



IAEA

International Atomic Energy Agency
Atoms for Peace and Development

Technical Meeting on Equipment Reliability Programme in Nuclear Power Plants: Guidelines, Good Practices and Lessons Learned

Hosted by the
Government of the People's Republic of China

through the
Nuclear Power Operations Research Institute (NPRI)

CNNP Nuclear Power Operations Research Institute, Shanghai, China
and virtual participation via Microsoft Teams

10-13 September 2024

Ref. No.: EVT2205161

Information Sheet

Introduction

Good performance in Equipment Reliability is known to be absolutely required for high plant availability and thus cost effective, safe and, secure operations of Nuclear Power Plants. To achieve this, well-established models of processes and topical programmes for improving Equipment Reliability have been implemented in the nuclear power industrial sector for decades, as well as forums where operators and technical support organizations share emerging challenges in Equipment Reliability and the corresponding solutions. However, the key lessons learned from the implementation of those models and topical programmes are not always accessible to Member States.

This was recognised by the Agency when the International Network on Life Management of NPP (LMNPP) was initiated in November 2022. Working Group 6 of the Network was tasked with:

- Capturing the key lessons learned and the good practice across the Member States in implementing processes and topical programmes for Equipment Reliability;
- Developing generic guidance on how to develop and roll-out a sustainable and effective Equipment Reliability programme, recognising WANO guidance, existing IAEA TECDOC Series and Nuclear Energy Series documents related to ageing management and on-line monitoring.

Objectives

The purpose of the event is to review a draft publication provisionally entitled Equipment Reliability Programme in Nuclear Power Plants: Guidelines, Good Practices and Lessons Learned, and to gather comments from Member States and modify the draft accordingly.

The objectives of the event in detail are to:

- Discuss and review the draft publication developed by Working Group 6 of the LMNPP network at their preparatory consultancy meetings;
- Further collect and share country's/owner-operators' case studies on how the Equipment Reliability Programme is structured and, on which and how many items of equipment are covered with which techniques for PWRs incl. WWERs, BWRs and PHWRs, with emphasis given to the use of advance monitoring techniques and innovative equipment behaviour prediction tools implementing WANO Guideline GL 2019-01;
- Further collect and share experience, challenges and lessons learned related to the implementation of an Equipment Reliability Programme, using the six specific process blocks set out in WANO Guideline GL 2018-02 as a common technical basis for describing an Equipment Reliability Programme;
- Advise on generic recommendations strengthening the Equipment Reliability Programme and performance that could be incorporated in the intended publication.

Target Audience

Experts from nuclear power plants with PWR incl. WWER, BWR and PHWR, technical support organisations, research and development organisations and, manufacturers.

Working Language(s)

The meeting will be conducted in English. No translation will be provided.

Expected Outputs

- Agreed draft publication reflecting the comments raised prior to and at the Technical Meeting;
- Agreed generic recommendations to be incorporated in the intended publication;
- Shared presentation materials on country's/owner-operators' case studies as suggested in paragraph "Objectives" above and detailed in paragraph "Topics" below.

Topics

The topics of interest for the country's/owner-operators' case studies are as follows:

- Regarding the implementation of an Equipment Reliability Programme and the six specific process blocks set out in WANO Guideline GL 2018-02:
 - Newest methods for scoping and identifying critical components, including strategies and good practice for preserving single points of vulnerability, implementing WANO Guideline 2019-02;
 - Good practice in / coverage of equipment performance monitoring, performance trending and, diagnosis, incl. use of new technology for (on-line) monitoring/inspection (with drones, automated processes, augmented reality, etc.) and behaviour predictions through modelling, digital twins, artificial intelligence-based approaches as set out in WANO Guideline 2019-01;
 - Good practice in defining and implementing corrective actions, including performing engineering analysis of technical Issues/Failures/Events;
 - Strategies and coverage of Equipment Reliability Improvement Strategies and long-term Plans;
- Outlines of governance models for managing the Equipment Reliability Programme and plant health, incl. typical deliverables and performance indicators used, including those defined in WANO Guideline 2018-03;
- Quantitative overview of how many items of equipment are monitored on-line, how many signals are processed, how many health reports (components and systems) are produced, how many computerised systems are used to assess signals and trend/predict equipment behaviours;
- Integration with other programmes and processes:
 - Good practice in defining maintenance and engineering programmes to support cost effective and safe equipment reliability;
 - Newest methods for collecting equipment reliability data (for example from digital I&C systems).

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 or invited organization, participants are requested to submit their application via the InTouch+ platform (<https://intouchplus.iaea.org>) to the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or organization for onward transmission to the IAEA by **31 May 2024**, following the registration procedure in InTouch+:

1. Access the InTouch+ platform (<https://intouchplus.iaea.org>):
 - Persons with an existing NUCLEUS account can sign in to the platform with their username and password;
 - Persons without an existing NUCLEUS account can register [here](#).
2. Once signed in, prospective participants can use the InTouch+ platform to:
 - Complete or update their personal details under ‘Complete Profile’ and upload the relevant supporting documents;
 - Search for the relevant event under the ‘My Eligible Events’ tab;
 - Select the Member State or invited organization they want to represent from the drop-down menu entitled ‘Designating Authority’ (if an invited organization is not listed, please contact InTouchPlus.Contact-Point@iaea.org);
 - If applicable, indicate whether financial support is requested and complete the relevant information (this is not applicable to participants from invited organizations);
 - Based on the data input, the InTouch+ platform will automatically generate the Participation Form (Form A) and/or the Grant Application Form (Form C);
 - Submit their application.

Once submitted through the InTouch+ platform, the application, together with the auto-generated form(s), will be transmitted automatically to the required authority for approval. If approved, the application, together with the applicable form(s), will automatically be sent to the IAEA through the online platform.

NOTE: The application for financial support should be made, together with the submission of the application, by **31 May 2024**.

For additional information on how to apply for an event, please refer to the [InTouch+ Help](#) page. Any other issues or queries related to InTouch+ can be sent to InTouchPlus.Contact-Point@iaea.org.

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. The IAEA may also use the contact details of Applicants to inform them of the IAEA’s scientific and technical publications, or the latest employment opportunities and current open vacancies at the IAEA. These secondary purposes are consistent with the IAEA’s mandate. Further information can be found in the [Data Processing Notice](#) concerning IAEA InTouch+ platform.

Papers and Presentations

The IAEA encourages all participants to give presentations on the work of their respective organisations that falls under the objectives and 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 be in A4 page format, should extend to no more than 1 page (including figures and tables) and should not exceed 300 words. It should be sent electronically to Mr Laurent Bourdonneau and Ms Qun Yu, the Scientific Secretaries of the event (see contact details below), not later than **31 May 2024**. Authors will be notified of the acceptance of their proposed presentations by **15 July 2024**.

Accepted presentations are requested to be electronically submitted to Mr Laurent Bourdonneau and Ms Qun Yu, the Scientific Secretaries of the event, at least three weeks before the event.

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 **31 May 2024**.

Venue

The event is being hosted by Nuclear Power Operations Research Institute (NPRI) and will be held on the premises of the CNNP Nuclear Power Operations Research Institute, Shanghai, China, from 10 to 13 September 2024. The meeting agenda, together with information on local arrangements, will be sent to designated participants once the completed Participation Forms have been received.

Visas

Participants who require a visa to enter the People's Republic of China should submit the necessary application as soon as possible to the nearest diplomatic or consular representative of the People's Republic of China.

IAEA Contacts

Scientific Secretaries

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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.

Local Contacts

Host

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Event Web Page

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

www.iaea.org/events/evt2205161