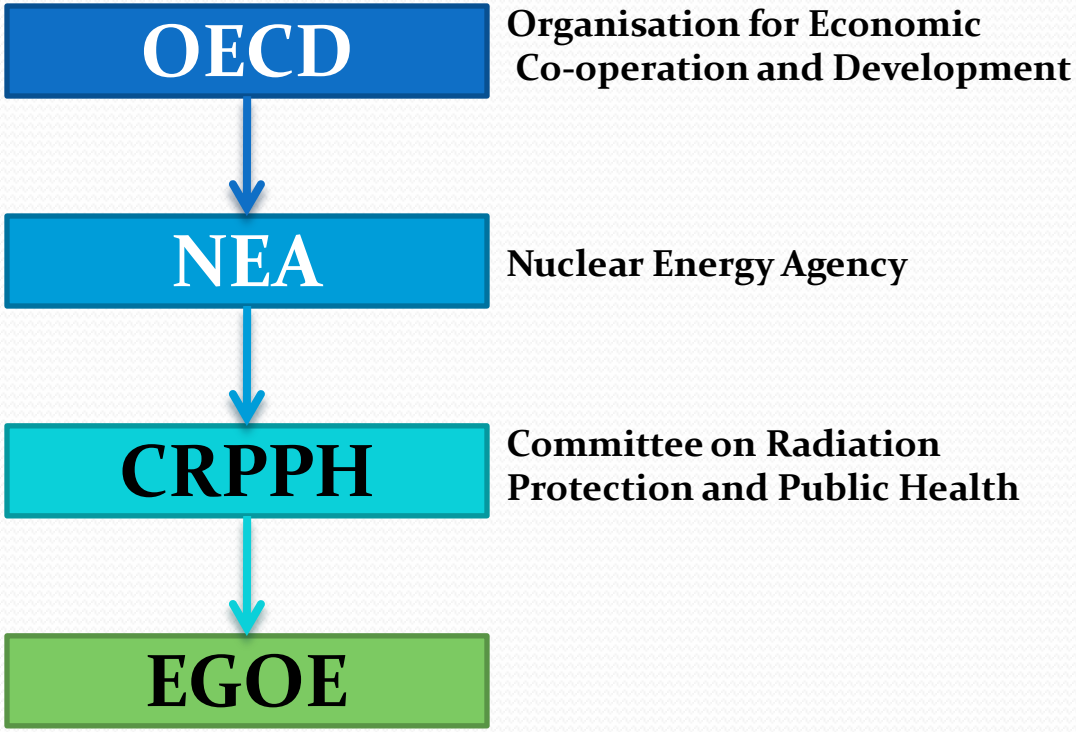
EGOE - Expert Group on Occupational Exposure

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

Emmanuelle Gaillard-Lecanu

IAEA – 2014 International Conference on Occupational Radiation Protection

What is EGOE?



- « Expert group » for the **CRPPH: Occupational Exposure**
  - EGOE met for the first time in January 2007
  - This report ("**Occupational Radiological Protection Principles and Criteria for Designing New Nuclear Power Plants**") was issued in 2010

EGOE Members in 2010

Bulgaria

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Canada

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Shigeru KUMAZAWA	Energy Safety Organisation (JNES)
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Slovenia

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Nina JUNG	Ministry of Health

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Carl Göran LINDVALL	KSU/Vattenfall

United States of America

Richard DOTY	Susquehanna Steam Electric Station
Willie O. HARRIS	Exelon nuclear
Anthony M. HUFFERT	Nuclear Regulatory Commission (NRC)
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International Organisations

Pascal DEBOODT	International Atomic Energy Agency (IAEA)
Stefan MUNDIGL	European Commission
Sylvain SAINT-PIERRE	World Nuclear Assocaition (WNA)

NEA Consultants

Wendy BINES

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New Paradigm:
from « a posteriori » to « a priori »

- Anticipation of exposure for the **full NPP life cycle**
- Design / Operation and maintenance (> 40 years?) / Decommissioning ➔ **2 - 3 generations of workers**

- Integration of ORP in the design and conception phase

- Identification and optimisation of cost – benefit
- Risks balanced optimisation
  - Other health hazards for workers
  - Exposure of workers vs. public, environmental, regulatory needs

Key added value : feedback from NPPs

- Identification and description of **technical and organisational principles** to be applied in lowering doses (ex: Alara Design Review Committee associated to the choice among different design options)
  ➔ Co-operation between regulators, designers and operators.

- Illustration of the **feasibility of achievable low doses** ("dose goals") in current NPP's (importance of sharing experience within networks like ISOE)
  ➔ share good practices and promote proactive implementation of lessons learnt

- Feedback:
  - Operation from 1st and 2nd generation reactors
  - Experience with the replacement of various components
  - ORP experience relevant to decommissioning
  - Provide references to existing technical literature

Knowledge management, education and training - Networking

- Knowledge management ➔ Ensure adequate traceability:
  - Among generations of workers (including know-how of the workforce)
  - For decisions made at the design stage and subsequent engineering-change stages
  - Anticipate the required tuning to changing information technology during the NPP life cycle
- Networking ➔ Share best practices / experience
  - Identification of internal and external good practices
  - Organisation of the collection and recording (including competences and expertise developed in everyday work)
  - At the international level: ISOE (Information System on Occupational Exposure)
- Education and training ➔ Throughout the full NPP life cycle
  - Addressing newly arising changes in ORP approaches
  - Implementing technology improvements
  - ….

Structure of the report

- **Occupational radiological protection principles** at the design stage of nuclear power plants
- **Lessons learnt**, knowledge management, education and training
- Integrating occupational **radiological protection criteria** during the design process
- **Evaluation and integration** occupational radiological protection in the design process
- **Appendices** : practical examples
  - ALARA checklists / engineering design principles
  - The design of the new European pressurised reactor (EPR)
  - ….

Integration of ORP into the design will save money, time and exposure

Thank you for your attention