



International Conference on Topical Issues in Nuclear Installation Safety: *Continuous Improvement of Nuclear Safety in a Changing World*

Organized by the International Atomic Energy Agency
Hosted by the Government of China

**Beijing, China
18–22 October 2004**

ANNOUNCEMENT AND CALL FOR PAPERS

1. INTRODUCTION

In 1991, the IAEA organized an “International Conference on the Safety of Nuclear Power: Strategy for the Future”. Recommendations from that conference prompted actions in subsequent years that advanced the safety of nuclear installations worldwide, and included the establishment of the Convention on Nuclear Safety, which entered into force in October 1996.

In 1998, the IAEA sponsored an “International Conference on Topical Issues in Nuclear, Radiation and Radioactive Waste Safety”. In response to the concerns identified and the recommendations provided by the conference, actions were taken to improve the monitoring of safety by: developing performance indicators; furthering the use of probabilistic safety insights to complement and help optimize the prescriptive nature of regulations; and addressing actions needed to ensure the future availability of competent professionals.

In 2001, the IAEA sponsored an “International Conference on Topical Issues in Nuclear Safety”. The findings were again essential in providing the IAEA and the nuclear industry with insights as to where future activities should be focused. Recommendations addressed: the need to develop international guidance on the use of probabilistic safety insights; the potential negative impacts on safety from external factors; the need for emergency preparedness guidance for fuel cycle facilities; the safety challenges associated with poor utilization programmes at research reactors; and the need to develop simple, indicators of safe operating performance.

Although substantial progress has been made in improving the safe operational performance of nuclear installations over the past years, numerous issues continue to be of concern. First, the growing diversification and globalization of the nuclear community are highlighting issues in areas such as ensuring quality; obtaining, maintaining and managing knowledge; utilizing common, internationally accepted safety standards; balancing the needs between safety and security; promoting cooperation and sharing of experience between regulatory authorities; and integrating the practices and methodologies of international vendors and contractors into diverse cultures. Second, events continue to be reported whose root causes call into question the effectiveness of safety at those facilities. These events all have common issues that contributed to non-conservative decisions being taken or omissions in the decision process; more importantly, these events have highlighted issues within both the regulatory authorities and the operating organizations. In addition, there are unique aspects that regulatory authorities face in dealing with the changing environment. Finally, many issues related to the long term operation of nuclear facilities continue to be of concern.

The conference will focus on topical issues affecting nuclear installation safety and thus is expected to be of interest to those involved in the operation or regulation of nuclear power plants and research reactors, fuel cycle facilities and other organizations, such as vendors and contractors.

2. OBJECTIVE

The objective of the conference is to foster the exchange of information on topical issues in nuclear safety. The conference will develop an international consensus on the basic approaches for dealing with these issues, and will propose recommendations concerning:

- the present status of these issues;
- priorities for future work;
- need for strengthening international cooperation, including recommendations for future activities for the IAEA, nuclear utilities and regulatory authorities;
- emerging issues with international implications.

3. TOPICS

The following topical issues have been identified as subjects for the conference sessions. Papers related to nuclear installations **other than nuclear power plants (NPPs)** are welcome and encouraged. The conference will also accept papers related to the safety aspects of **non-nuclear** industry programmes and facilities (e.g. petrochemical and aeronautical), so as to enrich the discussions and, thereby, provide a wider background on practices related to the management of safety worldwide.

Topical Issue No. 1: Changing Environments – Coping with Diversity and Globalization

This session will address the changing environment in which the nuclear community is now operating. It will consider the challenges being experienced by regulatory authorities, operators and nuclear suppliers as the design, construction and operation of nuclear facilities become more diverse and reflect a more global perspective, and will probe the challenges of information and knowledge management. Typical topics for discussion will address:

- Globalization of the nuclear industry (consolidation of operating organizations and vendors across national boundaries);
- Global regulatory challenges (integrating diverse standards and methodologies with individual national cultures and regulatory practices);
- Dealing with suppliers and vendors from different national backgrounds – ensuring quality management and maintaining knowledge management;
- Licensing of facilities designed to different standards and criteria and applying safety standards from different supplier countries;
- Transferring technology to back-up/replacement nuclear supplies;
- Transferring technology from the nuclear supplier to the operating organization;
- Contracting management companies to operate NPPs;
- Reconstituting the design basis without the benefit of all original design information;
- Merging in a single plant the systems from different designs and vendors;
- Knowledge management as a tool for sharing experience and ensuring quality;
- Networking as a way to bridge geographical and cultural barriers.

Topical Issue No. 2: Operating Experience – Managing Changes Effectively

This session will address how operating experience can and should be used to help manage the changes that are being experienced within the community. Lessons learned from operational events, design and construction challenges and changes in public expectations are included. Typical topics for discussion will address:

- Use of low level event and near-miss information — trending of precursors, management commitment to be pro-active rather than reacting to significant events;
- Identification of complacency, overconfidence, loss of safety focus, production versus safety;
- Issues identified during organizational change, outsourcing, use of contractors and downsizing;

- Ensuring management commitment to continuous improvement;
- Use of external operating experience feedback— to ensure that lessons learned elsewhere are applied;
- Use of good practices and benchmarking;
- Development of effective corrective action programmes – ensuring analysis beyond direct cause, and ensuring management commitment to the comprehensive implementation of corrective action programmes;
- Integrating safety practices with enhanced physical security demands;
- Lessons learned in outage and configuration management;
- Lessons learned in maintaining safety focus during the last period of operation before decommissioning;
- Getting the message of lessons learned to personnel at all levels of the organization — communication with the staff;
- Networking as a way to bridge geographical and cultural barriers;
- Changes in public expectations in light of events and social change.

Topical Issue No. 3: Regulatory Management Systems — Adapting to Changes in the Environment

This session will address the unique aspects that regulatory authorities face in dealing with the changing environment. Included would be such challenges as: how to license facilities designed to different standards and criteria; how to sustain effective safety oversight; how to balance between the risk informed and deterministic approaches in a regulatory framework; and how to ensure that appropriate competencies and skills are retained in the regulatory work force. Typical topics for discussion will address:

- Self-assessment of regulatory body performance/use of regulatory performance indicators;
- Quality management systems/models/certification;
- Effectiveness of oversight and inspection techniques;
- Use of safety performance indicators;
- Probabilistic safety criteria, completeness, margins, uncertainties, probabilistic safety assessment quality;
- Regulating safety and security as mutually supportive concepts;
- Risk informed decision making, improvements needed in operational and regulatory applications;
- Application of risk informed decision making to research reactors and fuel cycle facilities;
- Communicating risk to the public;
- Networking as a way to bridge to geographical and cultural barriers.

Topical Issue No.4: Long Term Operations – Maintaining Safety Margins while Extending Plant Lifetimes

This session will address the unique considerations that are being experienced as more and more installations pursue extended operations, including up-rates in some cases. Included will be discussions of how ageing management programmes provide assurance of safety margins, the technical challenges that must be overcome to ensure continued operational safety, and the assurances needed to satisfy public concerns. Typical topics for discussion will address:

- Periodic safety reviews – different approaches to ensuring adequate safety margins;
- Regulatory approaches for license renewal;
- Power up-rates versus maintaining safety margins;
- Preconditions for long term operations;
- Need for design basis documentation/reconstitution;
- Ageing management programmes;
- Obsolescence and life cycle management, component replacement;
- Human performance factors;
- Organizational issues and challenges;
- Managing safety while transitioning from an operating to a decommissioning status;
- Networking as a way to bridge to geographical and cultural barriers.

4. PROGRAMME STRUCTURE

The **opening session** will address the conference's global objectives.

A series of four **technical sessions** will address the individual topical issues mentioned above. After the discussions in the technical sessions, conclusions and recommendations will be drawn up.

Each session will consist of:

- an overview presentation and summaries of the relevant contributed papers;
- invited keynote paper(s);
- discussion lead-in statements;
- open discussion.

Poster sessions will be organized for all contributed papers.

A closing **panel discussion** will focus on 'Safety Management and Safety Culture in Nuclear Installations'. This discussion will bring into focus the essence of the various sessions and be the capstone of the week activities and will provide strong input for the conference concluding session. Participants will include senior executives from the various

stakeholders in this issue, including nuclear operating organizations, regulatory bodies and the technical support industry.

The conference will feature a **concluding session** at which the overall results and conclusions of all topical sessions and the panel discussion will be summarized by the chairpersons. The President of the Conference will highlight the recommendations for the future development of international co-operation, including how to transfer the results of the topical discussions to the IAEA's programmes and medium term strategy.

5. AUDIENCE

The conference is directed at a broad range of experts in the area of nuclear safety, including professionals from the different disciplines involved in the safety of nuclear power plants, installations in other parts of the fuel cycle and research reactors. It is aimed at both licensees and governmental officials, including persons from regulatory bodies, the industry and academe as well as senior policy makers.

6. PARTICIPATION

All persons wishing to participate in the conference are requested to complete a Participation Form (Form A) and send it as soon as possible to the competent national authority (see Section 9) for subsequent transmission to the IAEA. A participant will be accepted only if the Participation Form is transmitted through the competent official authority of a Member State of the IAEA or by an organization invited to participate.

Details on the logistics of the conference will be sent to all designated participants approximately two to three months before the meeting. This information will be posted on the conference web page:

<http://www-pub.iaea.org/MTCDD/Meetings/Meetings2004.asp>.

7. CONTRIBUTED PAPERS AND POSTERS

Concise papers on issues falling within the scope of the conference (see Section 3 above) may be submitted as contributions to the conference. These papers will not be presented orally, but will be summarized by a Rapporteur and included in a Book of Contributed Papers to be distributed free of charge to all participants upon registration. Authors of contributed papers may present the substance of their paper(s) in the form of a **Poster**, which will be exhibited in the Poster Area.

The **contributed papers** should not exceed **four pages in length** and must be submitted in English. Each contributed paper must be preceded by an abstract not exceeding 300 words. Authors should state to which of the above technical topic their contribution relates. Authors must use the IAEA's Proceedings Paper Template in Word 2000 (user instructions are available on the conference web page (Section 16)). Guidelines for the preparation of a contributed paper are given in the attached "IAEA Guidelines for Authors on the Preparation of Manuscripts for Proceedings" and the "IAEA Guidelines for the Preparation of a Poster".

The contributed papers should be submitted to the following e-mail address:

M.Lipar@iaea.org

or sent on diskette/CD-ROM to the Scientific Secretariat (see Section 15). The diskette label should identify the paper, the proposed session topic and the software application used (the use of Microsoft Word is encouraged). To permit selection and review, the electronic version of the contributed paper must be received by the Scientific Secretariat not later than **10 May 2004**.

In addition to the electronic submission, a copy of the contributed paper(s) must also be submitted through one of the competent official authorities (see Section 9). The paper should be sent with a completed Form for Submission of a Paper (**Form B**) and the Participation Form (**Form A**) to reach the IAEA not later than **24 May 2004**.

Only papers that have been received by the above deadline(s) and through the appropriate official channels will be considered for inclusion in the Book of Contributed Papers. Final acceptance will occur after a peer review process. Furthermore, the Secretariat reserves the right to exclude papers that do not comply with its quality standards and do not apply to one of the topics in Section 3, above.

Papers that are not sent through the official channels and papers arriving after the deadline will not be considered.

Authors will be informed by **25 June 2004** whether their papers have been accepted for inclusion in the Book of Contributed Papers and for presentation as a poster.

8. EXPENDITURES/GRANTS

No registration fee is charged to participants.

As a general rule, the IAEA does not pay the cost of attendance, i.e. travel and living expenses, of participants. However, limited funds are available to help meet the cost of the attendance of selected specialists, mainly from developing countries with low economic resources. Generally, not more than one grant will be awarded to any one country.

If governments wish to apply for a grant on behalf of one of their specialists, they should address specific requests to the IAEA to this effect. Governments should ensure that applications for grants:

- (a) are submitted by **24 May 2004**;
- (b) are accompanied by a duly completed and signed Grant Application Form (see attached Form C).

Applications that do not comply with the conditions stated under (a) and (b) cannot be considered.

The grants awarded will be in the form of lump sums and will usually cover **only part of the cost** of attendance.

9. CHANNELS OF COMMUNICATION

The Participation Form (Form A), the Paper Submission Form (Form B) and, if applicable, the Grant Application Form (Form C) must be sent through one of the competent official authorities (Ministry of Foreign Affairs or national atomic energy authority) for subsequent transmission to the IAEA. Subsequent communications concerning technical matters should be sent to the Scientific Secretary and communications on administrative/logistical matters to the Conference Secretariat (see Section 15).

10. DISTRIBUTION OF DOCUMENTS AND PROCEEDINGS

A preliminary programme of the conference will be sent to all officially designated participants well in advance of the meeting and will also be available on the IAEA conference web site (see Section 16).

The Final Programme and the Book of Contributed Papers will be available free of charge upon registration at the conference.

The Proceedings of the conference to be published by the IAEA, will contain welcoming addresses, overview presentations, rapporteur reports, invited keynote papers, session summaries, the conclusions presented by the President of the Conference on the last day, and the records of the discussions. The contributed papers will be included as a CD ROM. The Proceedings can be ordered, at a special discounted price, during the Conference.

11. WORKING LANGUAGE

The working language of the meeting will be English. All communications must, therefore, be sent to the IAEA in English.

12. ACCOMMODATION

Detailed information on accommodation and other administrative details will be sent to all officially designated participants approximately two to three months before the meeting. It will also be available on the IAEA conference web site.

13. VISAS

Designated participants who require a visa to enter China should submit the necessary application to the nearest diplomatic or consular representative of China as soon as possible. Please note that the procedure could take up to three weeks.

14. KEY DATES

Deadline for receipt of electronic version of contributed papers	10 May 2004
Deadline for receipt of paper submission forms (Form B) and copy of contributed papers through official channels	24 May 2004
Deadline for receipt of grant application forms (Form C) through official channels	24 May 2004

15. CONTACT INFORMATION

(a) Scientific issues – Scientific Secretariat (IAEA)

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(b) Administrative Issues – Conference Organizer (IAEA)

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16. CONFERENCE WEB PAGE

Please visit the IAEA conference web site regularly for new information regarding the conference under: <http://www-pub.iaea.org/MTCD/Meetings/Meetings2004.asp>.