



ICRP RECOMMENDATIONS

OCCUPATIONAL RADIATION PROTECTION IN AN EMERGENCY

NEA/ISOE/EG-SAM

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Outline

- History and current work of ICRP
- Who are Responders?
- Reference levels

Disclaimer: The views and thoughts in this presentation are my personal opinions, representing the ICRP, and are not intended to represent those of my employer, the U.S. Nuclear Regulatory Commission

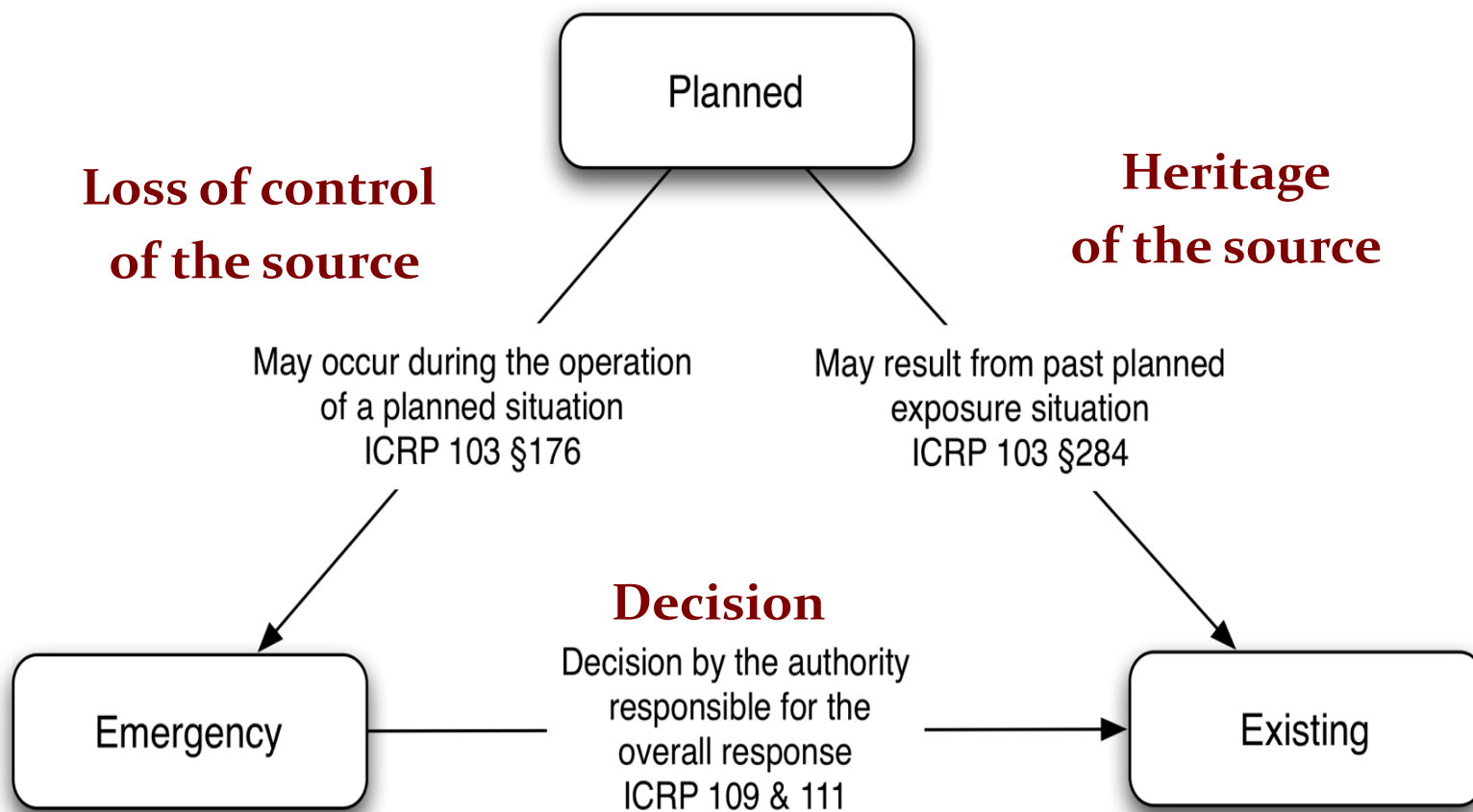
Evolution of Recommendations

- Publication 40 (1984): Protection of Public in the event of major radiation accidents. Early, intermediate and recovery time phases.
- Publication 63 (1993): Principles for intervention for protection of the public in a radiological emergency. Pre-release, release and post-release time phases.
- Publication 96 (2005): Protecting People against Radiation Exposure in the Event of a Radiological Attack.
- Publication 109 (2009): Application of the Commission's Recommendations for the Protection of People in Emergency Exposure Situations.

Current Work

- Task Group 84 developed a number of areas for ICRP work during the current term in response to Fukushima
- Committee 4 Position Paper reviewed by Main Commission spring 2013
- Task Group 93 now working on updates for Publications 109 and 111
- Topics cover a range of issues, including aspects of occupational exposure in both Emergency and Existing Exposure Situations
- Update planned to be single publication with two parts to address updates for each exposure situation

Shifts between the exposure situations



Accident Management Timeline

Preparedness	Early phase		Intermediate phase		Late phase
	Pre-release/ Release		Post-release		
Planning stage	Event/Response	Crisis management	Consequences management	Recovery planning/	Recovery/ Long-term rehabilitation

**Planned
Exposure
Situation**

**Emergency Exposure
Situation**



**Existing Exposure
Situation**

Shift from Emergency to Existing exposure situation

Who are the Responders?

- Licensee employees and contractors
- Offsite professionals (fire and rescue, etc.)
- Other workers (transportation drivers, electrical contractors...)
- Members of the public

What factors are important?

- The exposure situation
- Training
- Location

Emergency Reference Levels

- Priority for higher dose tasks to those trained and prepared for the risks
- Optimization always is applicable, with boundaries expressed as reference levels
- Graded Approach
- Reference levels in the 20 – 100 mSv band
- Exposures above 100 mSv justified only under extreme circumstances

Selection of Reference Level

	Emergency (Emergency exposure situation)	Post-accident (Existing exposure situation)
Responders previously considered as occupationally exposed	Upper range of band 20-100 mSv (> in exceptional circumstances)	Upper range of band 1-20 mSv
Responders not previously considered as occupationally exposed (considered as Members of the public from a RP point of view)	Lower range of band 20-100 mSv	Lower range of band 1-20 mSv

Paradigm Shift

Emergency Exposure Situation

- Reference level in the 20-100 mSv/year range
- Protection actions to reduce and maintain exposure ALARA driven by urgency
- Training, dosimetry, tracking

Decision by
authorities

Existing Exposure Situation

- Reference level in the 1-20 mSv/year range
- Protection actions to reduce and maintain exposure ALARA driven by information and controls
- Training, dosimetry, tracking

Important Points

- Commensurate with the situation and the entrusted operations
- Graded approach according to the circumstances
- As low as reasonably achievable below the reference level
- Apply requirements for protection to the maximum extent possible



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