

Results of the 4th Review Meeting of the Convention on Nuclear Safety and the Implications on Global Nuclear Safety Regime

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1. Introduction

The 4th Review Meeting of the Convention on Nuclear Safety (CNS) took place from April 14-25, 2008. Fifty five out of 61 Contracting Parties (CPs) participated with over 500 delegates in attendance. A high degree of compliance with the Convention was reported and the overall safety and radiation protection performance appear to remain satisfactory. However, the Review Meeting recognized the importance of avoiding complacency regarding safety and noted that all CPs had identified planned measures to enhance safety. During the meeting the CPs identified several issues that warrant special attention. Some of them have been discussed for a long time such as regulatory independence and others are new emerging one such as ensuring safety for new NPPs. This paper presents the results of the 4th Review Meeting and addresses some implications on global nuclear safety regime and on the next Review Meeting.

2. Results of the 4th Review Meeting

2.1 Review Process

The CPs have no task to review the safety of individual nuclear installations and have to rely on the accuracy and completeness of the information provided by each CP in its National report and in its answers to the questions asked of it. Additional clarification is provided by the CPs on issues raised during the meeting. Three basic commitments by each CP are necessary for the Convention to be successful: preparing and making available a National Report for review, attending the meetings of CPs and being represented at least by one delegate, and participating actively in the review process to allow other CPs to discuss the report and seek clarification.

The CPs in the 4th Review Meeting observed that the National reports submitted were in most cases of high quality and provided ample information on steps and measures taken and in progress to implement the obligations of the Convention. All questions asked by CPs in the review process were addressed by the respondent Parties and written answers were provided. The discussion in the Country Group sessions and the plenary sessions were constructive, offering insights with regard to safety improvements, and conducive to strong commitment of each participating CP to the objectives of the Convention.

2.2 Summary Report

Through the review process, a summary report was drawn up with observations on

- the present state of nuclear safety,
- legislative and regulatory framework,
- independence of the regulatory body,
- safety management and safety culture,
- staffing and competence,
- probabilistic safety assessment,
- periodic safety review,
- ageing management and life extension,
- emergency management, and
- new NPPs.

Several important issues were raised. First, attention was renewed to the issue of regulatory independence since a top regulator of a country was forced to terminate her term of office. It had been an intriguing issue among regulators: which is a priority given to between nuclear safety and the need for essential production for public health? who is charged with the decision on the priority; regulator, licensee, the government, or the parliament? The CPs had an in-depth discussion regarding the question of resolving the conflict. The meeting determined that this is an issue that requires further attention.

Second, many CPs reported substantial progress regarding systematic assessment of safety culture. It is expected that safety culture assessments would become mature and common. Korea should set up a firm position on regulatory oversight for licensee's safety culture.

Third, many CPs reported that maintaining adequate competence levels for nuclear safety is a significant challenge and will require substantial effort to address. Although not sufficient, Korea has less difficulty in recruiting high qualified experts and developing successive manpower because of the continued nuclear power program. This situation may be an opportunity for Korean nuclear industry to become a competitive exporter of nuclear power plants.

Fourth, risk informed decision making is now a common practice in many CPs and many are adopting a performance based regulatory approach. Korea is also in progress toward risk-informed and performance based regulation. The concept of integrated safety management, however, still should be developed and adapted to Korean regulatory system and culture.

Fifth, with regard to ageing management, the importance of technical cooperation for availability of safety related equipment and services was highlighted.

Sixth, CPs identified the challenge of licensing NPPs with new and different technologies and that this will require new expertise and increased international cooperation. Development of new regulatory framework should be continued with a focused support.

2.3 Rapporteur Report on Korea

Form the 4th Review Meeting, copies of the Rapporteurs' Working Document shall be made available to all Contracting Parties in that Review Meeting with due account taken for the confidentiality obligations of Article 27 of the Convention. The final version of this document should be agreed by the Country Group members, taking into account all input received earlier. Thus this rapporteur report on a country represents an official evaluation on that country. The country group to which Korea belong identified the followings as good practices of Korea:

- Human error reduction through Human Performance-based Inspection (HuPI)
- Dialogue and transparency between regulators and industry leading to breakthrough in nuclear safety leadership. Annual nuclear safety regulation policy is published
- Engagement with public on nuclear safety issues: use of web based information display. Continuing safety improvement to gain public consensus on nuclear power
- International Nuclear Safety School as an IAEA regional training center in Asia has been established in ROK
- Human resources management, 2+1 system of recruitment to transfer the acquired knowledge and experience of retiring employees to younger personnel in a systematic way for regulatory functions
- A nuclear power plant off site emergency exercise, first time ever, jointly with central and local emergency authorities involving evacuation and sheltering of large population in the vicinity of Wolsong site was conducted.

(Respecting the confidentiality provisions, only some contents are referred to.)

3. Implications of the 4th Review Meeting

As of April 2008, all countries operating commercial nuclear power plants are CPs to the Convention. Many countries not operating ones are now planning to introduce nuclear power, thus creating a dynamic nuclear market worldwide. The global nuclear community is concerned about new entrants not having proper nuclear safety infrastructure, which entails a

long-term national and industrial efforts to develop. Experience has demonstrated that reliance merely on a proven design with strong engineered safety systems is insufficient to ensure nuclear safety. There should be in place a competent operating organization supported with a comprehensive national infrastructure.

In this regard, the Convention, as the major legally binding international instrument, will become the central tool to help with the establishment of national nuclear safety infrastructure and will be strengthened in its review process to require stricter compliance with global standards. Several progresses were made in such a direction: more aligned presentation of CPs for close comparisons with others; requirements on National Reports that should address topics identified at Review Meetings; and planned amendment of the guidelines regarding national reports for the enhanced continuity between review meetings. A proposal of the IAEA in its background report to the vision 20/20 is worthy of special attention in this connection, "*Such an evolution in the 2020 timeframe from voluntary to mandatory international peer reviews could help increase safety worldwide and help increase public confidence.*" Global nuclear safety regime will be a key component in the coming nuclear renaissance.

4. Conclusion

The results of the 4th review meeting are a starting point to establish implementation plan for safety improvements and to prepare for next national report. It is required to review the summary report, rapporteur report and our own notes and take substantial measures for safety improvements.

The most important issues raised at the meeting were regulatory independence and competence for ensuring nuclear safety. No single solution fit for all the countries is present because the issues are complicated with national politics, governmental structure, bureaucratic behaviors, educational and societal preferences on jobs, national R&D program and industrial status of nuclear engineering. Long-term plans are needed in continuous process not just for the period of the review meetings. It is time to critically reflect on what we have done and what we have to do. All the relevant organizations should keep close look at the current two important keywords pervading into global nuclear community: adoption of best practices and continuous improvement for safety.

References

- [1] Summary Report of the 4th Review Meeting of the Convention on Nuclear Safety, 2008
- [2] Rapporteurs' Report of the 4th Review Meeting of the Convention on Nuclear Safety, 2008
- [3] 20/20 Vision for the Future, Background report by the Director General for the Commission of Eminent Persons, 2008