



International Conference on Operational Safety

IAEA Headquarters

Vienna, Austria

23–26 June 2015

Ref. No.: CN-227

Announcement and Call for Papers

A. Background

The International Atomic Energy Agency (IAEA) organized the last international conference on operational safety in 2010 during a period when a renaissance of the nuclear industry was considered to be on the horizon. In 2011, however, the nuclear safety world changed as a consequence of the accident that took place at the Fukushima Daiichi Nuclear Power Station. In response to this accident, the IAEA and its Member States made several concrete commitments and took actions to improve nuclear safety and increase the robustness and resilience of nuclear power plants (NPPs) with regard to human errors, equipment faults and natural hazards. The IAEA has hosted two ministerial conferences and international experts' meetings, as well as the Second Extraordinary Meeting and the Sixth Review Meeting of the Contracting Parties to the Convention on Nuclear Safety, all of them dedicated to identifying actions needed to apply lessons learned from the Fukushima Daiichi Nuclear Power Station accident and to achieving worldwide commitment to their implementation. New emphasis was placed on the reassessment of NPP safety, related to both design and operational practices. Furthermore, the importance of human factors for all activities concerning plant design, construction, operation and regulation was reaffirmed. This conference will build on the consensus already achieved and seek further opportunities for the improvement of operational safety worldwide.

Currently, there are over 400 NPP units in operation worldwide and around 150 units are in various stages of decommissioning. Some 50 units have been shut down following the Fukushima Daiichi Nuclear Power Station accident and consideration is being given to whether they will restart their operation or will enter the decommissioning stage. Around 70 units are under construction and several countries have announced their intention to embark on new nuclear power programmes or expand existing programmes.

This diverse situation poses a number of safety challenges to the nuclear industry and, in particular, to utilities that are planning, constructing, commissioning, operating or decommissioning NPPs.

IAEA Safety Standards and OSART Missions

The IAEA safety standards and Operational Safety Review Team (OSART) missions are continuously being enhanced to reflect the state of the art in operational safety and support the implementation of the best operational practices worldwide. The importance of peer reviews, such as those conducted under the OSART programme and by the World Association of Nuclear Operators (WANO), was further underlined during the Sixth Review Meeting of the Contracting Parties to the Convention on Nuclear Safety. In particular, emphasis was made on OSART follow-up missions as a powerful tool to review the progress achieved in the implementation of the safety improvement action plan at every NPP that has hosted a review mission. Although most IAEA Member States with nuclear power facilities have made extensive use of the available peer review services and more than 180 OSART missions have been undertaken since 1983, a further challenge remains to engage all countries to commit and participate in such international peer reviews on a regular basis.

Corporate Management of Safety

In the past decades, the nuclear industry has experienced significant reorganization in meeting the challenges of further market globalization and deregulation. While the need for top management commitment to safety is well recognized, further challenges exist in putting this commitment into practice. Some Member States have recently reported on a number of initiatives such as the establishment of safety oversight within licensees, periodic internal and external safety culture assessment, establishment of a human resources policy identifying key competences that have to be kept internalized to ensure control of all safety related activities, development of a communication strategy to support internal and external communication needed to ensure transparency of the decision making, etc. The IAEA and WANO are performing corporate peer reviews and, together with the IAEA Member States, will look for further opportunities to improve corporate commitments and support for safety improvements.

Impact of Fukushima Backfitting on Operational Safety

In the aftermath of the Fukushima Daiichi Nuclear Power Station accident, self-assessments have been completed at many NPPs and areas for further safety improvements identified. The experience gained from the implementation of plant safety improvements has been shared internationally. Although many commonalities exist, differences were observed in the objectives, priorities and implementation of schedules for safety improvements. A number of challenges related to operational safety emerged, including: (i) how to minimize gaps between Member States' safety improvements; (ii) how to ensure an adequate prioritization and management of the implementation of safety improvements; (iii) how to ensure an adequate balance of activities connected with Fukushima-related upgrades and other routine

operational tasks; (iv) how to improve operators' safety culture, transparency and openness; and (v) how to engage all utilities to commit to and strengthen international cooperation?

Leadership and Safety Culture

Safety culture and organizational factors were identified as relevant issues to be addressed in the post-Fukushima reassessment by both licensees and regulatory bodies. This is particularly important given that major accidents in the nuclear and other high hazard industries most frequently derive from organizational and human factors. Significant efforts have been undertaken recently to address the interactions between individuals, technology and organizations in a systemic approach to safety. Further efforts are needed to disseminate these good practices and encourage all NPP owner/operator organizations to take similar measures or identify additional means suitable to achieve the same results.

Operational Experience

A key contributor to enhancing nuclear safety is the ability to learn from experience. It is a particular challenge to ensure harmonized implementation of the lessons learned from operational experience worldwide. While the IAEA and the Nuclear Energy Agency of the Organisation for Economic Co-operation and Development (OECD/NEA) operate an effective system for collecting operational experience — namely, the International Reporting System for Operating Experience (IRS) — further efforts are needed to develop an effective means to review the implementation rate of the lessons learned. During the Sixth Review Meeting of the Contracting Parties to the Convention on Nuclear Safety, it was noted that recent NPP experience had highlighted significant problems with regard to the quality and supply of relevant materials and external services, including problems associated with counterfeit, fraudulent and substandard items. Recognizing the importance of human and organizational factors, the Contracting Parties also requested the IAEA to promote the use of existing databases such as the IRS database and the WANO database on good practices as a platform for sharing operating experience related to safety culture.

Long Term Operation

Many NPPs are facing challenges regarding decisions on long term operation (LTO) or plant life extension and reaching or exceeding the original design lifetime. Typically, the decisions are taken within a licence renewal process or as a result of a periodic safety review and should consider all aspects of ageing and obsolescence as well as new knowledge and research and development (R&D) results. The factors to be taken into account include: physical ageing of structures, systems and components; technological obsolescence of equipment; the ability to comply with the most recent safety standards and safety regulations; and knowledge management and organizational issues related to ageing. The IAEA has been continuously updating the relevant safety standards and guidance and review services in this area (e.g. the Safety Aspects of Long Term Operation of Nuclear Power Plants Peer Review Service [SALTO]). The experience gained and lessons learned as a result of this process should be further disseminated.

B. Objectives

The purpose of the conference is to review the progress of operational safety improvements being introduced in the light of the Fukushima Daiichi Nuclear Power Station accident and to foster the exchange of information on operational safety performance and operating experience at NPPs. The conference thereby seeks to achieve and consolidate international consensus on:

- The role of operational safety peer reviews as a powerful tool for confirming the commitment of NPP owner/operator organizations to safety improvements and for promoting the application of IAEA safety standards and associated best practices;
- The need for further development of the IAEA safety standards in order to continuously reflect the state of the art in operational safety;
- How to implement, in a harmonized manner, the lessons learned from the Fukushima Daiichi Nuclear Power Station accident and, in particular, those related to operational safety, and how to ensure synergy between safety and security at the operational level;
- The importance of operational experience feedback and periodic safety reviews for the enhancement of plant safety;
- Safety culture and leadership as drivers for continuous safety improvements;
- The responsibility of corporate management for safety improvements throughout the lifetime of an NPP; and
- The adequate management of LTO for NPPs, including ageing management, and additional R&D needed to define the limiting factors for plant life extension.

C. Format and Topics

A preliminary programme will be made available on the conference web page (see Section M) well in advance of the conference. The final programme and the electronic Compilation of Contributed Papers will be available upon registration at the conference.

The conference will consist of an opening plenary session, six topic-specific sessions, and a closing plenary session.

To meet the conference's objectives, each topical session will have the following format:

- Presentations by invited keynote speakers;
- A set of presentations that supplement specific areas within the topical session and stimulate discussion among conference participants; and
- A set of posters that present state-of-the-art information and knowledge in the subject area.

Opening Plenary Session

This session will include:

- A review and recap of the 2010 International Conference on Operational Safety Experience and Performance of NPPs and Fuel Cycle Facilities, and in particular of its key outcomes; and
- An overview of the NPP operational safety challenges as faced by different stakeholders — industry, operators, regulatory bodies, technical support organizations, international organizations, and others.

Session 1: International Operational Safety Peer Reviews — How do these help to improve nuclear safety and to build transparency, trust, and confidence?

This session will cover the following topics:

- Effective and efficient evaluation of operational safety performance and commissioning of NPPs
- Scope appropriate to address recent trends and emerging issues, e.g. severe accident management, periodic safety reviews, synergy between safety and security, NPP construction, transition to decommissioning
- What needs to be changed in the IAEA safety standards that are relevant to operational safety?
- Worldwide application of IAEA safety standards relevant to operational safety — How can Member States' commitment to these be encouraged?
- Effective tools in avoiding complacency — Synergy and complementarity between IAEA and WANO peer reviews
- How can all NPP owner/operator organizations be engaged in the international peer review process?

Session 2: Corporate Management of Safety — How can we improve the effectiveness of the corporate management from commissioning to decommissioning of NPPs, including early closure of NPPs?

This session will cover the following topics:

- Opportunities for improvements at the corporate level that can enhance operational safety at the NPPs owned by a utility
- Independent nuclear oversight — What are the benefits?
- Corporate support to provide human resources and to motivate staff in case of early closure of NPPs
- Effective communication at the corporate level — Can such communication help to improve the transparency of decision making?

- How can the international corporate peer reviews help to harmonize and promote best practices?

Session 3: Post-Fukushima Operational Safety Improvements — What is the impact of the implemented safety upgrades on operational safety?

This session will cover the following topics:

- What could the international nuclear community have done differently prior to the accident that could have helped to avoid it?
- Challenges in the implementation of post-Fukushima upgrades at NPPs — How to minimize the gaps between the implementation of safety improvements by Member States?
- Severe accident management programmes — Evolution from concept to implementation
- Operators' views on the outcomes of the Sixth Review Meeting of the Contracting Parties to the Convention on Nuclear Safety

Session 4: Operating Experience — How can we improve the effectiveness of operational experience feedback?

This session will cover the following topics:

- Good practices in conducting effective screening of internal and external events
- Approaches for prioritizing and implementing, in a timely manner, the lessons learned from internal and external operating experience
- Conduct of effectiveness review of corrective actions to prevent recurrence
- How can the IRS database be enhanced to respond to Member States' requests to promote the use of the IRS as a platform for sharing operating experience related to safety culture?
- Use of operating experience by new embarking countries
- Approaches for using operating experience to promote development of a learning attitude

Session 5: Leadership and Safety Culture — How can we achieve a common understanding and appreciation of leadership and safety culture?

This session will cover the following topics:

- Recent achievements, developments and enhancements in leadership and safety culture
- Can we agree amongst regulators, operators and international organizations on harmonized definitions of strong safety culture attributes?

- Comparison of safety culture assessment methods — Is it possible/necessary to harmonize them or is diversity better?
- Components of a strong safety culture oversight programme — The role of the regulator
- Addressing safety culture in an integrated manner in the OSART programme and in IAEA safety standards relevant to operational safety
- When talking about safety culture assessment, what are we looking for?

Session 6: Long Term Operation — What have we learned from preparation for operation beyond the original design lifetime?

This session will cover the following topics:

- Licensing requirements — Ability of the NPPs to comply with the most recent safety standards and safety regulations
- Scoping and screening of structures, systems and components important to safety for LTO
- Ageing management review and improvement of ageing management programmes
- Revalidation of time-limited ageing analyses
- Use of periodic safety review to manage conceptual obsolescence
- Technological obsolescence management
- IAEA safety standards and the SALTO peer review service and its results
- Is NPP life beyond the 60s' possible? What are the limiting factors for plant life extension?

Closing Plenary Session

The closing session will include short presentations on the outcomes of all topic-specific sessions. The Chairperson and the individual session chairs will participate in a panel discussion on key issues related to NPP operational safety to conclude the conference.

D. Contributed Papers and Poster Presentations

Concise papers on issues falling within the topics outlined in Section C above may be submitted as contributions to the conference. All papers, apart from invited papers, must present original work and should not have been published elsewhere.

D.1 Submission of Abstracts

Persons who wish to present a paper at the conference — either orally or in the form of a poster — must first submit an abstract of not more than 300 words. The abstract should give enough information on the contents of the proposed paper to enable the Programme Committee to evaluate it. Authors should state to which of the topics outlined in Section C their contribution relates.

Authors are urged to make use of the sample abstract available from the conference web page (see Section M).

The abstracts should be submitted together with a completed Participation Form (Form A) and Form for Submission of a Paper (Form B) to the competent official authority (see Section E) for subsequent electronic transmission to the IAEA (Official.Mail@iaea.org), to be received by the IAEA by **15 December 2014**. In addition, the abstracts must be sent electronically to: Operational-Safety-2015.Contact-Point@iaea.org. Introductory and general matters should not be included.

D.2 Acceptance of Abstracts for Oral and Poster Presentation

The abstract will be considered only if the Participation Form (Form A) and Form for Submission of a Paper (Form B) have been received by the above-mentioned deadline and through the established official channels.

A limited number of abstracts will be selected for submission of a full paper and, consequently, for either oral or poster presentation.

Authors will be notified by **27 February 2015** as to whether their abstracts have been accepted and, if so, whether the full papers should be delivered as oral or poster presentations.

Authors will be asked to provide their full length paper (**max. 4 pages**) by **30 March 2015**. Guidelines and a template for the preparation and submission of full papers will be made available at the conference web page (see Section M).

The papers that have been accepted by the Programme Committee will be reproduced unedited in the electronic Compilation of Contributed Papers that will be distributed to all participants at the conference.

The Secretariat reserves the right to exclude papers that do not comply with its quality standards and/or that do not apply to one of the topics outlined in Section C above.

D.3 Proceedings

The proceedings of the conference will be published by the IAEA and made available on its website as soon as possible after the conference.

E. Participation

The conference is directed at a broad range of experts in the area of safe nuclear operations, including professionals from the different disciplines involved in the operational safety of NPPs. It is aimed at both licensees and governmental officials, including persons from nuclear utilities, regulatory bodies, the industry and academia as well as senior policymakers.

All persons wishing to participate in the conference are requested to **register online in advance** through the conference web page (see Section M). In addition, they are required to send a completed Participation Form (Form A) and, if applicable, the Form for Submission of a Paper (Form B) and the Grant Application Form (Form C) to their competent national authority (e.g. Ministry of Foreign Affairs or National Atomic Energy Authority), or to one of the organizations invited to participate, for subsequent electronic transmission to the IAEA (Official.Mail@iaea.org).

A participant will be accepted only if the Participation Form is transmitted through the competent national authority of a Member State of the IAEA or by an organization invited to participate.

Participants whose official designations have been received by the IAEA will receive from the IAEA further information approximately three months before the opening of the conference. This information will also be posted on the conference web page (see Section M).

F. Expenditures

No registration fee is charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the conference. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants. Such assistance may be offered upon specific request to normally one participant per country provided that, in the IAEA's view, the participant on whose behalf assistance is requested will make an important contribution to the conference.

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 are:

1. Submitted by **15 December 2014**;
2. Accompanied by a completed and signed Grant Application Form (Form C); and
3. Accompanied by a completed Participation Form (Form A).

Applications that do not comply with the above conditions cannot be considered.

Approved grants will be issued in the form of a lump sum payment that usually **covers only part of the cost of attendance**.

G. Distribution of Documents

A preliminary programme will be posted on the IAEA conference web page as soon as possible. The final programme and the electronic Compilation of Contributed Papers will be available free of charge upon registration at the conference.

H. Working Language

The working language of the conference will be English. All communications and papers must be sent to the IAEA in English.

I. Conference Venue and Accommodation

The conference will be held at the IAEA's Headquarters in Vienna, Austria. Participants must make their own travel and accommodation arrangements. Hotels which are offering a reduced rate for conference participants will be listed on the conference web page. Please note that the IAEA is not in a position to assist participants with hotel bookings, nor can the IAEA assume responsibility for paying cancellation fees or for re-booking and no shows.

J. Visas

Designated participants who require a visa to enter Austria should submit the necessary application to the nearest diplomatic or consular representative of Austria at least four weeks before they travel to Austria. Since Austria is a Schengen State, persons requiring a visa will have to apply for a Schengen visa. In States where Austria has no diplomatic mission, visas can be obtained from the consular authority of a Schengen Partner State representing Austria in the country in question.

K. Key Deadlines

Submission of Form for Submission of a Paper (Form B) and abstract:	15 December 2014
Submission of Grant Application Form (Form C):	15 December 2014
Notification of acceptance of papers:	27 February 2015
Submission of accepted full paper (4 pages max.):	30 March 2015

L. Conference Secretariat

General contact details of the Conference Secretariat:

International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA
Tel.: +43 1 2600
Fax: +43 1 2600 2007
Email: Official.Mail@iaea.org

Scientific Secretary of the conference:

Ms Vesselina Rangelova
Operational Safety Section
Division of Nuclear Installation Safety
Department of Nuclear Safety and Security

Tel.: +43 1 2600 26083
Fax: +43 1 26007
Email: Operational-Safety-2015.Contact-Point@iaea.org

Administration and organization:

Ms Martina Neuhold
Conference Services Section
Division of Conference and Document Services
Department of Management
IAEA-CN-227

Tel.: +43 1 2600 21314
Fax: +43 1 26007
Email: M.Neuhold@iaea.org

Subsequent correspondence on scientific matters should be sent to the Scientific Secretary of the conference and correspondence on administrative matters to the IAEA Conference Services Section.

M. Conference Web Page

Please visit the IAEA conference web page regularly for new information regarding this conference:

<http://www-pub.iaea.org/iaeameetings/46529/International-Conference-on-Operational-Safety>