Waste Safety Standards Committee

37th Meeting

23-27 June 2014

Agenda Item 14.7


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WES/NSRW
International and Harmonization Projects

- **Joint Working Group for the Dual Purpose Cask for Spent Nuclear Fuel**
  - Safety case covering both transportation / storage
  - Extended periods of storage and meeting transport requirements

- **CRAFT**
  - Application of GSG-3, SADRWMS methodology & SAFRAN Tool
  - Illustrative examples to complement GSG-3

- **PRISM / PRISMA**
  - Safety case development
  - Use of the safety case in the decision making process during the lifetime of a near surface disposal facility.

- **GEOSAF I / II**
  - Safety on geological disposal
  - Regulatory expectations throughout development and operation
  - Assessment – engineering, site, radiological impact, integration

- **HIDRA**
  - Human intrusion for both geological / near-surface disposal facilities
  - Relationship with siting/ designing/ waste acceptance criteria

- **ILW**
  - Draft technical document on disposal of ILW
Joint WG for the DPC for Spent Nuclear Fuel (1)

Background
- Growing amount of SNF in storage caused by delays in decision on SF disposition
  - Necessity of additional storage capacity
  1. Wet storage
  2. Dry storage
     … Includes DPCs designed for both transport / storage
- Intention is to provide guidance to MSs for integrating safety cases for storage and transport in a holistic manner
  - Establishment of a joint international working group

Objective
1. To provide an IAEA document containing recommendations and guidance for the structure and contents of an Integrated Safety Case for a dual purpose storage and transport cask.
2. Recommendation for changes to be made to existing IAEA documents
April 2011: 1st Plenary meeting
- Adoption of the Terms of Reference
- Drafting outline and contents


April 2012: 2nd Plenary meeting
- Review / Comment / Revise the first draft
- Major issues
  - Definition of safety case for DPCs
  - How to address acceptance criteria
  - How to discuss aging issues

April 2013: 3rd Plenary meeting
- Mostly finalized document
- Recommendations to WASSC / TRANSSC
- Future activities

IAEA

Recommendations to TRANSSC

- Introducing a definition of DPC packages
- Considerations on ageing of packages
- Considerations of DPC packages to “Transitional Arrangements”
- Develop a section on compensating arrangements and gap analysis methods in guidance-level document

Recommendations to WASSC

- Detailed description on “ageing management program” in SSG-15
- Support developing generic test conditions for storage and on-site transport
International Workshop on the Development and Application of a Safety Case for Dual Purpose Casks for Spent Nuclear Fuel

**Date:**
19–21 May 2014

**Meeting Chair:**
Mr. Bernhard Droste (BAM, Germany)

**Participants:**
54 participants
from 19 Member States + EU

**Objectives:**
1. to enhance the understanding of the concept of an integrated safety case;
2. to analyse the gap between the current practices within Member States and the proposed concept;
3. to discuss further improvements of the application of the integrated safety case concept.
Sessions

• 3 Technical session + 1 Panel session
  ❖ Legal and regulatory framework
  ❖ Design of storage facilities and operational experience
  ❖ Designing casks for dual-purpose operations
  ❖ Discussions on implementation of safety case / future IAEA activities (panel session)
3 Technical sessions:
4-12 presentations + ca. 1.5h discussion

Major discussions
• Adoption of a DPC strategy involves the provision of plausible and practical regulatory framework and technical considerations for long term management of DPCs. This includes contingency plans if there is a need to unload the spent fuel due to technical problems, or transport from the storage facility earlier than planned or other reasons.
Major discussions (cont.)

• Long-term management of DPCs requires a safety case that needs to be evolved during the whole duration of storage period and forthcoming transport after storage.
  - cask and storage facility designs that consider
    - monitoring and inspection plans,
    - ageing management,
    - possible changes of storage plans,
    - measures for future incident;
  - R&D programmes to ensure the proposed safety case is robust enough even after long term storage.

• Non-technical concerns - record keeping and public acceptance over many decades
Panel Session

- Panel session
  - 2 hour session with 5 panellists + 2 IAEA staffs
- Discussions on implementation of SC and future activities
  - Some missing contents in draft TECDOC need to be considered in future activities
  - A document providing guidance for developing an AMP specifically for DPCs should be developed.
  - Guidance for developing a safety case for spent fuel in canisters for storage and transportation.
  - Consideration of changes in transport regulations with respect to DPC issues.
  - Keep activities like this Workshop
Recommendations for future IAEA activities (1)

1) A document providing guidance for developing an AMP specifically for DPCs should be developed.
   - Experience compendium
   - Lessons learned, design changes towards inspection for ageing management
   - AMP for records management and ageing management for regulatory changes and technological advances
   - Maintenance of the Safety Case during the storage period
   - Examples of safety-related components requiring reference within an AMP:
     - Seals / bolts
     - Shielding
     - Absorber materials
Recommendations for future IAEA activities (2)

2) Develop guidance for a methodology to develop acceptance criteria for storage and on-site transport including generic storage accident conditions

3) Information exchanges by relevant IAEA activities to discuss application of information in the TECDOC related to:
   a) Transport and storage of damaged fuel
   b) DPCs for high-level waste
   c) Guidance for developing a Safety Case for spent fuel in canisters for storage and transportation
   d) Multi-purpose containers to include use for disposal