

Summary Report of the 4th Review Meeting of the Contracting Parties to the Convention on Nuclear Safety

14-25 April 2008
Vienna, Austria

A. Introduction

1. This report summarizes the highlights from the 4th Review Meeting of the Convention on Nuclear Safety, which took place at the Headquarters of the International Atomic Energy Agency (IAEA) in Vienna from April 14-25, 2008. The observations and conclusions of this report are the results of frank and open discussions based on the national reports and presentations during the peer review process, which were fostered by the incentive nature of the Convention on Nuclear Safety. To improve the usability of the Summary Report, the Review Meeting decided — based on suggestions from Contracting Parties — to focus the Summary Report on a number of key topics. It should be noted that the national reports, presentations and country group discussions covered all articles of the Convention on Nuclear Safety. This summary report focuses on the issues and challenges that are common to many Contracting Parties.

2. The Review Meeting also discussed and agreed to a number of improvements to the review process for the Convention on Nuclear Safety, including provisions for continuity between Review Meetings, increased transparency of the review process and expanded outreach activities.

B. Background

3. As of 14 April 2008, 60 States and one regional organization of an integration or other nature had ratified the Convention on Nuclear Safety, which had entered into force on 24 October 1996. The 4th Review Meeting pursuant to Article 20 of the Convention was held at the Headquarters of the International Atomic Energy Agency (IAEA), being the Secretariat under the Convention, from 14 to 25 April 2008. The President of the Review Meeting was Mr Maurice T. Magugumela, Chief Executive Officer of the National Nuclear Regulator of South Africa.

4. Fifty five out of 61 Contracting Parties participated, namely: Argentina; Armenia; Australia; Austria; Belarus; Belgium; Brazil; Bulgaria; Canada; Chile; China; Croatia; Cyprus; Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; India; Indonesia; Ireland; Italy; Japan; Republic of Korea; Latvia; Lebanon; Lithuania; Luxembourg; Malta; Mexico; Netherlands; Nigeria; Norway; Pakistan; Peru; Poland; Portugal; Romania; Russian Federation; Singapore; Slovakia; Slovenia; South Africa; Spain; Sweden; Switzerland; The Former Yugoslav Republic of Macedonia; Turkey; Ukraine;

United Kingdom; United States of America; and EURATOM. Pursuant to Article 24.2 of the Convention, the OECD/NEA attended as an observer.

5. Six months before the Review Meeting, Contracting Parties submitted National Reports on steps and measures taken to implement Convention obligations. In the following months the Contracting Parties reviewed each other's reports, and exchanged written questions, written answers and comments. At the Organizational Meeting, held in September 2007, Contracting Parties organized themselves into six Country Groups, each group including countries with nuclear power programs of different sizes, as well as countries not having nuclear power reactors. Specific clarification was offered on certain issues identified by Contracting Parties during the 3rd Review Meeting.

6. Four Contracting Parties did not submit a National Report, namely Kuwait, Mali, Nigeria and Sri Lanka. Six Contracting Parties, namely Bangladesh, Kuwait, Mali, Republic of Moldova, Sri Lanka and Uruguay, did not attend the Review Meeting. A number of Contracting Parties submitted their reports later than the deadline, and in a few cases the submissions were too late to allow the preparation of written questions by other Contracting Parties.

C. Overview of the Review Process

7. The Contracting Parties recalled that the main purpose of the Review Meeting was to review the nuclear safety of each Contracting Party, focusing on the steps and measures already taken, in progress and planned to implement the obligations as stipulated in Chapter 2 of the Convention. The primary objective of the Convention is to achieve and maintain a high level of nuclear safety worldwide, through the enhancement of national measures and international cooperation.

8. The Contracting Parties noted that it was not their task in this review process to review the safety of individual nuclear installations. The Contracting Parties also noted that they had to rely on the accuracy and completeness of the information provided by each Contracting Party and in its answers to the questions asked of it.

9. The Review Meeting noted that adherence to this Convention review process entails three basic obligations by each Contracting Party:

- To prepare and submit a National Report for peer review by other Contracting Parties and to respond to the written questions submitted by other Contracting Parties;
- To attend the meetings of Contracting Parties and be represented at least by one delegate;
- To participate actively in the review process in order to allow other Contracting Parties to discuss the report and seek clarification.

10. Thus, being a Contracting Party to this Convention implies:

- Including in the National Report a self-assessment of steps and measures already taken and in progress to implement the Convention obligations;
- Taking an active part in an open and transparent review of its National Report and the Reports of other Contracting Parties; and

- A commitment to a continuous learning and improving process, something which is a key element of a strong safety culture.

11. The Contracting Parties noted that, as a consequence of the incentive character of the Convention, an important objective of the review process would be to observe and take note of successive improvements, where appropriate, in the implementation of Convention obligations.

12. The Contracting Parties observed that the National Reports submitted were in many cases of high quality and provided ample information on steps and measures taken and in progress to implement the obligations stipulated in Chapter 2 of the Convention. It was observed that Contracting Parties should continue to clearly identify the actual changes that had taken place in response to the issues identified at the previous Review Meeting in the production of National Reports.

13. During the Review Meeting, the Country Groups met for five and one half days and discussed each National Report, with each Contracting Party providing answers to the supplementary questions raised in the discussion. These answers provided additional information on the steps and measures taken in each Contracting Party. The discussions and questions in the Country Group sessions and the Plenary sessions were constructive, illuminating issues of special interest, providing additional insights with regard to national safety programs, and generally demonstrating the commitment of each participating Contracting Party to the review process under the Convention and to the safety objectives of the Convention.

14. The peer review of reports, questions and answers that were exchanged in connection with this Review Meeting provided a unique overview of nuclear safety provisions and issues in Contracting Parties.

D. General Observations

15. A high degree of compliance with the Convention on Nuclear Safety was reported. For each Contracting Party, the discussion resulted in identification of good practices, challenges and planned measures to improve safety.

16. In general, the overall safety and radiation protection performance at NPPs appear to remain satisfactory..

17. The Review Meeting recognized that the worldwide nuclear industry and regulators must avoid complacency regarding safety and noted that all Contracting Parties had identified planned measures they intend to implement to enhance safety.

18. Participating Contracting Parties recognize the importance of openness and transparency with respect to nuclear safety. During the Review Meeting, there were many examples cited of activities that Regulatory Bodies and NPP operators had undertaken to enhance openness and transparency, including inter alia public meetings, revised legislation and increased use of websites. The Review Meeting regards it as a good practice to make public the presentations within the Country Groups as well as the written questions and answers.

19. Many Contracting Parties reported about their positive experiences with IAEA Missions, especially IRRS and OSART missions, and recognize their importance. Contracting Parties that have not received these missions are encouraged to do so.

20. Contracting Parties without NPPs profit from the review process notably as regards reporting by nuclear countries on nuclear safety provisions and issues and off-site emergency preparedness measures.

E. Legislative and Regulatory Framework

21. A number of Contracting Parties reported that national legislation had been adopted or amended to enhance nuclear safety, strengthen the Regulatory Body and enhance the Regulatory Body's independence and transparency. All participating Contracting Parties reported some progress regarding their regulatory framework for nuclear safety. Most Contracting Parties reported on the creation or revision of regulatory requirements for nuclear safety.

22. Many Contracting Parties also identified plans for further enhancing their legislative framework. In some cases, Contracting Parties are using, or intend to use, IAEA Safety Standards as the basis for these plans. A number of European countries reported their harmonization efforts through the voluntary incorporation of WENRA Reference Levels, which are based on the IAEA Safety Standards.

F. Independence of the Regulatory Body

23. The Review Meeting noted that, in some Contracting Parties, the separation between the functions of the regulatory body and those of bodies or organizations concerned with the promotion or utilization of nuclear energy, may not be fully effective. The Review Meeting noted the importance of this issue and considered that regulatory separation and independence requires further attention.

24. The Review Meeting had an in-depth discussion regarding the question of resolving potential conflict between nuclear safety and the need for production of goods and services which are essential for public safety or well-being, taking into account both Articles 8(2) and 10 of the Convention. The Review Meeting determined that this is an issue that requires further attention.

G. Safety Management and Safety Culture

25. Many Contracting Parties reported substantial progress regarding safety management and safety culture, in both operating organizations and Regulatory Bodies. ISO certification of management systems is widespread, and IAEA Safety Requirements GS-R-3: *The Management System for Facilities and Activities* was frequently referenced. Systematic assessment of safety culture is now in place in some Contracting Parties and many significant event investigations now include an assessment of safety culture. It is expected that safety culture assessments will continue to mature and become commonplace.

26. Contracting Parties agreed that lessons learned from events and operational experience in general and respective corrective action programmes have significantly contributed to enhanced safety performance. Regulators and operators plan to further enhance their national systems and related international arrangements in the area and the systems to support them.

H. Staffing and Competence

27. Many Contracting Parties reported that maintaining adequate staffing and competence levels for nuclear safety is a significant challenge that extends to both operators and regulatory bodies and their Technical Support Organizations and will require substantial effort to address. Some Contracting Parties noted that their Regulatory Bodies had increased staffing levels and plan to increase levels even more to deal with increased workloads resulting from life extension and new build. Contracting Parties did report on a number of initiatives to address this challenge. Some Contracting Parties have committed funding to support higher nuclear research and education and other have developed strategic plans and programmes to address staffing and competence issues. Proactive measures, such as hiring well in advance of new reactor construction or senior retirements, mentoring and training programmes, competitive remuneration packages and international collaboration, were identified as good practices.

I. Probabilistic Safety Assessment

28. Many Contracting Parties reported significant progress in the use of Probabilistic Safety Assessment (PSA) techniques to support operational and regulatory decisions, such as safety upgrades and in-service inspection requirements.

29. In all cases, PSAs are used to supplement deterministic safety analyses. Contracting Parties noted that PSAs must be continuously updated to maintain their usefulness. For the

PSA to be most useful, there must be a common understanding between operators and regulators on its application. Some Contracting Parties have implemented a PSA information system, which enables staff who are not expert in PSA to use it as a tool for risk-informed decision making.

30. Risk informed decision making is now a common practice in many Contracting Parties with NPPs and many are adopting a performance based regulatory approach.

J. Periodic Safety Review

31. Periodic Safety Review (PSR) is now a feature of the regulatory framework of many Contracting Parties with NPPs and in most of these cases, the completion of a PSR is closely tied to licence renewal. The results of these PSRs are used to identify safety enhancements at their NPPs. Most Contracting Parties reported the use of IAEA Safety Guide NS-G-2.10: *Periodic Safety Review of Nuclear Power Plants*.

K. Ageing Management and Life Extension

32. Many Contracting Parties reported extensive activities regarding ageing management and life extension of existing NPPs. A number of specific technical challenges, including procurement of components no longer manufactured and obsolete instrumentation and control systems, were discussed. Some Contracting Parties reported on successful strategies that they have implemented, such as upgraded I&C systems and major refurbishment programmes. Ageing management and life extension activities will continue to require substantial operator and regulatory attention. In this regard, the importance of technical cooperation for availability of safety related equipment and services was highlighted.

L. Emergency Management

33. Most Contracting Parties reported progress regarding emergency management. In many cases, national emergency plans had been updated and national exercises had been held or have been planned. Some Contracting Parties reported that new emergency operations centres have been established. Many Contracting Parties have made substantial progress with Severe Accident Management Programmes.

34. The provision of adequate and timely information regarding incidents and emergencies in neighbouring countries remains a challenge. However, many Contracting Parties reported increased bilateral and multinational cooperation, including data exchange for effective off-site emergency preparedness.

35. Emergency management is an area where Contracting Parties without a nuclear power programme have made a strong contribution to the Convention on Nuclear Safety through identifying good practices, challenges and planned activities to improve safety.

M. New NPPs

36. Many Contracting Parties reported on activities or plans for new NPPs. In a number of Contracting Parties with established nuclear power programmes, work is currently underway to ensure that both applicants and regulators have the necessary resources to safely site, design, construct, operate and maintain new NPPs. In most of these cases, Contracting Parties identified the challenge of licensing of NPPs with new and different technologies and that this will require new expertise and increased international cooperation. A number of Contracting Parties with mature nuclear programmes have established units in their Regulatory Body to deal with the licensing of new NPPs and have updated their regulatory framework in line with IAEA requirements.

37. It was emphasized that the necessary safety infrastructure (technical expertise, legislative and regulatory framework) must be established well in advance, before the construction of an NPP is authorized because, inter alia, the development of a safety culture in all relevant organizations is a long process

38. The Review Meeting also invited other countries intending to start a nuclear power programme to join the Convention on Nuclear Safety.

39. In some Contracting Parties that have started new NPP build, it has been found easier to attract staff.



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4th Review Meeting of the Contracting Parties
to the Convention on Nuclear Safety