Possible Ways for Strengthening the Global Nuclear Safety Framework: 25 Years after Chornobyl, 100 days after Fukushima

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IAEA Ministerial Conference on Nuclear Safety
Working Session 3
June 23, 2011
Vienna, Austria

Development of the Global Nuclear Safety Framework after the Chornobyl Accident

- International legal instruments (CNS, JC, Early Notification Convention, Assistance Convention, upgrade of nuclear liability instruments)
- IAEA Safety Standards
- Peer reviews (IAEA, WANO)
- International cooperation (regional, technological, between operators, regulatory)

Nuclear Safety Convention (1/2)

- Adopted in 1994 and entered into force in 1996 (rapid process)
- Incentive instrument (common interests + peer pressure)
- 5 RM + 1 EOM since 1999 (last one in April 2011)
- 72 Contracting Parties
- Why does it need to be strengthened?
- What are options?

Nuclear Safety Convention (2/2)

- Weaknesses of the Convention or our weaknesses?
  - Less arrogance and complacence plus more constructive criticism and self-criticism (all major nuclear accidents happened in technologically advanced countries)
  - No political implications (no peers – no peer pressure)
  - Not just regulatory business. Operators' presence could provide added value (welcome WANO&WNA as observers)
- Changes to rules (more transparency, reviewed CP does not participate in endorsing report, etc.)
- Possible amendments to the Convention:
  - Introduction of new obligations (mandatory use of the IAEA Safety Fundamentals and Safety Requirements, mandatory use of selected safety review services, etc.)
  - Strengthening the existing obligations (*de jure* independence of regulatory authority, more explicit Article 6 requirements, etc.)
  - Changing a nature of the Convention (introduction of the control, sanctions and enforcement if needed)

IAEA Safety Review Services: Integrated Regulatory Review Services

- Common and popular since the first full-scope IRRS (France, 2006)
- Periodic benchmarking (2007 – Paris, 2009 – Seville, 2011 – Washington)
- Most reports are available on-line
- Possible strengthening (via CNS amendments?):
  - mandatory for each country before commissioning the first NPP and after at least once per 10 years;
  - mandatory follow-up;
  - reporting and benchmarking on implementation (formalization of procedure);
  - more consistency and constructive criticism

IAEA Safety Review Services: Joint EU-Ukraine-IAEA project

December 1, 2005 – Memorandum of Understanding on Cooperation in the Field of Energy between the EU and Ukraine signed, providing that safety evaluation of existing NPPs has to be conducted

March 2007 – ToR of the Joint IAEA-EU-Ukraine project on safety evaluation of existing NPPs agreed, including 4 Tasks to be implemented on the basis of the IAEA safety review services:

- Task 1 – Design Safety – DSR;
- Task 2 – Operational Safety – OSART;
- Task 3 – Waste Safety – specially designed missions;
- Task 4 – Regulatory Issues – IRRS.

June 2008 – first IAEA mission under project in Ukraine (IRRS)

Period 2008-2009 – 15 missions at the operating NPPs, with participation of 62 experts from 23 countries and 30 IAEA staff members

May 2010 – final project report endorsed

Design safety assessment for all operating Ukrainian NPPs

- NS-R-1 – basis for assessment (192 individual safety requirements);
- the IAEA technical guidelines for design safety review adopted for the project:
  - self-assessment*;*
  - Full Scope Design Safety Review missions to pilot units (Khmelnitsky-2, Rovno-1, SouthUkraine-1)*;*
  - Design Safety Review missions to all other units, due consideration is given to pilot units results,
- all units in full compliance with 172 out of 192 NS-R-1 individual design safety requirements;
- no non-compliances identified;
- partial compliances for some individual design safety requirements;

Possible extended use of OSART and Safety Assessment Reviews

- OSART to each operating NPP at least once per 10 years
- Integrated Safety Review at least once for each NPP older than 25 years (whatever the design origin or approach), with benchmarking activities (international, regional or based on design)
- Political commitments or CNS amendments?
- Resources?

Conclusions

- ✓ We should not just manifest our intention to achieve high nuclear safety level and to prevent accidents with radiological consequences
- ✓ Progress is achievable even without creating new mandatory instruments
- ✓ Progress is not achievable with any mandatory instruments while we continue to exercise complacency, arrogance or politeness to our shortcomings
- ✓ Powers, responsibilities and liabilities can not be separated
- ✓ Next August we will see how serious we were