Technical Meeting on 
Ageing Management of Electrical Equipment and 
Components at Nuclear Power Plants

IAEA Headquarters, Vienna, Austria

27–30 October 2015

Ref. No: 621-I2-TM-50050

Information Sheet

A. Background

According to the International Atomic Energy Agency (IAEA) publication *Safety of Nuclear Power Plants: Design* (IAEA Safety Standards Series No. SSR-2/1, Vienna, 2012): “The design for a nuclear power plant shall take due account of ageing and wear out effects in all operational states for which a component is credited, including testing, maintenance, maintenance outages, plant states during a postulated initiating event and plant states following a postulated initiating event”. According to the IAEA publication *Safety of Nuclear Power Plants: Commissioning and Operation* (IAEA Safety Standards Series No. SSR-2/2, Vienna, 2011): “The operating organization shall ensure that an effective ageing management programme is implemented to ensure that required safety functions of systems, structures and components are fulfilled over the entire operating lifetime of the plant”.

Systematic ageing management of structures, systems and components (SSCs) provides for the availability of safety functions throughout the service life of the plant and during decommissioning, taking into account changes that occur with time and use. This approach provides a framework for coordinating all programmes and activities relating to the understanding, prevention, detection, monitoring and mitigation of ageing effects on the plant components and structures and includes maintenance, in-service inspection, testing, and surveillance, as well as operations, technical support programmes (including analysis of any ageing effects and degradation mechanisms), and external programmes such as research and development.
The IAEA started to develop guidance on the safety aspects of ageing management in the 1990s. Subsequently, a number of reports on the subject were published, providing general methodological guidance. Examples are the two IAEA Safety Standards Series documents mentioned in the first paragraph and other related IAEA guidance, such as:

- *Ageing Management for Nuclear Power Plants: International Generic Ageing Lessons Learned (IGALL)* (Safety Reports Series No. 82, IAEA, Vienna, 2015)
- *Safe Long Term Operation of Nuclear Power Plants* (Safety Reports Series No. 57, IAEA, Vienna, 2008)
- *Proactive Management of Ageing for Nuclear Power Plants* (Safety Reports Series No. 62, IAEA, 2009)

Focused more on electrical and instrumentation and control (I&C) equipment and components, the following IAEA publications are currently available on ageing management:

- *Assessing and Managing Cable Ageing in Nuclear Power Plants* (IAEA Nuclear Energy Series No. NP-T-3.6, Vienna, 2012)

Additionally, IAEA Member States recommended establishing an international platform for discussion between regulators and utilities regarding the implementation of acceptable ageing management programmes (AMPs). The recommendations were to:

- Develop and maintain a document which can serve as a practical guide for implementing, maintaining and improving AMPs, made up of best practices and universally applicable knowledge on proven AMPs for safety related SSCs; and
- Establish a common basis for discussion between regulators and utilities with regard to implementation of acceptable AMPs.

In response, the IAEA commenced the International Generic Ageing Lessons Learned (IGALL) programme. The aim of the IGALL programme is to develop and maintain documents and a database so as to provide a technical basis for, and practical guidance on, managing the ageing of mechanical, electrical, and I&C components, as well as civil structures important to the safety of nuclear power.
plants (NPPs). The IGALL programme represents a common internationally agreed basis for what constitutes an acceptable AMP.

Under the framework of the IGALL programme, 16 ageing management programmes and one time-limited ageing analysis have been developed to date for electrical and I&C equipment and components, and additional ones are under development.

B. Objectives

The purpose of this meeting is to serve as an international forum for discussing commonly encountered difficulties and sharing best practices and strategies used in the ageing management of electrical equipment and components at NPPs, as well as for discussing the challenges and issues that need to be resolved in this area.

The meeting has the following primary objectives:

- To provide an international forum for presentations and discussions on the subject of the meeting;
- To strengthen Member States’ capabilities for improved understanding of the ageing phenomenon and the best practices in the management of ageing of electrical equipment and components at NPPs;
- To address the application of ageing management programmes and time-limited ageing analyses for electrical equipment and components at NPPs;
- To disseminate the experience that has been gained while running the IGALL programme and developing the new ageing management programmes and time-limited ageing analyses in the framework of this programme; and
- To support the IAEA in defining future activities in the area of ageing management of electrical equipment at NPPs and in the continuation of the IGALL programme.

C. Topics

Presentations are invited on all approaches that are related to the ageing management of electrical equipment and components at NPPs. The following list provides examples of presentation topics that would be appropriate for the meeting:

- Existing standards and guidance for the ageing management of electrical equipment and components at NPPs;
- Understanding, prevention, detection, monitoring and mitigation of specific ageing effects;
- Physical ageing of electrical SSCs resulting in degradation of their performance characteristics;
- Obsolescence of electrical SSCs, as they become out of date with respect to current knowledge, standards and technology;
• Design, construction and commissioning considerations in addressing the ageing phenomenon;
• Scope setting for AMPs based on understanding of the ageing phenomenon;
• Identification of the applicable ageing effect and degradation mechanism(s);
• Identification of the environment that the SSCs are exposed to;
• Preventive actions to minimize and control ageing degradation;
• Metrics for measuring the progress of ageing and the effectiveness of AMPs;
• Qualification, condition monitoring, and management of ageing of electrical equipment and heavy current cables at NPPs;
• Approaches used to establish ageing management priorities;
• Best practices, experiences and lessons learned from practical ageing management projects;
• Tests and evaluations addressing electrical component ageing;
• Operating experience feedback and results of research and development;
• Ageing considerations for plant modernization and for long term operation;
• Regulatory requirements for ageing management.

D. Participation

Based on the subject of the meeting, participation is limited to IAEA Member States that currently operate NPPs. Participation is solicited from representatives of NPPs and regulatory bodies, utilities, technical support organizations, developers, vendors, research organizations and international organizations engaged in the field of ageing management of electrical equipment and components at NPPs. To ensure maximum effectiveness in the exchange of information, participants should be persons actively involved in the subject matter of the meeting.

E. Application Procedure

Designations should be submitted using the attached Participation Form. Completed forms should be endorsed by the competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA, or National Atomic Energy Authority) and returned through the established official channels. They must be received by the IAEA not later than 10 September 2015. Designations received after that date or applications sent directly by individuals or by private institutions cannot be considered. Designating Governments will be informed in due course of the names of the selected candidates and at that time full details will be given of the procedures to be followed with regard to administrative and logistic matters.

The meeting is, in principle, open to all officially designated persons. The IAEA, however, reserves the right to limit participation due to limitations imposed by the available facilities. It is, therefore,
recommended that interested persons take the necessary steps for the official designation as early as possible.

F. Visas

Designated 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.

G. Expenditure

The costs of the meeting will be borne by the IAEA; no registration fee will be charged to participants. Travel and subsistence expenses of participants will have to be borne in general by their designating Governments/organizations. 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 meeting. The application for financial support should be made at the time of designating the participant.

The organizers of the meeting do not accept liability for the payment of any cost or compensation that may arise from damage to or loss of personal property, or from illness, injury, disability or death of a participant while he/she is travelling to and from or attending the meeting, and it is clearly understood that each Government, in designating participants, undertakes responsibility for such coverage. Governments would be well advised to take out insurance against these risks.

H. Presentations

Presentations should be prepared as Microsoft PowerPoint (.ppt) or Portable Document Format (.pdf) files. Computer-based projection facilities will be provided. Authors are requested to provide the Scientific Secretaries with electronic copies of their presentation files in advance of their scheduled presentation slot so that the files can be duly uploaded. Electronic versions of the presentations are also necessary to ensure timely issuance of the proceedings, which will be prepared and distributed in electronic form.

It is not mandatory for all participants to submit a presentation. However, the IAEA welcomes and encourages contributions in this format. Time for the presentations will be limited to 25 minutes followed by a five-minute discussion period.

I. Working Language

The working language of the meeting will be English; no interpretation will be provided.
J. Local Arrangements

The meeting will be held at the IAEA Headquarters, Vienna International Centre, Wagramerstraße 5, 1400 Vienna, Austria and will start on Tuesday, 27 October 2015, at 9.30 a.m. and end on Friday, 30 October 2015, at 2.00 p.m.

The meeting agenda, together with information on local arrangements, will be sent to designated participants once the completed Participation Forms have been received.

K. Accommodation

Participants are requested to book their rooms themselves. Information on hotels that have negotiated rates for international meeting participants can be found at: http://www-pub.iaea.org/iaeameetings/2015Hotellist.pdf.

L. IAEA Secretariat

The IAEA Scientific Secretaries for the meeting are Mr Janos Eiler of the Department of Nuclear Energy and Mr Robert Krivanek of the Department of Nuclear Safety and Security. Their contact details are:

Mr Janos Eiler
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Department of Nuclear Energy
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Email: R.Krivanek@iaea.org

Administrative assistance:

Ms Olga Gloeckler
Tel.: +43 1 2600 22804
Email: O.Gloeckler@iaea.org

Subsequent correspondence on scientific matters should be sent to either of the Scientific Secretaries and correspondence on other matters related to the meeting to the Administrative Secretary.
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 to Mr Janos Eiler, IAEA, by email to: J.Eiler@iaea.org, and to Ms Olga Gloeckler, IAEA, by email to: O.Gloeckler@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: 10 September 2015

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