the public in EPR taking into account some particular circumstances (e.g. coincident emergencies, emergencies triggered by a nuclear security event, transition phase)
Safety Guides in development

Status

• Status update on progress made in their development to be provided in details during this meeting
Thank you for your attention!