



WENRA Initiatives Related to New Reactor Designs

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“We, the heads of the national Nuclear Safety Authorities, members of WENRA, commit ourselves to a continuous improvement of nuclear safety in our respective countries”



Basic Facts

- WENRA is an association of the heads of Nuclear Regulatory Authorities of the EU countries with NPPs and Switzerland
- The original ToR* was signed on **4 February 1999**
- WENRA has
 - **17 members:** Belgium*, Bulgaria, Czech Republic, Finland*, France*, Germany*, Hungary, Italy*, Lithuania, Netherlands*, Romania, Slovakia, Slovenia, Spain*, Sweden*, Switzerland*, United Kingdom*
 - at present **5 observers** (non-nuclear countries): Austria, Ireland, Luxemburg, Norway and Poland



Expectations

- Workers & public in Europe expect equivalent levels of safety in operation of nuclear power plants
- In practice this means that there should be:
 - “No substantial differences between countries from the safety point of view in generic, formally issued, national safety requirements, and in their resulting implementation on Nuclear Power Plants”
- Also
 - Independent of regulatory regime & NPP design



Main Objectives

- **To develop a common approach to selected nuclear safety and radiation protection issues and regulation, in particular within the EU**
 - *National safety approaches have been developed from IAEA Safety Standards, the Convention on Nuclear Safety, industrial standards etc., but independently...*
- **To provide the EU with an independent capability to examine nuclear safety and regulation in (future) applicant countries**
 - *Nuclear safety was included in the European Union set of enlargement criteria...*
- **To serve as a network of chief nuclear safety regulators exchanging experience and discussing significant safety issues**



Main Achievements in 10-Year History

- **WENRA has become an internationally recognized association with a unique methodology, and has**
 - contributed to improvement of national nuclear safety requirements through the formulation of common SRLs
 - contributed to improvement of the IAEA safety standards
 - created a new platform for open information exchange among regulators
- **2000 – Report on Nuclear Safety in EU Applicant Countries**
- **2006 – Report on Harmonization of Reactor Safety in WENRA Countries**



Working Groups – RHWG and WGWD

Two Working Groups established to **harmonise** safety approaches with the aim to continuously improve nuclear safety in the following target areas:

- **Reactor Safety**
 - **Reactor Harmonisation Working Group (RHWG)**
- **Radioactive Waste, Spent Fuel Storage, Decommissioning**
 - **Working Group on Waste and Decommissioning (WGWD)**



RHWG Activities

- **Original mandate** of RHWG (harmonization of requirements for existing reactors) **fulfilled, follow-up ongoing:**
 - = monitoring of national action plans
 - = experience feedback on update of regulations
 - = ensuring non-divergence of interpretations
- **New task** (2008) – formulation of **safety objectives** for „new reactors“



Rationale for a study on new reactors

- Support WENRA's vision of a comparable, high level of nuclear safety in Europe
 - Influence, from the European regulators' perspective, the safety standards for new plants
 - Further improve the safety of existing plants
 - Basis for keeping Reference Levels for existing reactors up to date



Expected content of the report on new reactors

- What do we mean by “new reactors”
- Safety objectives for new reactors
 - Qualitative high-level objectives
 - Improvements gained using these objectives (compared to existing reactors)
- Quantitative safety goals to drive compliance with safety objectives
- Areas for technical improvements in meeting the safety objectives
- Recommendations on the use of the safety objectives
- Applicability of Reference Levels for existing reactors



Review of the relevant documentation

- IAEA SF-1 (2006) - Fundamental safety principles
 - Systematic investigation of the FSP
- INSAG-10 and 12
- NEA documentation
- National regulations:
 - Bulgaria, Finland, France/Germany, UK
 - USA, Canada
 - SKI reports on probabilistic safety goals
- European Utilities Requirements document



Safety objectives (1)

- The IAEA SF-1 document is a sound basis for the safety objectives for new reactors
- FSP 5 : “optimization of protection” (improve safety as far as reasonably achievable)
 - For new reactors, more significant improvements become reasonably achievable, in particular concerning severe accident management in the short and long term
- FSP 3, 6, 7, 8 are especially relevant to formulate safety objectives for new reactors



Safety objectives (2)

- FSP 3 “effective leadership and management of safety”
 - Safety objective related to a coordinated safety approach among organizations
- FSP 6 “limitation of risks to individuals” and FSP 7 “protection of present and future generations”
 - Reduce the impact of normal operation
- FSP 8 “Prevention of accidents”
 - Reinforce each level of defence-in-depth
 - Reinforce the independence of these levels



On-going work (1)

- Quantitative goals to drive compliance
 - For each safety objective : are there quantitative goals related to this objective
 - Exploration of potential quantitative safety goals that are already used in some countries
 - Including probabilistic goals
 - On which of these goals can we find a consensus ?
 - How to use of these goals ?



On-going work (2)

- Reinforcement of the Defence in Depth for new reactors
 - the practicability of safety improvements at design stage is greater than that for an operating plant, more stringent application of the reference levels is expected for new reactors.
 - there is room for safety improvements that go beyond the intent of the reference levels for existing reactors and which reflect the use of state-of-the art methodologies and techniques and the results of safety research.



On-going work (3)

Classification of the applicability of the RLs to new reactors :

- Fully applicable
- Applicable but greater expectations
- More stringent description is necessary
- Issue which is not covered by the RLs



Conclusions

- It already appears that common safety objectives for new reactors among WENRA countries can be derived from the IAEA top-level documents
 - Covers technical issues and safety management
- The reference levels developed by WENRA for existing reactors are widely relevant also for new reactors
- A report to WENRA will be issued before the November 2009 meeting, along the lines developed in this presentation