International Spent Fuel Management Activities at WNTI

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Contents

I. WNTI Background

II. Transport Context and Relevant Experience

III. Current WNTI Activities

IV. Current Situation of Back End Transports

V. Summary
No Transport... No Nuclear Energy
WNTI Background
WNTI Background

• Founded in 1998 by three Founder Members (20 years young in 2018 !)
  AREVA, International Nuclear Services, Federation of Electric Power Companies of Japan

• In 2018, *approximately 50 members* from a wide range of industry sectors: radioisotope producers, major utilities, fuel producers, transport companies, package designers, package producers and mines...

• Head Office in London, with representatives in USA, Japan, South Africa, Australasia, China.
Observer Status at Major International Organisations

IAEA
International Atomic Energy Agency

IMO

UNited Nations

ICAO
International Civil Aviation Organization

ISO

Atoms For Peace
WNTI Strategy

• Bottom-up approach
  – Industry feedback to regulators
    • Operational experience
    • Lessons learnt

• Top-down approach
  – Support on understanding and interpretation of the Regulations to Industry
  – Development of Good Practice Documents
  – Organisation of thematic workshops
Developing awareness

- Website: www.wnti.co.uk
- Wide range of publications:
  - factsheets, information papers, good practices, standards, annual review
  - factual, straight forward, easy to read and print
- WNTI animated video:
- Participation and interaction at Conferences, articles, etc
- Communications members to members
- Regional and topical WORKSHOPS
Transport Context and Relevant Experience
Regulations for the Transport of Radioactive Materials
Modes & Types of Transport of Back End Materials

- Sea, Air, Road and Rail
- Limitations
- Segregation
- Safety & Security
Transport Key Principles

- **Safety**: to protect people and the environment from the hazards of the materials
- **Security**: to protect the material from malicious acts, diversion, etc...
- Safety vested in the packages
- The more hazardous/sensitive the radioactive content is, the more robust the package/cask will be
- **Safety in depth**: a series of barriers between the material transported and persons and environment
- **Defence in depth**: Strength - Compliance - Organisation
UK national and international shipments
(Reprocessing in the UK)

The context of Transport capability

- Reprocessing developments started in the UK in the 1940s, with large scale development during the 1950s.

- In the 1970s, British Nuclear Fuels plc (BNFL), decided to construct an oxide fuel reprocessing plant (Thorp) at Sellafield, in addition to the existing Magnox facility.

- Significant investment in Thorp and associated infrastructure was largely funded by the UK and international utility customers. A significant investment was made in Spent Fuel Transport infrastructure.

- Thorp, which commenced active operations in 1994, continues to operate at Sellafield, serving UK and overseas customers. It is planned to complete its work in 2018.

- Low, Intermediate and High Level Waste treatment and storage facilities in the UK operate in support of reprocessing activities.

- Returns of High Level Waste to overseas customers, in accordance with UK Government policy, commenced in 2009. The UK thus has many decades of Spent Fuel Transport, Reprocessing and waste management expertise.
Current WNTI Activities
WNTI Activities

WNTI Working Groups

• Industry-led.

• Chaired by industry’s representatives.

• The WNTI Secretariat only facilitates the organisation of the Working Groups (WGs).

• Agendas are generated from issues of concern for the WNTI members - industry addresses its concerns via WNTI WGs.
WNTI Activities

WNTI WGs Activity

Active Working Group (WG)
- HEXT Working Group
- Uranium Ore Concentrates (UOC) Transport Working Group
- Back End Transport Working Group
- Transport Security Working Group
- SSR-6 Industry Working Group

Dormant Working Group
- Sustaining Shipments Working Group
- Transport Supply Chain Industry Working Group

Resuming
- Emergency Preparedness and Response Working Group
Back End Transport: WNTI Activities

- A WNTI industry working group dedicated to Back End Transport, as part of Spent Fuel Management

- Factsheets, Information Papers and Good Practice Guides

- Dedicated related workshops

- Participation in international meetings and conferences
Current situation of Back-End Transports
The WNTI Back End Transport WG (BET WG) has been working for over 7 years on topics that are known to be issues for industry, stakeholder groups and regulators. The focus has changed to reflect the move from having completed many Spent Fuel Transports to moving towards clean-up and Decommissioning.

- Cask Decommissioning
- Waste transport regulation framework
- Waste Inventory Characterisation: the “4Cs” (Categorisation, Conditioning, Characterisation, Classification)
- Dual Purpose Casks

BET WG Members have been represented at various Regulatory working group forums and conferences.
Fact Sheets and Good Practice Guide about Back End Transport are published and freely accessible:

www.wnti.co.uk

• Good Practice Guide on Communicating Radioactive Materials Transport

• Fact Sheet – Nuclear Liability for Transport.

• A WNTI Good Practice Guide/fact sheet on “Inventory Principles” is to be published
Dual Purpose Casks (DPC)

• Several options for the back end
  – Reprocessing, interim storage in pool, dry interim storage, final repository storage

• Integrated safety demonstration for DPC
  – IAEA Joint Working Group on Guidance for an Integrated Transport and Storage Safety Case for Dual Purpose Casks for Spent Fuel

• Revision cycle for Transport Regulation
  – To include a gap analysis for transport after long term storage
  – Ageing Management
Transport of Large Components

- Evolution of the Transport Regulations

- WNTI factsheet “Transport of Large Objects and Special Arrangement”

- Sharing Industry Experiences
  - Route planning
  - Public Information
Evolution and Challenges on the Back End Transport

• IT systems
• Security
• Transparency and Communication
• Emergency Preparedness and Response
• Regulatory Harmonization
• Packaging licensing and transport approvals
• Cask decommissioning
• Non approved packages that meet the requirements of the 1996 Edition, and following editions up to 2012 Edition of SSR-6

  – May continue in transport provided that they were prepared for transport prior to 31 Dec 2025, or may continue to be used provided that the following conditions are met:

    (i) The applicable requirements of para. 306 of the 2018 Edition of SSR-6 are applied

    (ii) The activity limits and classification in Section IV of the 2018 Edition of SSR-6 are applied;

    (iii) The requirements and controls for transport in Section V of the 2018 Edition of SSR-6 are applied.

    (iv) The packaging was not manufactured or modified after 31 Dec 2025.
SSR-6 2018 Edition – Transitional Arrangements (¶820, ¶821A))

• Packages that meet the requirements of the 1996 Edition, and following editions up to 2012 Edition of SSR-6
  – May continue to be used provided that the following conditions are met:
    (i) The package design is subject to multilateral approval after December 31, 2025;
    (ii) The applicable requirements of para. 306 of the 2018 Edition of SSR-6 are applied
    (iii) The activity limits and material restrictions of Section IV of the 2018 Edition of SSR-6 are applied;
    (iv) The requirements and controls for transport in Section V of the 2018 Edition of SSR-6 are applied.
  - No new manufacture of packaging shall be permitted to commence after 31 December 2028.
WNTI - Other International Presence

• WNTI is a Member of the CINS (Cargo Incident Notification System)
  – Advising Container Carriers shipping companies on the transport of class7 materials

• Permanent engagement to support the PATRAM conferences:
  – On behalf of the UK Department of Transport, WNTI organised PATRAM 2010 in London
  – WNTI partnered with INMM to support the Japanese Industry for the organisation of PATRAM 2016 in Kobe
  – WNTI is working with INMM on PATRAM 2019, and then PATRAM 2022.
Summary

- WNTI represents the voice of its Members and the Transport Industries at Intergovernmental organizations and provides factual information in Nuclear Transport.

- The Member Working Groups are a key component of the WNTI work. The topics covered reflect member, industry and regulator inputs.

- WNTI promotes stable regulatory frameworks and common technical advances in Spent Fuel Management/Back End Transport

- The Nuclear Transport Industry has a record of delivering safe, reliable and efficient Spent Fuel Management transport for Nuclear operators

- The WNTI is pleased to contribute to the on-going safe and secure transport of Spent Fuel, and related activities.
Thank you!

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