



International Conference on Management of Spent Fuel from Nuclear Power Reactors

Vienna, Austria
31 May – 4 June 2010

Organized by the
International Atomic Energy Agency (IAEA)

In cooperation with the
OECD Nuclear Energy Agency (OECD/NEA)

1. INTRODUCTION

Background

Heightened interest in nuclear energy among Member States of the IAEA has prompted hopes of a “nuclear renaissance”. The management of spent fuel from nuclear power reactors is an important concern relating to the use of nuclear energy. With no geological repositories in operation and many repository projects delayed, there is increased interest in closing the fuel cycle and recycling of spent nuclear fuel. So, while a majority of countries have yet to decide on the final destination of spent fuel, long term storage is becoming a reality.

Appropriate management of an increasing amount of spent fuel is a key issue for the continued and future use of nuclear energy. Spent fuel storage - wet or dry - is currently the norm for spent fuel management worldwide. Some countries successfully reprocess and reuse their spent fuel but most keep it stored long term. Spent fuel from nuclear power reactors requires safe, secure, environmentally sound and efficient storage that will ensure that future options for spent fuel management are kept open.

More than four hundred nuclear power reactors in operation today have accumulated a large amount of spent fuel stored either at, or away from, reactor sites. Consequently, a major current issue in the area of spent fuel management in many countries is the need to expand existing capacity at reactor sites or to provide additional storage space to accommodate upcoming spent fuel arisings. IAEA Member States quote storage periods of 100 years and beyond, and, as storage periods extend, new challenges arise within the institutional as well as technical areas. From the institutional point of view, challenges exist in the management of

liabilities and knowledge, experience and information over longer time spans. Technical challenges include the longevity of spent fuel packages and the behaviour of fuel and structural materials in storage facilities.

The safety considerations associated with the management of spent fuel are considered/examined in the “Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management” (INFCIRC 546, Dec97). As storage periods lengthen, compliance with safety requirements, such as those relating to the confinement of radionuclides, will need to be demonstrated and confirmed in the licensing process.

The situation is complicated by trends towards higher initial enrichment and higher fuel burnup, as well as security considerations relating to evolving threat scenarios.

The IAEA pays careful attention to the collection, analysis and exchange of information on spent fuel management in order to contribute to the safe storage of spent fuel from a technological as well as from a safety point of view. To this end, meetings on spent fuel storage have taken place normally every four years since 1987. The most recent international conference on this topic was held in Vienna in June 2006.

Objectives

The objectives of the International Conference on the Management of Spent Fuel from Nuclear Power Reactors are to:

- discuss recent technology advances in spent fuel storage and their contribution to safety improvements;
- exchange information on state-of-the-art technology and the perspectives for long term storage;
- exchange information on operating experience in storage facilities;
- exchange views and strategies pertaining to the current global outlook for spent fuel management including reprocessing and disposal;
- discuss the safety framework of spent fuel management;
- discuss issues related to spent fuel ageing, integrity and long term data management;
- discuss international cooperation in regional and multilateral spent fuel management facilities;
- consider public perceptions of spent fuel management activities;
- evaluate burnup credit applications in spent fuel management.

Target audience

The conference aims to bring together scientists, designers, operators and regulators from Member States to exchange information and views on the above-mentioned topics.

Programme Structure

The **opening session** will include welcoming addresses by representatives of the IAEA and the OECD/NEA, as well as keynote lectures on the status of spent fuel management worldwide.

A series of **topical sessions** will cover issues relating to national programmes in spent fuel management as well as regional trends, technology and safety/security aspects of wet and dry storage, licensing and regulation, quality assurance, design control, operating experience, R&D, and special aspects of spent fuel storage including in-service inspection, heat removal, and other engineering considerations. The chairpersons will summarize the sessions and the related **poster sessions**. They will also prepare recommendations for the concluding session.

At the **concluding session**, the topical session chairpersons will present their summaries, which should lead to the formulation of recommendations for the stakeholders in the area of nuclear energy application.

2. LIST OF TOPICS

In keeping with the broad approach described in the objectives above, the following subjects will be covered in the topical sessions (session structure may evolve to accommodate contributions):

- **Current outlook for spent fuel management:** the status and trends of spent fuel management in Member States, spent fuel arising, amount of spent fuel stored, wet and dry storage capacities, storage facilities under construction and in planning, and national policy for the back end of the fuel cycle (e.g. papers organized by region).
- **Technological innovations and operating experience:** technological approaches for long term storage, new storage concepts, spent fuel and material behaviour in long term storage, operating experience in wet and dry storage.
- **Safety framework for spent fuel management:** licensing and regulatory practices for spent fuel storage facilities, licence extension for existing facilities, security considerations.
- **New and future spent fuel management strategies:** highly enriched fuel, high burnup fuel, MOX fuel, advanced materials for storage racks and baskets, quality and maintenance of records, reprocessing and recycling technologies.

A **Poster Session** covering topics from the topical sessions will also be held.

Participants are encouraged to address any of the topics above using a broad perspective to address relevant interfaces (e.g. safeguards, transportation, disposal, future fuel cycles).

3. PAPERS/POSTERS AND CONFERENCE PROCEEDINGS

Concise papers on issues falling within the topics outlined in Section 2 may be submitted as contributions to the conference. All papers, apart from invited review papers, must present original work; they should not have been published elsewhere.

(a) Submission of Synopses

Persons who wish to present a paper or poster for the conference must submit a two-page synopsis of about 800 words (in English), together with the completed Form for Submission of a Paper (**Form B**) and the Participation Form (**Form A**), to the competent national authority for official transmission to the IAEA in time for them to be received at the IAEA by **10 December 2009** (see section 9).

In addition, the synopsis should be sent electronically to the IAEA Scientific Secretariat, e-mail: SFMCONF2010@iaea.org

The instructions and specifications how to prepare the synopsis, how to access and use the template and how to submit it electronically are given in the attachment. Also attached is a "Sample Extended Synopsis".

The synopsis will be considered by the Programme Committee only if the Participation Form (Form A) and Form for Submission of a Paper (Form B) have been received by the IAEA through official government channels (see Section 9).

(b) Acceptance of papers/posters

Given the number of papers anticipated and the need to provide ample time for discussion, the number of papers that can be accepted for oral presentation is limited. Authors who would prefer to present their papers in a poster session are requested to indicate this preference on the participation form.

Authors will be notified by the end of January 2010 whether their papers have been accepted by the Programme Committee for oral presentation or for presentation as a poster. Following acceptance of their paper they will be informed of the assigned paper/poster number and the session of presentation.

(c) Submission of full manuscripts

Instructions and guidelines regarding the submission of the full manuscript for authors with accepted papers/posters will be available on the conference website by the end of January 2010.

(d) Proceedings

The proceedings will be published by the IAEA as soon as possible after the conference.

4. PARTICIPATION

All persons wishing to participate in the conference are requested to **register in advance online** via the conference website:

<http://www-pub.iaea.org/MTCD/Meetings/Announcements.asp?ConfID=38089>

In addition, they must submit Participation Form (**Form A**) as indicated in section 9 'Channels of Communication'. A participant will be accepted only if Form A is transmitted **through** the competent official authority of a Member State of the IAEA or by an organization invited to participate.

Participants whose designations have been received by the IAEA will be notified directly approximately three months before the conference.

5. EXPENDITURES/GRANTS

No registration fee is charged to participants.

As a general rule, the IAEA does not pay the cost of attendance (i.e. travel and living expenses) of participants. However, limited funds are available to help meet the cost of the attendance of selected **specialists mainly from developing countries with low economic resources**. Selection preference will be given to applicants with an accepted paper or poster. The grants will be lump sums usually covering only part of the cost of attendance. Generally, not more than one grant will be awarded to any one country.

To apply for a travel grant, please complete and send the **Grant Application Form (Form C)** to your appropriate government authority (see section 9) together with the **Participation Form (Form A)** for subsequent transmission to the IAEA.

All forms must reach the IAEA by **10 December 2009** at the latest. Incomplete or late applications cannot be considered.

6. WORKING LANGUAGE

The working language of the conference will be English. All communications, synopsis, abstracts and papers sent to the IAEA must therefore be in English.

7. ACCOMMODATION

Detailed information on accommodation and other administrative details will be available on the conference website well in advance of the conference.

8. VISA

Designated participants who require a visa to enter Austria should submit the necessary application to the nearest diplomatic or consular representative of Austria at least **4 weeks** before entry into Austria. Please note that Austria is a Schengen State and therefore persons who require 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.

9. CHANNELS OF COMMUNICATION

The following forms must be sent to the competent official authority of the participant's country (i.e. Ministry of Foreign Affairs or national atomic energy authority) for onward transmission to the IAEA by **10 December 2009**:

- Participation Form (Form A)
- Form for Submission of a Paper (Form B) + one copy of each synopsis, if applicable
In addition, the synopsis should be sent electronically to the IAEA Scientific Secretariat, email: SFMCONF2010@iaea.org
- Grant Application Form (Form C), if applicable

Subsequent correspondence on **scientific matters** should be sent to one of the IAEA Scientific Secretaries and correspondence on **administrative matters** to the IAEA Conference coordinator.

10. IAEA SECRETARIAT:

Scientific Secretaries:

Mr. Philip E. Metcalf
Division of Radiation, Transport and Waste Safety
Telephone: (+43 1) 2600 22676
Telefax (+43 1) 26007
Email: SFMCONF2010@iaea.org

Mr. Zvonko Lovasic
Division of Nuclear Fuel Cycle and Waste Technology
Telephone: (+43 1) 2600 22767
Telefax: (+43 1) 26007
Email: SFMCONF2010@iaea.org

Conference coordinator:

Ms. Martina Khaelss
Division of Conference and Document Services
Telephone: (+43 1) 2600 21315
Telefax: (+43 1) 26007
Email: m.khaelss@iaea.org

IAEA Secretariat:

International Atomic Energy Agency
IAEA-CN-178
Vienna International Centre
P.O. Box 100
Wagramer Strasse 5
1400 Vienna, Austria

Telephone: (+43 1) 2600 (0) plus extension
Telefax: (+43 1) 26007
Electronic mail: official.mail@iaea.org
Internet: <http://www.iaea.org>

11. CONFERENCE WEB PAGE

The conference website address is:

<http://www-pub.iaea.org/MTCD/Meetings/Announcements.asp?ConfID=38089>