



# **Workshop on the Application of the IAEA Safety Standards on the Design of Nuclear Power Plants, including Water Cooled Small Modular Reactors**

**IAEA Headquarters  
Vienna, Austria**

**24 to 28 July 2023**

**Ref. No.: EVT2103038**

## **Information Sheet**

### **Introduction**

Specific Safety Requirements “Safety of Nuclear Power Plants: Design” (IAEA Safety Standards Series No. SSR-2/1 (Rev. 1)) was published by the IAEA in 2016. This new revision included new or updated provisions relevant to the following safety design aspects of nuclear power plants (NPPs):

- Implementation of defence in depth, including provisions for independence of levels of defence in depth;
- Protection against internal and external hazards;
- Design of safety systems;
- Design of safety features for design extension conditions;
- Safety considerations related to multiple units;
- Design measures aimed to avoid cliff-edge effects and to prevent an early or a large radioactive release;
- Ensuring capability to transfer heat to the ultimate heat sink;
- Usage of non-permanent equipment for restoring safety functions;
- Design of emergency power supply systems;
- Safety considerations for spent fuel pools.

Following the publication of SSR-2/1 (Rev. 1) in 2016, the IAEA held education & training workshops in 2018, 2019 and 2020 to provide a platform to deepen understanding of the updated requirements for the design and safety assessment of NPPs.

Several Safety Guides illustrating recommended ways on how to meet the above mentioned requirements were published recently, including, but not limited to, the following:

- “Design of the Reactor Containment and Associated Systems for Nuclear Power Plants”, (IAEA Safety Standards Series No. SSG-53);
- “Design of the Reactor Coolant System and Associated Systems for Nuclear Power Plants” (IAEA Safety Standards Series No. SSG-56);
- “Design of the Reactor Core for Nuclear Power Plants” (IAEA Safety Standards Series No. SSG-52);
- “Protection Against Internal Hazards in the Design of Nuclear Power Plants” (IAEA Safety Standards Series No. SSG-64).

The workshop will focus on illustrating the content of newly published Safety Guides and collecting feedback on their use as well as on the use of the provisions of Safety Requirements SSR-2/1 (Rev.1), either for design purposes or for the development of national regulations related to water cooled reactors.

A growing number of Member States have expressed an interest in the development of Small Modular Reactors (SMRs). Although non water-cooled SMRs are outside the scope of this workshop, it is acknowledged that, even for water-cooled SMRs, specific challenges may arise related to the application of the provisions of existing IAEA design Safety Standards.

The application of these Safety Standards to water cooled SMRs is also of interest in the light of the results presented in the recently released IAEA preprint version of the Safety Report on “Applicability of Safety Standards to Non-Water-Cooled Reactors and Small Modular Reactors”. This preprint document considers also the results presented in previous IAEA publications such as in IAEA-TECDOC-1936 on “Applicability of Design Safety Requirements to Small Modular Reactor Technologies Intended for Near Term Deployment” published in 2020.

## **Objectives**

The main objective of this workshop is to provide a forum for discussion, exchange of experience and dissemination of knowledge related to the consideration of requirements and recommendations for the design of current and advanced water cooled NPPs, including SMRs.

The event will include delivery of lectures on recently published design Safety Guides – including, but not limited to, Safety Guides on the design of the reactor core, the reactor containment, the reactor coolant systems, and consideration of internal hazards. The workshop will also aim to provide a platform to exchange information on the consideration of recently published Safety Guides and updated requirements of SSR-2/1 (Rev.1) for the design of NPPs, to collect feedback from Member States on the use of such Safety Standards, and to discuss and enhance the technical review services offered by the IAEA.

## **Target Audience**

The event is targeted at professionals from organizations involved in the design of NPPs, operating organizations, nuclear regulatory authorities, technical support organizations, and research institutions that are engaged in activities related to or in support of the development or the regulation of water cooled NPPs.

The event is open to representatives of all Member States with an active nuclear power programme, including those from embarking countries in an advanced stage of their nuclear programme.

## Working Language(s)

English.

## Expected Outputs

The expected outputs of the workshop include:

- Dissemination of knowledge related to the consideration of the requirements and recommendations for the design of current and advanced water cooled NPPs (including SMRs);
- Compilation of lessons learned from the exchange of experience on the current practices in Member States related to this topic.

Outcomes from the workshop will also be used to consider any necessary enhancements to the technical safety review (TSR) services offered by IAEA and to inform the Agency's future workplans.

## Topics

Topics of interest cover design safety aspects of current and advanced water cooled NPPs (including water cooled SMRs), including the following:

- Experience and feedback from Member States on the application and use of SSR-2/1 (Rev.1) and the following supporting Safety Guides:
  - “Design of the Reactor Containment and Associated Systems for Nuclear Power Plants” (IAEA Safety Standards Series No. SSG-53);
  - “Design of the Reactor Coolant System and Associated Systems for Nuclear Power Plants”, (IAEA Safety Standards Series No. SSG-56);
  - “Design of the Reactor Core for Nuclear Power Plants” (IAEA Safety Standards Series No. SSG-52);
  - “Protection Against Internal Hazards in the Design of Nuclear Power Plants” (IAEA Safety Standards Series No. SSG-64);
  - Other Safety Guides as appropriate.
- Experience by Member States (including countries embarking on new nuclear power programmes) in the consideration of SSR-2/1 (Rev. 1) and recently published Safety Guides in the design of water cooled NPPs (including SMRs) or in the development of national regulations.

## 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 **21 April 2023**. 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.

Participants are hereby informed that the personal data they submit will be processed in line with the [Agency's Personal Data and Privacy Policy](#) and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required.

## Papers and Presentations

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

Participants who wish to provide 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 be in A4 page format, should extend to no more than two pages (including figures and tables), and should not exceed 1500 words. It should be sent electronically to Mr Mikhail Lankin and to Mr Simone Massara, the Scientific Secretaries of the event (see contact details below), not later than **21 April 2023**. Authors will be notified of the acceptance of their proposed presentations by **2 June 2023**.

In addition, participants have to submit the abstract together with 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) or their organization for onward transmission to the IAEA not later than **21 April 2023**.

## Expenditures and Grants

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 event. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants.

Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the event.

The application for financial support should be made using the **Grant Application Form (Form C)**, which has to be stamped, signed and submitted by the competent national authority to the IAEA together with the **Participation Form (Form A)** by **21 April 2023**.

## Venue

The event will be held at the Vienna International Centre (VIC), where the IAEA's Headquarters are located. Participants must make their own travel and accommodation arrangements.

General information on the VIC and other practical details, such as a list of hotels offering a reduced rate for IAEA participants, are listed on the following IAEA web page:

[www.iaea.org/events](http://www.iaea.org/events).

Participants are advised to arrive at Checkpoint 1/Gate 1 of the VIC one hour before the start of the event on the first day in order to allow for timely registration. Participants will need to present an official photo identification document in order to be admitted to the VIC premises.

In addition, the event will allow for virtual participation via Cisco Webex.

## Visas

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.

## **IAEA Contacts**

### **Scientific Secretaries:**

#### **Mr Mikhail LANKIN**

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 22685  
Fax: +43 1 26007 22685  
Email: [M.Lankin@iaea.org](mailto:M.Lankin@iaea.org)

#### **Mr Simone MASSARA**

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 22680  
Fax: +43 1 26007 22680  
Email: [S.Massara@iaea.org](mailto:S.Massara@iaea.org)

### **Administrative Secretary:**

#### **Ms Leticia SEDLAZEK**

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 22687  
Fax: +43 1 26007 22687  
Email: [L.Sedlazek@iaea.org](mailto:L.Sedlazek@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.

# Participation Form

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To be completed by the participant and sent to the competent national 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) either by email to: [Official.Mail@iaea.org](mailto:Official.Mail@iaea.org) or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretary, Mr Mikhail Lankin, Division of Nuclear Installation Safety, Department of Nuclear Safety and Security (Email: [M.Lankin@iaea.org](mailto:M.Lankin@iaea.org)) and to the Administrative Secretary, Ms Leticia Sedlazek, (Email: [L.Sedlazek@iaea.org](mailto:L.Sedlazek@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: 21 April 2023**

Family name(s): (same as in passport)	First name(s): (same as in passport)	Mr/Ms
Institution:		
Full address:		
Tel. (Fax):		
Email:		
Nationality:	Representing following Member State/non-Member State/entity or invited organization:	
If/as applicable:		
Do you intend to submit a paper?	Yes	No
Would you prefer to present your paper as a poster?	Yes	No
Title:		

Participants are hereby informed that the personal data they submit will be processed in line with the [Agency's Personal Data and Privacy Policy](#) and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required. Further information can be found in the [Data Processing Notice](#) concerning IAEA InTouch+ platform.



# Form for Submission of a Paper

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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 as per Workshop InfoSheet**

Title of the presentation:		
If applicable: Abstract ID in IAEA-INDICO:		
Family name(s) and first name(s) of all author(s): e.g. Smith, John	Scientific establishment(s) in which the work has been carried out	City/Country
1.		
2.		
3.		
Family name and first name(s) of author presenting the paper: e.g. Smith, John	Mr/Ms:	
Mailing address:		
Tel. (Fax):		
Email:		



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that the material submitted to the IAEA does not contain any libellous or other unlawful statements and does not contain any materials that violate any personal or proprietary rights of any person or entity.

**Date:**

**Signature of main author:**

# Grant Application Form

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Family name(s): (same as in passport)	First name(s): (same as in passport)	Mr/Ms:
Mailing address:	Tel.:	
	Fax:	
	Email:	
Date of birth (yyyy/mm/dd):	Nationality:	

#### 1. Education (post-secondary):

Name and place of institution	Field of study	Diploma or Degree	Years attended	
			from	to

#### 2. Recent employment record (starting with your present post):

Name and place of employer/ organization	Title of your position	Type of work	Years attended	
			from	to

#### 3. Description of work performed over the last three years:

**4. Institute's/Member State's programme in field of event:**

**Date:** \_\_\_\_\_ **Signature of applicant:** \_\_\_\_\_

**Date:** \_\_\_\_\_ **Name, signature and stamp of Ministry of Foreign Affairs,  
Permanent Mission to the IAEA or National Atomic Energy  
Authority**

\_\_\_\_\_