

IAEA-CN-205



International Conference on Topical Issues in Nuclear Installation Safety:

Defence in Depth — Advances and Challenges for Nuclear Installation Safety

Vienna, Austria

21–24 October 2013

Organized by the

International Atomic Energy Agency (IAEA)

In cooperation with the

OECD Nuclear Energy Agency (OECD/NEA)

Announcement and Call for Papers

A. Introduction

The first International Conference on Topical Issues in the area of nuclear safety was held by the International Atomic Energy Agency (IAEA) in 1998 in Vienna, Austria, with three further conferences held in 2001 (Vienna), 2004 (Beijing) and 2008 (Mumbai) focusing on different topics. The issues discussed, and the recommendations made, have provided the IAEA with valuable insights as to where future activities should be focussed. These activities have included the development of guidance on safety performance indicators, the development of new IAEA safety standards, e.g. on probabilistic safety assessment and establishing the safety infrastructure for a new nuclear power programme, and highlighted the important roles of national regulators and international organizations in harmonizing global nuclear safety, and in developing the relationship between safety and security requirements.

At the International Experts' Meeting (IEM) on Reactor and Spent Fuel Safety in the Light of the Accident at the Fukushima Daiichi Nuclear Power Plant, held in Vienna from 19 to 22 March 2012, an important element of the broadened safety agenda were the concerted, but independent efforts by Member States to establish additional layers of protection to prevent severe accidents, coupled with an increased priority on mitigation and a focus on the preservation of containment to enhance defence in depth (DID). The full report¹ of the IEM was presented to the Fukushima Ministerial Conference on Nuclear Safety (December 2012). In order to further strengthen DID, the Ministerial Conference re-emphasized the importance of measures for the prevention and mitigation of severe accidents.

This conference continues the work done in this area so far and will focus on the concept of DID and its implementation in nuclear installations. The essential philosophy of DID is to provide multiple levels of protection so that potential failures are compensated in a way that ensures protection of the workers, public and the environment. Defence in depth is fundamental to the safety of nuclear installations and should be implemented during all stages of their life cycle, from the design phase through operation and eventual decommissioning. While the concept of DID has been implemented largely successfully in the nuclear industry, recent events such as the Fukushima Daiichi nuclear accident highlighted potential vulnerabilities that could be caused by extreme external events. Recent national and international actions in response to the Fukushima Daiichi accident to address "rare but credible" events with significant adverse safety consequences suggest that the implementation of the concept of DID should be revisited and strengthened. It is important for the international nuclear community to exchange ideas and information on how the application of the concept of DID is evolving, and the challenges that are being encountered as national and international actions unfold.

B. Objective of the Conference

The objective of this conference is to foster the exchange of information on the latest thinking and advances in the implementation of the concept of DID in nuclear installations, and the associated challenges. The focus will be on operating nuclear installations, including nuclear power plants,

¹ Available online at: <http://www.iaea.org/newscenter/focus/actionplan/reports/spentfuelsafety2012.pdf>.

research reactors and fuel cycle facilities, and on how lessons learned from operating experience and recent events (e.g. the Fukushima Daiichi accident) are used to enhance safety. The implementation of DID covers a number of elements that are directly related to the different states and phases of a nuclear facility.

C. List of Topics

The conference will be devoted to the following key topical issues (examples are given of areas that have been identified as subjects for the contributed papers):

- 1) Advances and challenges in the implementation of DID in siting, design, and construction
 - Siting considerations
 - Design considerations
 - Manufacturing and supply chain
 - Classification of structures, systems and components
 - Oversight during manufacturing and construction
 - Prevention and control of accidents
 - Application of probabilistic and deterministic safety analysis

- 2) Advances and challenges in the implementation of DID in commissioning and operation
 - Procedures (normal/emergency operation)
 - Technical specifications and oversight
 - Conduct of operation
 - Operating experience feedback
 - Maintenance/surveillance/in-service inspection
 - Training
 - Long term operation
 - Prevention and control of accidents

- 3) Advances and challenges in the implementation of DID in accident management and emergency preparedness and response
 - Procedures and training
 - Strategy for accident management
 - Severe accident management
 - Equipment for accident management
 - Emergency preparedness and response at facility level
 - Emergency preparedness and response at local and national level

4) Cross-cutting issues in the implementation of DID

- Safety culture
- Regulatory oversight
- Human factors
- Electrical systems and instrumentation and control
- The balance between prevention and mitigation
- Evaluation of DID effectiveness (e.g. independence of levels of defence)
- Harmonization of application of DID and regulatory practices
- Application of a graded approach based on the various types of nuclear installation and the associated potential hazards

Whilst the above list is not comprehensive, it does nevertheless cover important areas where recent advances could contribute to strengthening the implementation of DID.

D. Structure of the Conference

The conference will be held in plenary session format. The opening session will include a welcome address by a representative of the IAEA. This session will be further complemented by a keynote presentation on the importance and unique aspects of the concept of DID as applied to nuclear installations.

Four topical sessions will take place one after the other as outlined in Section C. The topic of each session will be introduced by a chairperson, followed by oral presentations that will be selected on the basis of papers submitted to the conference. Following the oral presentations, there will be discussions among participants.

Finally, after the topical sessions have been completed there will be a closing session at which the chairpersons of the four topical sessions will present summaries of their respective sessions. The Conference President will then summarize the conference findings, conclusions and recommendations on the way forward.

E. Target 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 and other nuclear installations such as fuel cycles and research reactors. It is aimed at both licensees and governmental officials, including persons from regulatory bodies, the industry and academia as well as senior policymakers.

F. Contributed Papers and Posters

Concise papers on issues falling within the topics outlined in Section C 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.

(a) Submission of abstracts

Persons who wish to present a paper or poster at the conference must submit an abstract (in English) of maximum 500 words together with the completed Form for Submission of a Paper (Form B) and the Participation Form (Form A) to the competent official authority (see Section G) for subsequent electronic transmission to the IAEA (official.mail@iaea.org) to be received by the IAEA by **28 March 2013**. In addition, the abstract must be sent electronically (TIC-2013.Contact-Point@iaea.org). The abstract should give enough information on the content of the proposed paper so as to enable its evaluation by the Paper Selection Committee.

Authors are urged to make use of the templates available on the conference web page (see Section N).

(b) Acceptance of papers/posters

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

In order to provide ample time for discussion, the number of papers that can be accepted for oral presentation is limited. If the number of relevant and high quality papers submitted for selection exceeds the acceptable number, some of them will be selected for poster presentation.

Authors will be informed by **7 May 2013** whether their paper has been accepted by the Programme Committee on the basis of the abstracts submitted. At the same time, authors will be advised whether their paper has been accepted for oral presentation or for presentation as a poster.

Authors should use the “IAEA Proceedings Paper” template in Microsoft Word (user instructions are available on the conference web page). Guidelines for the preparation of a contributed paper and subsequent poster are given in *IAEA Guidelines for Authors on the Preparation of Manuscripts for Proceedings* and *IAEA Guidelines for the Preparation and Presentation of a Poster*, which are both also available on the conference web page.

Full papers should be received by the IAEA by **1 July 2013**. The Secretariat reserves the right to exclude papers that do not comply with its quality standards or that do not apply to one of the topics in Section C above.

(c) Proceedings

The proceedings of the conference will be published by the IAEA as soon as possible after the conference.

G. Participation

All persons wishing to participate in the conference are requested to **register online in advance** through the conference web page. 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 the competent national authority (e.g. the 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 further information on the conference approximately three months before the beginning of the conference. This information will also be posted on the conference web page (see Section N).

H. 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 selected specialists from Member States. 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 **28 March 2013**;
2. Accompanied by a duly completed and signed Grant Application Form (Form C);
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.

I. Working Language

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

J. Documents

A preliminary programme of the conference will be made available on the conference web page in due course. The final programme and the book of extended synopses will be available upon registration at the conference.

K. 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 entry into Austria. Please note that Austria is a Schengen State and therefore persons who require 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.

L. Key Deadlines

Submission of Form B and abstract (maximum 500 words):	28 March 2013
Submission of Form C:	28 March 2013
Notification of acceptance of abstract:	7 May 2013
Submission of full paper (only upon request by the IAEA):	1 July 2013

M. Conference Secretariat

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

N. Conference Web Page

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

<http://www-pub.iaea.org/iaeametings/43048/International-Conference-on-Topical-Issues-in-Nuclear-Installation-Safety>