

# International Conference on Management of Spent Fuel from Nuclear Power Reactors: An Integrated Approach to the Back End of the Fuel Cycle



**Monday, 15 June 2015 - Friday, 19 June 2015**

**VIC**

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The purpose of the conference is to highlight the importance of an integrated long term approach to the management of spent fuel from power reactors. The conference will discuss progress achieved in connection with the back end of the nuclear fuel cycle as well as associated challenges, and will cover, in particular, the impact of decisions made at the front end, technological developments, the regulatory framework and safety aspects. The conference will also allow for the evaluation of advances in the management of spent fuel from power reactors since the inception of the IAEA conferences on this topic, as well as for the identification of pending issues and anticipated future challenges. On this basis, the outcomes of the conference will contribute to defining future programmes of the IAEA in the field of managing spent fuel from power reactors.</div>

## **Storage options in support of the integrated approach**

- 1) Advantages and disadvantages of different options (e.g. centralized versus on-site storage, wet versus dry storage, single-use versus dual-purpose or multi-use casks)
- 2) When, how and why to shift from one technology to another
- 3) Latest technology developments
- 4) International cooperation in developing spent fuel storage options.

## **Spent fuel management strategies**

- 1) Interdependencies between the different steps of a strategy, lessons learned from Member States' programmes, the information required to support successful strategy implementation, etc;
- 2) Experience in strategy development and implementation, engaging key interested parties in strategy development, managing uncertainties and interfaces;
- 3) Different considerations for large and small nuclear power programmes;
- 4) Newcomer approach/experience in developing a long term strategy.

## **Status and challenges in an integrated approach:**

- 1) Experience in designing and operating SFM facilities
- 2) Results of the Joint Working Group on Guidance for an Integrated Transport and Storage Safety Case for Dual Purpose Casks for Spent Nuclear Fuel
- 3) Transport/storage/reprocessing/disposal interfaces
- 4) Consequences on the availability of spent fuel disposal
- 5 ) Governmental, technical and legal/regulatory aspects of spent fuel storage, transport, reprocessing and disposal

6) Management of damaged fuel (storage, reprocessing, transport and disposal)

7) Technological advances to accommodate changes in the nuclear fuel cycle

8) Security aspects of SFM

## **Ageing management programmes**

1) Surveillance and monitoring

2) Time limited ageing analysis

3) How to develop an international database on ageing experience and ageing management plans

## **Impact of the front end of the nuclear fuel cycle on the back end**

1) Advantages and disadvantages of alternative fuels and revised reactor operation (e.g. new claddings, thorium fuels, high burnup fuel and mixed oxide fuel)

## **Research and development required to deliver an integrated approach**

1) For example, current studies on hydrogen behaviour in zirconium cladding, drying of spent fuels, corrosion issues

## **Safety aspects of spent fuel management**

1) The licensing process for SFM (storage, transport after storage, reprocessing and disposal)

2) Safety case development for the different steps of SFM

3) Safety and technological consequences of reprocessing (or not) spent fuel

4) Safety considerations for dual purpose casks