EGOE - Expert Group on Occupational Exposure

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

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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
- Georgi VALCHEV
  - Kozloduy Nuclear Power Plant

### Canada
- Kevin BUNDY
- Salah DJEFFAL
- Amy HICKS
- Canadian Nuclear Safety Commission (CSNC)

### Czech Republic
- Karla PETROVA
- State Office for Nuclear Safety (SUJB)

### Finland
- Olli VILKAMO
- Radiation and Nuclear Safety Authority (STUK)

### France
- Sophie Chevalier
- Gérard CORDIER
- E. GAILLARD-LECANU
- Nuclear Safety Authority (ASN)
- French Electricity Utility (EDF)
- Atomic Energy Commission (CEA)

### Germany
- Gerhard FRASCH
- Federal Office for Radiation Protection (BFS)

### Ireland
- Stephen FENNEL
- Radiological Protection Institute of Ireland (RPII)

### Japan
- Yoshohisa HAYASHIDA
- Shigeru KUMAZAWA
- Wataru MIZUMACHI
- Michio YOSHIZAWA
- Energy Safety Organisation (JNES)

### Slovenia
- Borut BREZNIK
- Nina JUNG
- Krsko Nuclear Power Plant
- Ministry of Health

### Sweden
- Carl Göran LINDVALL
- KSU/Vattenfall

### United States of America
- Richard DOTY
- Willie O. HARRIS
- Anthony M. HUFFERT
- David W. MILLER
- Susquehanna Steam Electric Station
- Exelon nuclear
- Nuclear Regulatory Commission (NRC)
- Cook Nuclear Power Plant

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

### NEA Consultants
- Wendy BINES
- Roger CLARKE
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