

Occupational RP in Emergency Preparedness and Response: The ICRP Perspective Considering Lessons from Fukushima

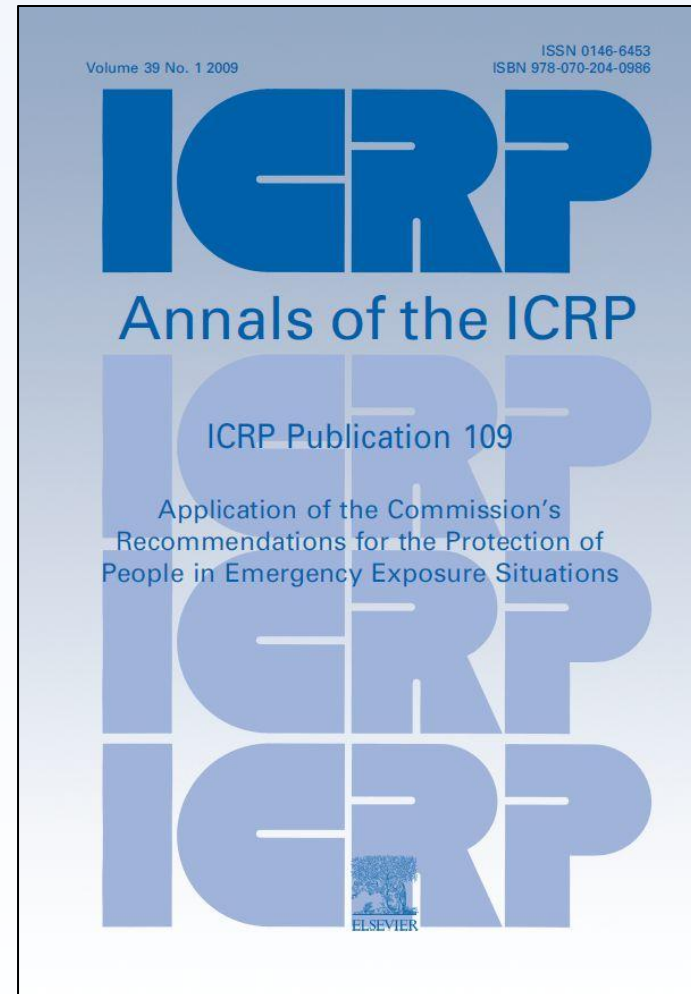
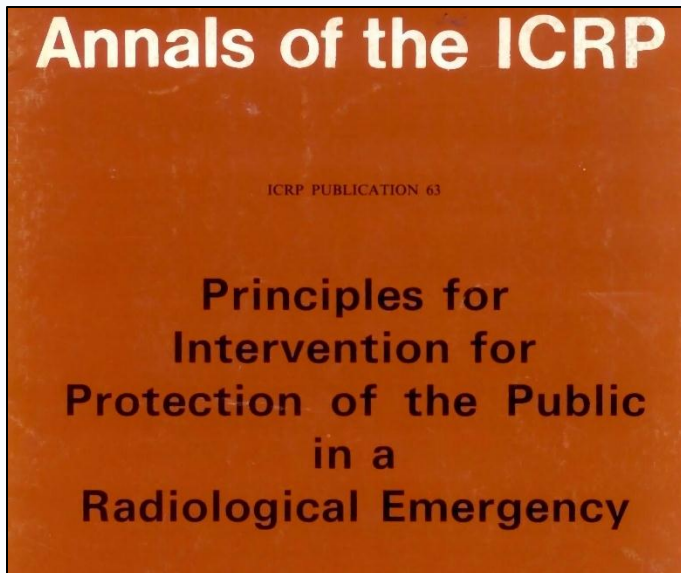
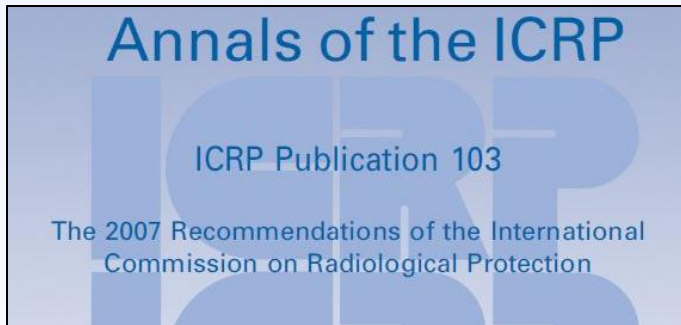
International Conference on Occupational Radiation Protection: Enhancing the Protection of Workers – Gaps, Challenges and Developments

Round Table 2: The application and interpretation of international standards in emergency preparedness and response

Vienna, 2014 December 1-5

Christopher Clement
ICRP Scientific Secretary
sci.sec@icrp.org

ICRP Publications (63), 103 and 109



Emergency Response

Response actions should be **planned**

- Possible emergency exposure situations can be assessed in advance (to some degree)

However

The exact nature of necessary protection measures cannot be known in advance but **must flexibly evolve to meet actual circumstances**

Emergency Workers / Responders

Roles should be identified in advance

- Radiation workers (e.g. employees of registrants and licensees)
- People not normally occupationally exposed e.g.:
 - Police
 - Rescue personnel
 - Fire fighters
 - Medical personnel
 - Citizen volunteers

RP of Emergency Responders

- Exposure of responders is generally deliberate and controlled
- **In principle**, radiological protection should be consistent with that for planned exposure situations
- **However, flexibility is required** as there may be a need to take protective actions promptly, necessitating exposures higher than for planned exposure situations
- Nevertheless, doses should be **optimised**

Categories of Responders (1)

Category 1: Engaged in urgent action at the site of the accident

Acting to save life, or prevent serious injuries or a substantial increase in potential doses to members of the public

- Trained volunteers informed of the radiation risks
- Every effort to keep doses below where serious deterministic health effects may occur, i.e. 1 Sv effective dose or 5 Sv equivalent dose to skin
- For life-saving action higher doses may be justified

Categories of Responders (2 & 3)

Category 2: Implementing early protective actions and taking action to protect the public

- Consistent with normal occupational exposure regime where feasible, with flexibility as required

Category 3: Implementing recovery operations during the intermediate phase

- Subject to normal occupational exposure regime

Emergency Response and Pregnancy

“Women who have declared that they are pregnant, or who are nursing an infant, should not have an emergency role that would be expected to lead to doses greater than 1 mSv or to significant contamination”

ICRP *Publication 109*, paragraph 17

ICRP Task Group 84

Fukushima Lessons Learned

The system of occupational protection is not specifically tailored to workers who are not 'radiation' workers but who may be highly exposed e.g.:

- Rescuers that intervene in an accident
- People willingly taking risks for saving lives
- Volunteer workers / casual helpers in an emergency

ICRP Task Group 93

Updating ICRP *Publications 109* (emergencies) and *111* (post-accident recovery)

Considering lessons from Fukushima and recent international developments on the protection of people in emergency exposure situations, and people living in long term contaminated areas after a nuclear accident or a radiation emergency

An ongoing effort – expect public consultation in 2015/16

ICRP Task Group 93: Update to *Publications 109 and 111*

Considering protection of the various types of “workers” in various circumstances

- Plant personnel already considered radiation workers
- Emergency responders (fire fighters, medical personnel, other rescue workers)
- Off-site recovery workers employed by an authority or private company
- Volunteers in the recovery effort
- Homeowners and business owners working to improve their own properties

ICRP Task Group 93: Update to *Publications 109 and 111*

Considering protection of the various types of “workers” in various circumstances

- Different circumstances on-site and off-site
 - may be stable with respect to further major off-site releases, with uncertainty on site where workers must contend with rapidly evolving conditions and potentially very high dose rates
- Different phases of emergency and recovery
- Different levels of preparation of responders prior to emergency

ICRP Task Group 93: Update to *Publications 109 and 111*

Workers who received > 100 mSv during an emergency

- “a high dose received in an accident should not necessarily preclude a worker from returning to radiation work” (ICRP *Publication 63* paragraph A4)
- Clearer recommendations are being considered
- Level of detail of recommendations on medical follow-up is under discussion

ICRP 2015

3rd International Symposium on the System of Radiological Protection

October 20-22, 2015
Seoul, Korea

- ICRP Programme of Work
- Exploring Existing Exposure Situations
- Radiological Protection in Medicine Today
- The Science behind Radiation Doses
- New Developments in Understanding Radiation Effects
- Ethics in Radiological Protection

ICRP 2015

3rd International Symposium on the System of Radiological Protection

October 20-22, 2015, Seoul, Korea

ICRP 2015
3rd International
Symposium
on the System of
Radiological
Protection
Seoul, Korea

ICRP
KARP
Korean Association for Radiation Protection

ICRP

www.icrp.org