



Workshop on Considerations Related to the Interactions between Human, Technical and Organizational Factors in Research Reactor Safety

**IAEA Headquarters
Vienna, Austria**

4–8 December 2017

Ref. No.: J7-TR-1700758

Information Sheet

A. Introduction

The International Atomic Energy Agency (IAEA) Safety Fundamentals publication *Fundamental Safety Principles* (IAEA Safety Standards Series No. SF-1) states in para 3.14: “An important factor in a management system is the recognition of the entire range of interactions of individuals at all levels with technology and with organizations. To prevent human and organizational failures, human factors have to be taken into account and good performance and good practices have to be supported.”

Requirement 35 in the IAEA Safety Requirements publication *Safety of Research Reactors* (IAEA Safety Standards Series No. SSR-3) states: “Systematic consideration of human factors, including the human–machine interface, shall be applied at an early stage in the design process for a research reactor facility, including its experimental facilities, and shall be continued throughout the entire design process”, while Requirement 4 states: “The operating organization for a research reactor facility shall establish, implement, assess and continuously improve an integrated management system.”

It is further stated in para. 2.9 of SSR-3: “The safety philosophy addresses the means with which the organization supports individuals and groups to perform their tasks safely, with account taken of the interactions between humans, technology and organizational aspects”; in para. 4.10: “The management system shall include all the elements of management so that processes and activities important to safety are established and conducted in accordance with relevant requirements, including those relating to leadership, protection of health, human performance, emergency preparedness and response, protection of the environment, security and quality”; in para. 6.9 “The design shall consider human capabilities and limitations and factors that could influence human performance”; and in para. 7.127 “Events with significant implications for safety shall be investigated to identify their direct and root causes, including causes relating to equipment design, operation and maintenance, or to human and organizational factors. The results of such analyses shall be included, as appropriate, in relevant training programmes and shall be used in reviewing procedures and instructions.”

Requirement 6 in the IAEA Safety Requirements publication *Leadership and Management for Safety* (IAEA Safety Standards Series No. GSR Part 2) states: “The management system shall integrate its elements, including safety, health, environmental, security, quality, human-and-organizational-factor, societal and economic elements, so that safety is not compromised.” Further, GSR Part 2 in para. 5.2 (f) states: “[Senior managers and all other managers shall advocate and support] [...] [t]he means by which the organization seeks to enhance safety and to foster and sustain a strong safety culture, and using a systemic approach (i.e. an approach relating to the system as a whole in which the interactions between technical, human and organizational factors are duly considered)”.

The IAEA report on the Fukushima Daiichi accident¹ includes the following observation: “A systemic approach to safety needs to consider the interactions between human, organizational and technical factors. This approach needs to be taken through the entire life cycle of nuclear installations.”

The *IAEA Report on Human and Organizational Factors in Nuclear Safety in the Light of the Accident at the Fukushima Daiichi Nuclear Power Plant*² observed that “the nuclear community needs to better understand how a systemic approach to safety, with its emphasis on the interrelationships and interactions of the human, technical, and organizational factors, including safety culture, can explain some of the root causes of the accident”.

Member States participating in the Training Workshop on Integrated Management Systems for Research Reactors held at the IAEA’s Headquarters in Vienna, Austria, from 14 to 18 November 2016 requested the IAEA to organize an event to address the topic of interaction between human, technical, and organizational factors in research reactor safety.

Considering all the above elements, the IAEA is organizing this Workshop on Considerations related to the Interactions between Human, Technical, and Organizational and factors in Research Reactor Safety from 4 to 8 December 2017 at its Headquarters in Vienna, Austria.

¹ See: <http://www-pub.iaea.org/books/IAEABooks/10962/The-Fukushima-Daiichi-Accident>.

² Available online at: <https://www.iaea.org/sites/default/files/humanfactors0914.pdf>.

B. Objectives

The purpose of the workshop is to provide the participating Member States with practical information on the establishment, implementation and continuous development of a systemic approach to safety for research reactors, in which the interrelationships and interactions of human, technical, and organizational factors, including safety culture, are duly considered on the basis of the IAEA safety standards. The workshop will also serve as a forum for Member States to share and discuss challenges and exchange experiences in relation to the interaction between human, technical, and organizational factors that are relevant to research reactors.

C. Target Audience

The workshop is intended for individuals with leadership roles from the operating organizations or regulatory bodies or technical support organizations of Member States with an operating research reactor facility or Member States that have initiated a new research reactor project. Participants should preferably be individuals in charge of developing, implementing and improving management systems at their respective research reactor facilities or should be staff members of regulatory bodies who are in charge of the review and assessment of management systems for research reactors.

D. Working Language

The working language of the workshop will be English.

E. Topics

The following topics will be addressed and discussed during the workshop:

- IAEA safety standards on leadership and management for safety, and those that deal with integrated management systems for research reactors;
- Consideration of human and organizational factors in application of the defence-in-depth concept during all the stages of a research reactor's lifetime;
- Interaction between human, technical, and organizational factors in research reactor safety;
- Establishment of safety culture programmes at research reactor operating organizations and its assessment by regulatory bodies;
- Use of a graded approach in the application of management system requirements for research reactors;
- Role of leadership in dealing with human, technical, and organizational factors in research reactors;
- Experience of the participating Member States in relation to the interaction of human, technical, and organizational factors in research reactors;

The workshop will include training sessions on the interaction of human, technical, and organizational factors in research reactor safety and their regulatory aspects.

F. Visas

Nominated participants who require a visa to enter Austria should submit the necessary application to the nearest diplomatic or consular representative of Austria as soon as possible. Approximately four weeks before the workshop, the IAEA will send official invitation letters to nominated participants which are intended to assist with visa arrangements.

G. Application Procedure

Nominations should be submitted using the attached Participation Form (Form A). Completed forms should be endorsed by the competent national authority and returned through the established official channels. They must be received by the IAEA not later than **15 September 2017**. Nominations received after that date or applications sent directly by individuals or by private institutions cannot be considered. Nominating Governments will be informed, in due course, of the names of the selected candidates and at that time full details will be given on the procedures to be followed with regard to administrative and financial matters.

H. Expenditures and Financial Support

The IAEA is generally not in a position to bear the travel and other costs of participants in the workshop. 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 workshop. The application for financial support should be made at the time of nominating the participant. There is no registration fee for this workshop.

I. IAEA Secretariat / Organization

The IAEA Scientific Secretaries for the workshop are Mr Deshraj Venkat H. Rao of the Research Reactor Safety Section and Ms Helen Rycraft of the Operational Safety Section, both from the Division of Nuclear Installation Safety, Department of Nuclear Safety and Security.

All the correspondence related to this workshop should be addressed to the Administrative Secretary for the workshop, Ms Lilla Hedervari (Email: L.Hedervari@iaea.org) with a copy to the Scientific Secretaries, Mr Deshraj Venkat H. Rao (Email: D.V.Rao@iaea.org) and Ms Helen Rycraft (Email: H.Rycraft@iaea.org).

General address of the IAEA Secretariat:

International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA
Email: Official.Mail@iaea.org
Fax: +43 1 26007

Scientific Secretaries:

Mr Deshraj Venkat H. Rao

Research Reactor Safety Section
Division of Nuclear Installation Safety
Department of Nuclear Safety and Security
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA

Tel.: +43 1 2600 22142
Fax: +43 1 26007
Email: D.V.Rao@iaea.org

Ms Helen Rycraft

Operational Safety Section
Division of Nuclear Installation Safety
Department of Nuclear Safety and Security
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA

Tel.: +43 1 2600 22029
Fax: +43 1 26007
Email: H.Rycraft@iaea.org

Administrative Secretary:

Ms Lilla Hedervari

Research Reactor Safety Section
Division of Nuclear Installation Safety
Department of Nuclear Safety and Security
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA

Tel.: +43 1 2600 26076
Fax: +43 1 26007
Email: L.Hedervari@iaea.org

Participation Form

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To be completed by the participant and sent to the competent official authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA, or National Atomic Energy Authority) of his/her country for subsequent transmission to the International Atomic Energy Agency (IAEA), Vienna International Centre, PO Box 100, 1400 Vienna, Austria, either electronically by email to: Official.Mail@iaea.org or by fax to: +43 1 26007 (no hard copies needed). Kindly send also a copy per email to the Scientific Secretaries of the workshop, Mr Deshraj Venkat H. Rao (D.V.Rao@iaea.org) and Ms Helen Rycraft (H.Rycraft@iaea.org), as well as to the Administrative Secretary, Ms Lilla Hedervari (L.Hedervari@iaea.org).

Participants who are members of an invited organization can submit this form to their organization for subsequent transmission to the IAEA.

Deadline for receipt by IAEA through official channels: 15 September 2017

Family name: (e.g. Smith)		First name(s): (e.g. John)	Mr/Ms
Institution:			
Full address:			
For urgent communications please indicate:	Tel.:		
	Fax:		
	Email:		
Nationality:	Nominating Government or organization:		
Mailing address (if different from address indicated above):			
Do you intend to give a presentation?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Title:			