46th Meeting of the Waste Safety Standards Committee

19 – 21 November 2018

Item W 4.1 International Conference on the Management of Spent Fuel from Nuclear Power Reactors 2019: Learning from the Past, Enabling the Future

– For information –

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IAEA
Background: Objectives of SFM’15

• To present recent developments in technology, regulatory framework and safety aspects as well as national strategies on SFM

• To raise awareness on how decisions taken in the front-end of the fuel cycle and the availability of disposal facilities impact the management of spent fuel

• To identify pending issues and anticipated future challenges
Scope of SFM’19

- covers the entire Nuclear Fuel Cycle as it impacts spent fuel management from the past, present and future nuclear energy systems

- How the management of spent fuel can be affected by the decisions taken in the rest of the nuclear fuel cycle

THEME

- Learning from the past, enabling the future
Objectives 2019

• To understand the national strategies on SFM and what is needed to achieve future national energy goals

• To illustrate the impacts of an integrated approach to the nuclear fuel cycle on the management of spent fuel

• To overcome current challenges and to prepare for the future
Track - 1. - National Strategies (all day)

– SFM: an asset for the future?

• presentations on national strategies, including perspectives on SFM as an asset (either recycling or direct disposal) and what will be needed for achievement of future national needs. Countries include URLs activities related to SFM
Track 2 – Spent Fuel and High Level Waste storage and subsequent transportability (short-term, long-term and extended storage)

1. Management of damaged and degraded fuel
2. Behavior of SF during storage (wet and dry)
3. Ageing management of storage systems (wet and dry)
4. Ageing of HLW and related storage systems
5. Demonstrating transportability: Specific requirements, including multipurpose canisters, waste packages
6. Changing security requirements with time
Track 3 – Transportation in the back-end

- Operating experiences, achievements and lessons learned from long term operations (including overseas shipments, transportation plan, security, safety, public engagement)

- Evolution of international regulations for transportation (SSR-6)

- Special considerations to HBU, damaged fuel, SF, recycling materials
Track – 4: Recycling as a spent fuel management option

• Operating experiences and lessons learned
• Recycling evolution:
  – Fuel and recycling products
  – U/Pu co-management (non-proliferation aspects)
  – Reduction of radwaste volume
  – Economics
• Improvements in waste management from recycling activities
Track – 5: Impacts of advanced nuclear energy systems on the Back-end of the fuel cycle

1. Accident Tolerant Fuels

2. Advanced fuel cycles:
   - U/Pu Multirecycling in Light water reactors and Fast Reactors
   - Minor Actinides P&T (different systems Fast Reactors, Advanced Driven Systems, Molten Salt Reactors)
   - HLW partitioning and reuse of valuable material

3. Other advanced designs from Gen-IV (SMR, High Temperature Gas-cooled Reactors, etc)
Track – 6: Disposal

1. Discriminating characteristics of heat generating waste on the design of disposal facilities:
   • Types of SF (UOX, HBU, MOX), HLW
   • Spacing, host geology, ventilation, backfill, operational safety, decay heat, timeline
   • Retrievability and reversibility

2. Predisposal constraints for SF
   • Cooling, containments, characterization, data

3. Safeguards of disposed SF pre- and post-closure

4. Stakeholders engagement, including site selection

5. Multinational collaborations(*)
   (*) encourage participation of IFNEC or INPRO

6. Post-closure information management
Track – 7: Challenges from an integrated approach to the BEFC system (including Storage, Transport, Recycling, Disposal)

- Consistency of technical requirements across the back-end of the fuel cycle (waste acceptance criteria, safety requirements, information, knowledge management, etc)
- Conflicts among the drivers and impediments to a back-end strategy (e.g. economics, politics, technology, time, public support, resources, etc.)
- Risk management and decision making with uncertainties
- Optimization, Flexibility and Resilience (e.g. how we retain options for future changes and how strategy survive if something happened)
Young Generation Event

Competition in cooperation with UN-NYG

• Aimed at students (graduate/PhD) and young professionals (<5 years experience in field)

  – Submit conference paper on eligible topic in open call, or potential to submit on topic relating to scope (discretion of selection committee)

• 5 winning participants will be granted to present at a YGE panel session
Date of the IC Conference

• 24-28 June 2019
  – Monday morning till Friday noon
• Important deadlines:

<table>
<thead>
<tr>
<th>Notification of acceptance of abstract</th>
<th>18 December 2019</th>
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<tbody>
<tr>
<td>Electronic submission of full paper</td>
<td>25 February 2019</td>
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<tr>
<td>Notification of review of full paper, if applicable</td>
<td>29 April 2019</td>
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<tr>
<td>Deadline for revised papers</td>
<td>31 May 2019</td>
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Current situation

• Abstract submission in INDICO, closed
• 166 Abstracts submitted
• 128 Submitted Oral presentations
• 38 Submitted Poster presentations
Thank you!