IAEA
International Atomic Energy Agency
Atoms for Peace and Development

Technical Meeting on Decommissioning Considerations for Fusion Facilities

Hosted by the

Government of France

through the

French Alternative Energies and Atomic Energy Commission (CEA)
ITER Organization (IO)

Saint Paul Lez Durance, France

and virtual participation via Microsoft Teams

6 – 10 February 2023

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Information Sheet

Introduction

The IAEA Safety Standards require that decommissioning requirements be considered during the design and planning phase of new nuclear facilities, in the form of a preliminary decommissioning plan, and that the associated funding needs also receive due consideration. Having plans in place for managing the entire lifecycle of nuclear facilities is nowadays a universal pre-requisite for commencing new projects. Preliminary plans for the decommissioning of facilities and the safe management of radioactive materials are typically required as a condition of the facility being licensed. During the lifetime of the plant, both the decommissioning plan and the cost estimate will evolve and will become progressively more detailed toward the end of the plant life, based on comprehensive records of the plant configuration and detailed accounts of the operational history.

In a similar way, given the current stage of fusion progress, advance planning for radwaste management and decommissioning will save time, effort and money in the future. The optimization of decommissioning strategies from the early design stages of fusion facilities will be a key enabler factor for success of moving from fusion science to energy production.

The experience gained with regard to the early consideration of decommissioning and related radwaste management issues, for example at TFTR, JET and the ITER experimental projects, is of relevance to next step machines like DEMOs and future nuclear fusion power facilities. This Technical Meeting will take benefit from the outcomes of a consultancy meeting organized in June 2022 at which the current main challenges in decommissioning of fusion facilities have been elaborated and discussed.

Objectives

The purpose of this technical meeting is to facilitate the collection, sharing and analysis of good practices and experiences concerned with decommissioning and related waste management considerations for fusion facilities.

The materials presented at the meeting and the associated discussions will form the basis for development of a scientific report on these issues. Accordingly, the meeting will support Member States involved in the operation and/or development of fusion facilities.

Target Audience

This event is suitable for fusion researchers and engineers (mainly technology and activation experts) actively involved in the radioactive waste management field of fusion, as well as for decommissioning experts with practical experience and regulators.

Working Language(s)

English.

Expected Outputs

A document (TECDOC) will be written taking into account the presentations made during the Technical Meeting. Participants will be invited to establish the Table of Contents of the document and provide inputs for the establishment of the document until its publication.

Topics

Discussions and exchanges are expected to focus on experience gained and current good practice concerned with planning and implementation of decommissioning of toroidal magnetic fusion facilities, including on aspects relevant to management of the resulting materials and waste. Although focussed on specificities of decommissioning of toroidal facilities with DT plasma, suggestions on current good practice may be useful for other DT fusion devices. Specific topics to be covered include:

- **Key considerations for decommissioning of magnetic fusion devices**

Topics to be addressed may include the main administrative steps associated with decommissioning of fusion devices and the major technical activities involved in decommissioning such devices and profile of specific materials and radioactive waste.

- **Regulatory framework for decommissioning of fusion facilities**

Topics to be addressed may include current regulatory approaches to oversight of planning and implementation of decommissioning, main needs in terms of regulatory guidance for decommissioning of fusion devices and for management of the resulting radioactive waste, together with funding mechanisms.

- **General decommissioning considerations at the facility design stage**

Topics to be addressed may include design drivers to ensure to minimize the use of materials that may be subject to high levels of activation, avoiding the use of toxic materials, and facility configuration planning that limits tritium migration and takes account of future dismantling requirements.

- **Developing a decommissioning strategy and plan**

Topics to be addressed may include definition of the major activity steps to be addressed in preliminary decommissioning plans and associated cost estimates for fusion facilities, the selection of dismantling strategies including any periods of decay, methodologies to establishing the radioactive waste inventory and identifying future waste streams, end state definition and involvement of stakeholders.

- **Implementation of decommissioning activities**

Topics to be addressed may include project management and contracting strategies for decommissioning of fusion facilities, technology selection for facility characterization, decontamination techniques, in situ detritiation and segmentation of components and associated strategies for research and development to ensure availability of best available technologies when required.

- **Management of fusion specific radioactive waste and toxic materials**

Topics to be addressed may include the development of waste processing systems appropriate to the specific needs of materials and radioactive waste resulting from decommissioning of fusion facilities, interim storage and transport of such materials and waste, and application of circular economy principles to their management.

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. Participants should be actively involved in the topics of the event.

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 December 2022**. 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. 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.

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 be in A4 page format, should extend to no more than two pages (including figures and tables) and should not exceed 500 words. It should be sent electronically to the Scientific Secretaries of the event (see contact details below), not later than **21 December 2022**. Authors will be notified of the acceptance of their proposed presentations by **21 December 2022**.

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 **21 December 2022**.

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 December 2022**.

Visas

Participants who require a visa to enter France should submit the necessary application as soon as possible to the nearest diplomatic or consular representative of France.

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