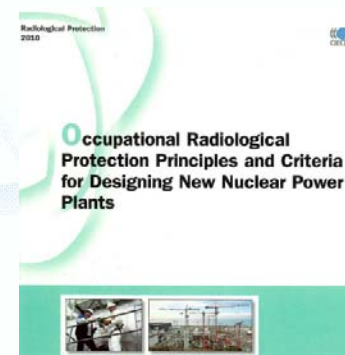


Occupational radiation protection principles and criteria for designing new nuclear power plants

introduction of the publication

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Why it is important to address ORP at the design stage?

consider **full life-cycle** at the design stage



Available feedback from
maintenance and
dismantling



Organize **training and knowledge
management through extended life-
cycle** (2-3 generations of workers)

Importance of networking to enable **information collection
and exchange** on ORP during design and over full life-cycle

integration of ORP into the design may **save time, money and exposure**
during subsequent operation

New paradigm: From “a posteriori” to “a priori”

- ORP for future generations of workers (design for 60 years)
- Integration of ORP in the design and conception phase
- Identification and optimization of cost - benefit
- Precaution for reduced exposures over full NPP life cycle (operation, maintenance, transport, decommissioning)
- Risk balanced optimization
 - other health hazards for workers
 - exposure of worker vs. public, environmental, regulatory needs
- Awareness of the positive as well negative aspects of ORP

Based on experience of experts and feedback of existing facilities

Intended audience and aims

Audience

1. Executive management of nuclear power plants
2. Designers
3. Manufacturers
4. Contractors
5. Authorities responsible for regulating occupational radiation exposure
6. ALARA Committees

Aims

1. To assist in assessment of ORP aspects of design and license applications
2. Provide for a technical framework for making judgement on ORP at the design stage
3. provide examples of actual tools (e.g. ALARA committees)
4. providing guidance on using of ALARA checklists

What is in?

Major issues addressed in individual chapters

Occupational radiation protection principles at the design stage of nuclear power plants



Lessons learned, knowledge management, education and training



Integrating occupational radiation protection criteria during the design phase



Evaluation and integration of occupational radiation protection cost in design process

Structure of the publication

- | | |
|-------------------------------------------------------------------------|----|
| 1. Executive summary | 9 |
| 2. Introduction and scope | 15 |
| 3. 4 chapters on different aspects of ORP,
including 14 sub-chapters | 21 |
| 4. Conclusions | 61 |
| 5. 5 Appendices | 65 |

Foreword, List of acronyms, Figures, References
108 pages

Published: July 2010 ©OECD 2010 NEA No.6407

Free download: <http://home.nea.fr/pub/ret.cgi?id=new#6407> .

Major conclusions

Issues to be addressed at the design phase

1. Basic ORP principles – **justification, optimisation and dose limitation** to be maintained through the expected full life-cycle, addressing also international and national guidance and regulations.
2. **Optimisation** should consider not only **potential health risks** from ionising radiation, but also **other potential risks** for the workers' health in order to **allocate resources** in a well balanced way so that the best worker protection is achieved.

Major conclusions; cont.

3. Organisation of **training and knowledge management** to assure the availability of highly qualified personnel and adequate **design-basis documentation** over the full lifetime of the facility, from design to decommissioning.
4. Active **networking in support of information**, experience and **data exchange and assessment** to maintain sustainable **implementation of good practice**, and ensure an effective traceability and use of lessons learned.

Major conclusions; cont.

5. Need for the **integration of ORP principles and criteria into all components and future operations** in order to save time, money and exposure over the lifetime of the facility.

Issues not to be forgotten at the design stage

Cooperation

Multi-disciplinary and multi-organisational co-operation on ORP decisions at the **design stage** is important.

Cost

Evaluation of **investment and maintenance costs** related to ORP will be important at the **design stage**

Experience

Recognising the importance of building on **existing experience, knowledge management structures, processes and procedures** (*related to ORP*) must be **designed** into future plants.

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Radiological Protection
2010



Occupational Radiological Protection Principles and Criteria for Designing New Nuclear Power Plants



Thank you for attention

NEA Committee on Radiation Protection and Public Health (EGOE)

Examples of CRPPH Activities of Working parties and Expert groups:

- Nuclear Emergency Matters (WPNEM)
- Occupational exposure (**EGOE** and ISOE)
- Best Available Techniques (EGBAT)
- Qualified Human Resources (EGQHR)
- Radiological Protection of the Environment (EGRPE)
- Implications of ICRP Recommendations (EGIR)
- Evolution of the System of RP (Asian conferences and Science & Values workshops)
- Exclusion of Reactors in Decommissioning from the Paris Convention
- Consumer Products Containing Radioactive Substances

CRPPH Expert Group on Occupational Exposure

Scope : Policy and strategic areas of occupational radiation protection with a focus on the nuclear power sector

Addressed subjects:

ORP principles and criteria for designing new NPPs (2007-2010); *published in 2010*

Implementation ICRP recommendations - focus on dose constraints; *foreseen to be completed in 2011*

Radiological protection policy and operational issues