



IAEA

International Atomic Energy Agency

Atoms for Peace and Development

Technical Meeting on Good Practices for the Operation and Maintenance of Research Reactors

Virtual Event

02–06 August 2021

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Information Sheet

Introduction

For over six decades now, research reactors have played an important role within several fields of basic sciences; in the development of nuclear technology; in the production of radioisotopes for various applications; and in the development of human resources and skills in the nuclear field. Moreover, research reactors have been effectively utilized to support sustainable development in more than 60 countries worldwide.

The information collected in the International Atomic Energy Agency's (IAEA's) Research Reactor Ageing Database (RRADB) shows that there are 248 research reactors (including those under temporary or extended shut down) currently in operation worldwide. 60% of the operating research reactors are now over 40 years old. Research reactors vary in type, design, power level, utilization, operation cycle, management aspects, etc. Operating practices also vary in different Member States based on national regulations and available resources.

The IAEA publication entitled *Optimization of Research Reactor Availability and Reliability: Recommended Practices* (IAEA Nuclear Energy Series No. NP-T-5.4) identifies management system attributes and good practices supporting optimal research reactor availability and reliability. The practices of interest are generally within the domain of the research reactor operation and maintenance organization.

The IAEA Safety Requirements publication *Safety of Research Reactors* (IAEA Safety Standards Series No. SSR-3) establishes requirements for the safe operation of research reactors. As research reactors continue to operate there is an increasing need for enhancing the existing programmes to involve advanced technologies such as digital instrumentation and control, predictive maintenance, equipment monitoring and ageing management.

The information collected in the IAEA's Incident Reporting System for Research Reactors shows that human factors, including inadequate operating procedures or insufficient compliance with the procedures, are among the root causes for a number of events that have occurred at research reactor facilities.

The operating organizations of many research reactor facilities have established, or are in the process of establishing, a proactive strategy and a management system to safely and reliably operate and maintain the facilities. Collecting and sharing this information within the research reactor community will help in improving operation and maintenance programmes, in particular by preventing the negative consequences on the safety, operability and lifetime of operating or even future research reactors. It also can help organizations manage research reactors that have been in a state of temporary or extended shutdown by ensuring that required systems and components are maintained in a safe manner, while awaiting a decision to bring back these facilities into operation or proceed with their decommissioning.

The exchange of good practices for the operation and maintenance of research reactors can also help to improve the design of new facilities from the viewpoint of safe operation and effective utilization.

In the similar technical meeting held in October 2018, the participants requested the IAEA to conduct such technical meetings at regular intervals to foster the exchange of information and good practices in the research reactor community.

Taking into considerations of the issues and benefits mentioned above, the IAEA is organizing this Technical Meeting on Good Practices for the Operation and Maintenance of Research Reactors to be held virtually.

Objectives

The purpose of this event is to bring together operators, designers, users and regulators of research reactors to discuss and exchange information, experiences and practical knowledge related to good practices for the operation and maintenance of research reactors in order to further improve the performance, safety and reliability of such facilities.

Target Audience

Participation in this event is subject to designation by governmental or national organizations that are involved in the planning, construction, operation or decommissioning of research reactors. To ensure maximum effectiveness in the exchange of information, participants should be persons responsible for the design, operation and maintenance of research reactors. Specialists from regulatory bodies who are responsible for the regulatory supervision of research reactors are also invited to participate in the meeting. Member States are strongly encouraged to identify suitable women participants.

Working Language

The working language of the event will be English.

Topics

- A. In addition to presentations by the IAEA representatives on the basis of the IAEA safety standards, technical guidelines and activities to support Member States for operation and maintenance, the meeting will include presentations by the participants on their national good practices and experiences for the operation and maintenance of research reactors, including experimental facilities and utilization, followed by discussions that address the following topics:
- a) General experience and activities performed to enhance availability and reliability, including measures for reduction of risks and unplanned shutdowns;
 - b) Operating procedures including procedures to deal with anticipated operational occurrences and design basis accidents;
 - c) Maintenance, periodic testing and inspection programmes including remote or special maintenance, and surveillance requirements including monitoring, operability checks, performance checks, trending;
 - d) Core management and fuel handling, including optimization of fuel burn-up and spent fuel management;
 - e) Ageing management, including refurbishment and modernization projects, and equipment qualification programme;
 - f) Operational radiation protection programme;
 - g) Management system for operation and maintenance including configuration management;
 - h) Reactor management, staffing, training and qualification, knowledge management and succession planning for safe operation;
 - i) Identification of the user requirements, facility needs, scheduling and communication.
- B. The discussions in the working groups will focus on the practical aspects related to the operating and maintenance programmes for safe and reliable operation and effective utilization of research reactors.

Participation and Registration

All persons wishing to participate in the event have to be designated by an IAEA Member State or should be members of organizations that have been invited to attend.

In order to be designated by an IAEA Member State, participants are requested to send the **Participation Form (Form A)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) for onward transmission to the IAEA by **31 May 2021**. Participants who are members of an organization invited to attend are requested to send the **Participation Form (Form A)** through their organization to the IAEA by the above deadline.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and financial matters.

Papers and Presentations

The IAEA encourages participants to give presentations on the work of their respective institutions that falls under the topics listed above.

Participants who wish to give presentations are requested to submit an abstract of their work. The abstract will be reviewed as part of the selection process for presentations. The abstract should extend to no more than 2 pages (including figures and tables) and should not exceed 400 words. It should be sent electronically to Messrs Ram Sharma, Dario Jinchuk and Hector Cols, the Scientific Secretaries of the event (see contact details below), not later than **31 May 2021**. Authors will be notified of the acceptance of their proposed presentations by **15 June 2021**.

In addition, participants have to submit the abstract together with the **Participation Form (Form A)** and the attached **Form for Submission of a Paper (Form B)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or their organization for onward transmission to the IAEA not later than **31 May 2021**.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and financial matters.

The countries eligible for TC (Technical Cooperation) assistance which participate in TC projects may submit the request for TC support through their respective National Liaison Officers (NLOs). In this case, TC specific forms to attend the workshop need to be employed. Detailed information and forms are accessible in the following web page:

<https://www.iaea.org/services/technical-cooperation-programme/how-to-participate>

Department of Technical Cooperation is using InTouch+. Participants can apply and submit all required documents online. National authorities will be able to use InTouch+ to review and approve these applications. Interested parties that would like to use this facility should write to:

InTouchPlus.Contact-Point@iaea.org.

IAEA Contacts

Scientific Secretaries:

Messrs Ram Sharma and Dario Jinchuk
Research Reactor Section
Division of Nuclear Fuel Cycle and Waste Technology
Department of Nuclear Energy
International Atomic Energy Agency
Vienna International Centre
PO Box 100, 1400 VIENNA, AUSTRIA

Tel.: +43 1 2600 22770 (Ram Sharma)
Tel.: +43 1 2600 24595 (Dario Jinchuk)
Fax: +43 1 26007
Email: Ram.Sharma@iaea.org and D.Jinchuk@iaea.org

Mr Kaichao Sun

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 26475
Fax: +43 1 26007
Email: K.Sun@iaea.org or D.V.Rao@iaea.org

Administrative Secretary:

Ms Reena Thottakkara

Research Reactor Section
Division of Nuclear Fuel Cycle and Waste Technology
Department of Nuclear Energy
International Atomic Energy Agency
Vienna International Centre
PO Box 100, 1400 VIENNA, AUSTRIA

Tel.: +43 1 2600 22755
Fax: +43 1 26007
Email: R.Thottakkara@iaea.org

Subsequent correspondence on scientific matters should be sent to the Scientific Secretaries and correspondence on other matters related to the event to the Administrative Secretary.