

International Conference on Occupational Radiation Protection: Enhancing the Protection of Workers - Gaps, Challenges and Developments

IAEA Headquarters, Vienna, Austria
1 – 5 December 2014

Protection of Emergency Workers and Helpers *Recent Developments in International Standards in Emergency Preparedness and Response*

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International Atomic Energy Agency

Safety Standards in EPR

Addressing Protection of Emergency Workers

IAEA SAFETY STANDARDS SERIES

Preparedness and Response for a Nuclear or Radiological Emergency

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REQUIREMENTS

No. GS-R-2



IAEA Safety Standards for protecting people and the environment

Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards

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General Safety Requirements Part 3 No. GSR Part 3



IAEA Safety Standards for protecting people and the environment

Arrangements for Preparedness for a Nuclear or Radiological Emergency

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Safety Guide No. GS-G-2.1



IAEA Safety Standards for protecting people and the environment

Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency

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General Safety Guide No. GSG-2

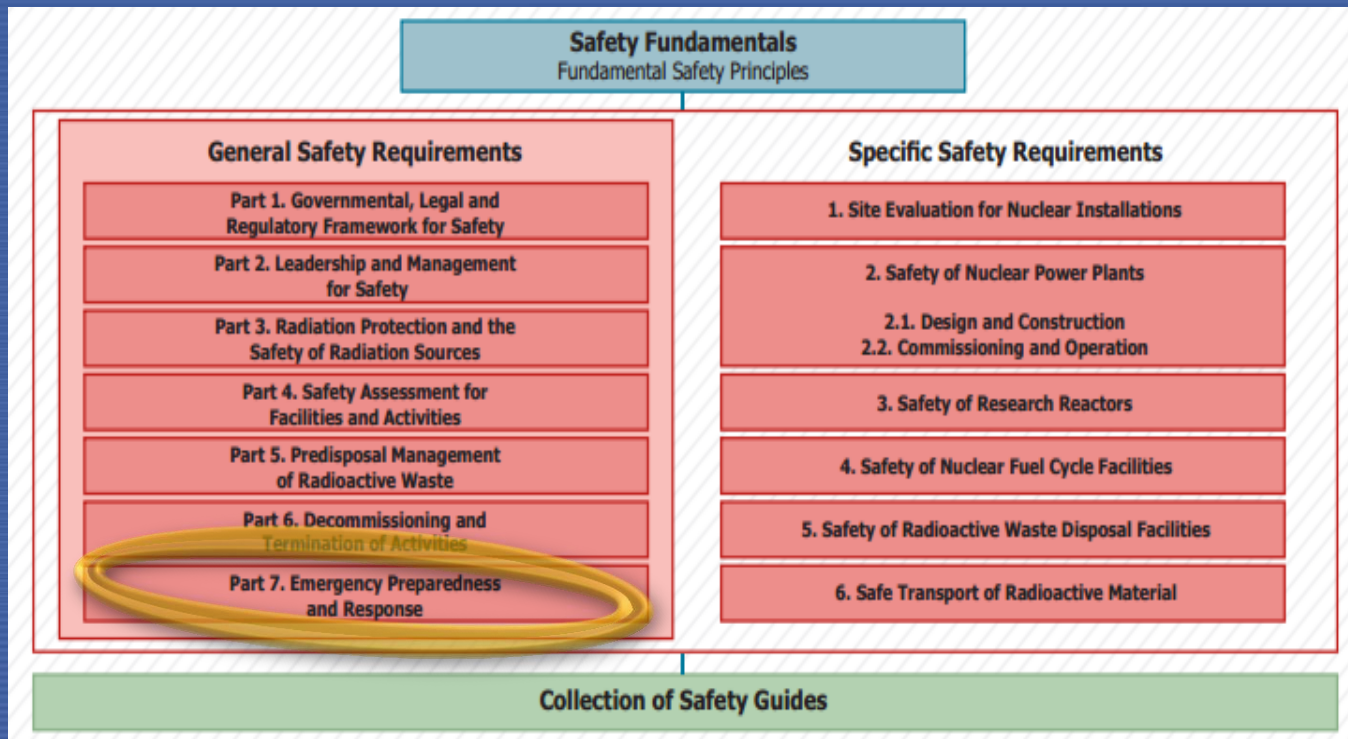


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GSR Part 7

Revised GS-R-2

- GS-R-2 revision initiated in 2011 to take into account experience and developments since 2002
- CSS Endorsement in November 2014

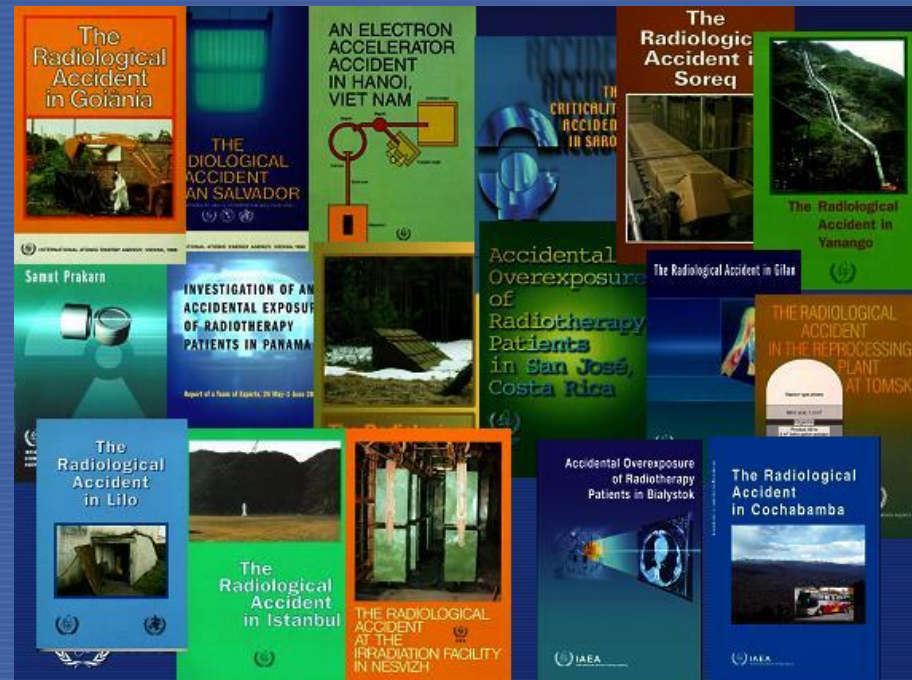
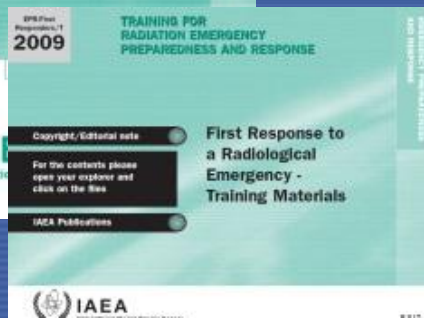
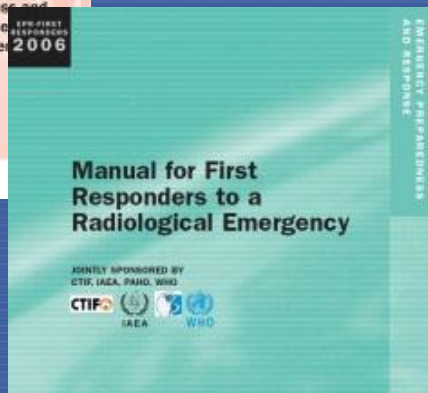
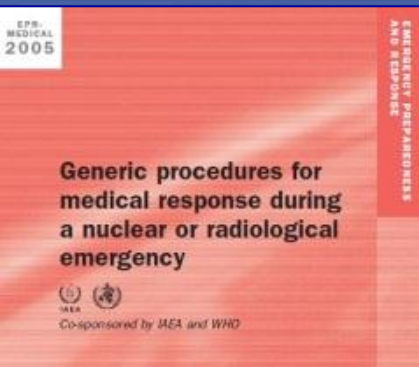


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Supporting documents & Implementation

Addressing Protection of Emergency Workers

Technical guidance for first responders and training



Accident Reports

Who is an emergency worker?

“A person having specified duties as a worker in response to an emergency.”

(Worker is any person who works, full time, part time or temporarily, for an employer & who has recognized rights and duties in relation to ORP)

- ✓ **Designated** operating personnel
 - ✓ **directly and indirectly employed**
- ✓ **Designated** personnel of responding organizations
- ✓ **Designated** personnel providing care and support to affected population
- ✓ **Some emergency workers who may not be designated prior to emergency**



Rights and duties of emergency workers in ORP in EPR

- **Rights and duties** in ORP are recognized by definitions of *emergency worker* and *worker*
- It implies:
 - ✓ **Responsibilities, commitments and duties** of employers
 - ✓ Recognition that those emergency workers **who are not designated** prior to emergency **are not necessarily workers** prior to emergency
- Designation of emergency workers provides **basis for adequate discharge** of rights, duties, responsibilities and commitments when needed

Who are helpers in emergency?

“Members of the public who willingly and voluntarily help in response to a nuclear or radiological emergency.”

- ✓ Helpers **are aware** that they may be exposed to radiation while helping in response to nuclear or radiological emergency



Framework for protection of emergency workers and helpers (1)

- Assess hazardous conditions in which emergency work might be undertaken
 - Valuable input into arrangements for protection of emergency workers and helpers
- **Designate** emergency workers
 - Account for those who cannot be designated at preparedness stage
- Assess initial and continuous **fitness for duty** of designated emergency workers
 - System for provision of health surveillance



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Framework for protection of emergency workers and helpers (2)

- Provide medical support
 - Longer term medical follow up or medical examination and treatment adequate to doses received
 - Medical care and psychological counseling
- Establish arrangements for managing doses received in emergency
 - Identify tasks for which doses might be received higher than those in planned exposure situation
 - Set guidance values for restricting exposure of emergency workers for different groups of tasks



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Framework for protection of emergency workers and helpers (3)

- Establish **comprehensive system for monitoring and controlling doses** that includes:
 - **Individual dosimeters** or other appropriate methods
 - **Registration** of emergency workers and helpers
 - **Continuous monitoring of working conditions**
 - **Planning** for expected tasks
 - **Assessment procedures** for doses received in response (total effective dose and organ doses)
 - Communication of doses received to emergency workers and helpers **placing health hazards** in perspective

Guidance values for restricting exposure of emergency workers

- Doses due to external penetration radiation ($H_p(10)$) may not provide a sufficient measure of hazard for emergency workers (E and AD_T to be assessed and used for that purpose)

TASKS	GUIDANCE VALUES		
	$H_p(10)$	E	AD_T
Life saving actions	< 500 mSv	< 500 mSv	$< \frac{1}{2}AD_{T, SDE}^a$
	This value may be exceeded — with due consideration of generic criteria used for taking actions to prevent severe deterministic effects to occur — under circumstances in which expected benefits to others clearly outweigh emergency worker's own health risks, and emergency worker volunteers to take action and understands and accepts these health risks		
Actions to prevent severe deterministic effects and actions to prevent development of catastrophic conditions that could significantly affect people and environment	< 500 mSv	< 500 mSv	$< \frac{1}{2}AD_{T, SDE}$
Actions to avert a large collective dose	< 100 mSv	< 100 mSv	$< \frac{1}{10}AD_{T, SDE}$

Framework for protection of emergency workers and helpers (4)

- Establish arrangements to **register** and **integrate** in emergency response organization those **emergency workers** who were **not designated** prior to emergency, and **helpers**
 - Provide them with '*just-in-time*' training
 - **emergency workers** who were **not designated** prior to emergency not to be first choice for life-saving actions
 - Protect helpers within provisions for occupational exposure in planned exposure situation
 - **Identify organization(s)** for their protection and **assign responsibilities**

Framework for protection of emergency workers and helpers (5)

- Female emergency workers:
 - Establish arrangements for:
 - **Notification** by female worker to employer
 - Providing information by employer on **health risk to fetus**
 - **Assessing and monitoring conditions** in which female emergency worker might perform assigned emergency tasks
 - **Restrict involvement** when received doses are anticipated to be greater than 50 mSv equivalent dose to fetus
 - Provision of adequate protective and monitoring equipment
 - Assessment of equivalent dose to fetus as basis for further work restrictions and identifying need for medical consultation

Further occupational exposure

- Doses received in emergency response are considered separately from occupational exposure in planned exposure situation
- Emergency workers who receive doses in an emergency response **are not to be precluded from incurring further occupational exposure**
 - Such decision need to be based on **qualified medical advice** to assess worker's **fitness for duty**

Protection of emergency workers and helpers: **Transition phase**

- Characterized with increased knowledge and understanding of situation
- No urgency in decision-making
- Detailed planning of emergency work doable
- Helpers involvement more likely
 - More stringent provisions such as for planned exposure applicable for most emergency work
 - Simultaneous implementation of different schemes for protection of emergency workers and helpers possible
 - Safety Guide DS474: on-going work



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Next steps – Looking forward

- **Workshops** on GSR Part 7 implementation
 - Session on details for emergency workers
- **EPnet** – Emergency Preparedness Network
 - online platform aimed at connecting EPR professionals through collaborative space
 - part of Global Safety and Security Network (GNSSN)
- **International Conference on Global Emergency Preparedness and Response**
 - 19-23 October 2015, IAEA, Vienna
 - Session on emergency workers

Summary

- GSR Part 7: provides comprehensive framework for ORP in EPR:
 - Describes framework and arrangements for full range of emergency workers and helpers in emergency response and for their protection
- Protection of emergency workers builds upon ORP measures but shall account for specifics of emergency and emergency response
- Supporting materials are available

Thank you for your attention!



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