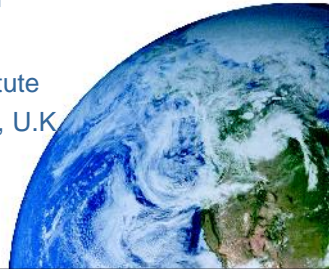


INMM 30th Spent Fuel Management Seminar

Henry-Jacques Neau

Secretary General

World Nuclear Transport Institute
310-312 Regent Street, London, U.K.
hjneau@wnti.co.uk
14th January 2015



What is the World Nuclear Transport Institute? What is it for?

- Founded in 1998 by three Founder Members
AREVA, INS, FEPC
- 50 Members from a wide range of industry sectors:
radioisotopes producers, major utilities, fuel producers,
transport companies, package designers, package
producers and mines...

WNTI Members



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Observer Status at Major International Organisations



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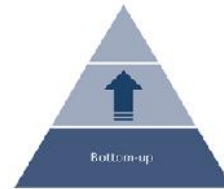


A bottom-up... and top-down approach

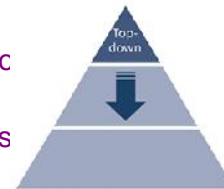


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- Bottom-up approach
 - Industry Feedback to Regulators
 - Operational Experience
 - Lessons learnt



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



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No Transport... no nuclear energy



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... and the RAM transport is ...

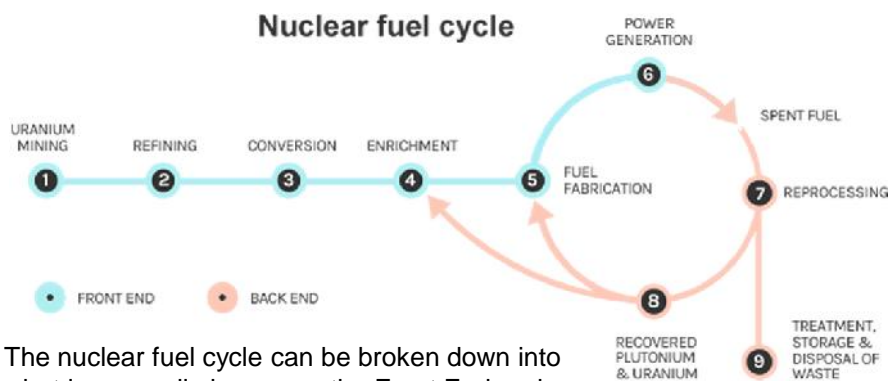
....the only nuclear energy related activity taking place in the Public Domain



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The Nuclear Fuel Cycle



The nuclear fuel cycle can be broken down into what is generally known as the Front End and Back End operations. The back end covers the operations concerned with spent fuel that leaves reactors.

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Modes & Types of Transport of Back End Materials



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- Sea, Air, Road and Rail

- Limitations



- Segregation



- Safety & Security



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Transport Key Principles



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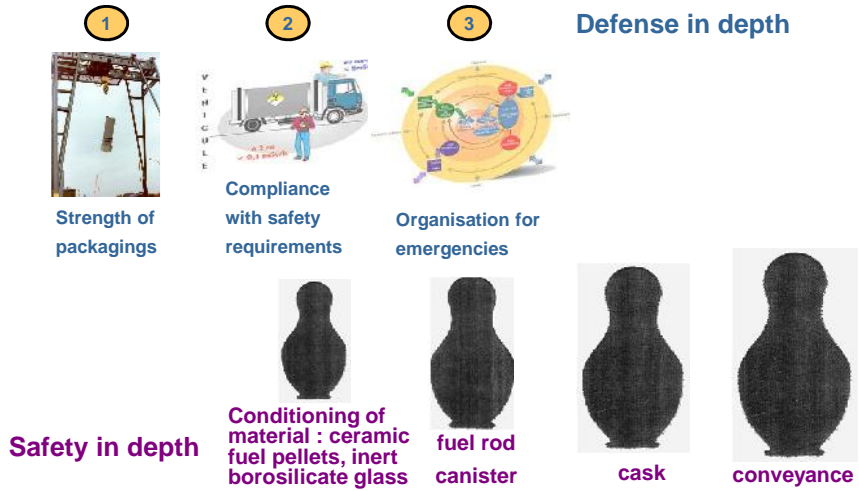
- **Safety**: to protect people and the environment from the hazards of the materials
- **Security**: to protect the material from malicious acts, diversion, etc...
- Safety vested on the packages
- The more hazardous/sensitive is the radioactive content, the more robust is the package/cask.
- **Safety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

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Transport Key Principles



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Regulations for the transport of Radioactive Materials A proven efficiency...



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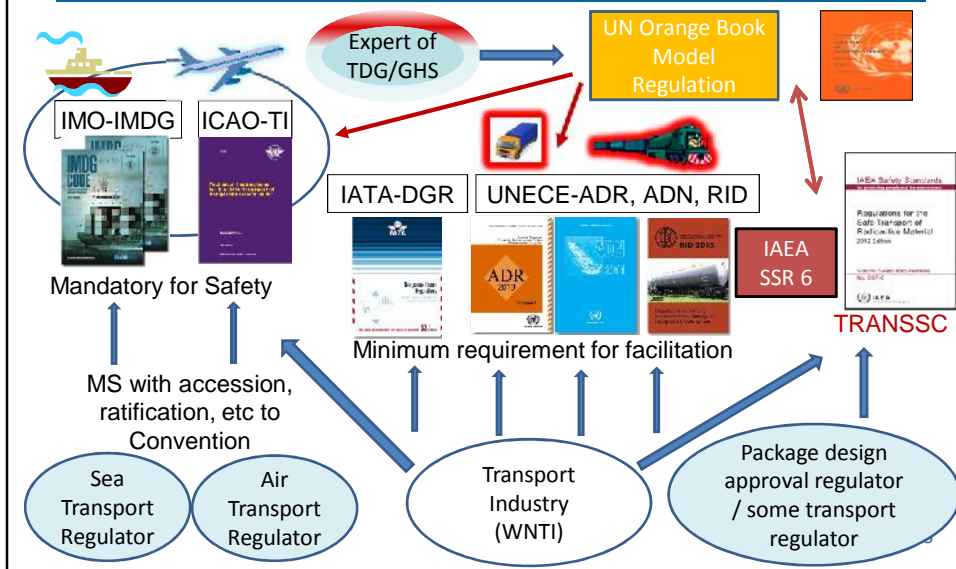
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But also...a challenging world...



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WNTI Back End Transport Industry Working Group



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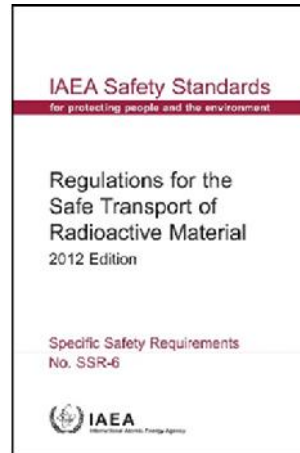
- The WNTI Back End Transport WG (BET WG) has been working for over 5 years on topics known to be issues for industry, stakeholder groups and regulators.
 - ✓ Fissile Exceptions
 - ✓ Large Objects transport
 - ✓ Waste Characterisation
 - ✓ Dual Purpose Casks
- BET Members have been represented on various Regulatory working groups forums and conferences.

Fissile Exceptions



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- In 2007, the IAEA initiated a review of the criteria used to except fissile materials from the requirements of the IAEA Safe Regulations for the Safe Transport of Radioactive Materials (SSR-6).
- IAEA Consultants Meetings were held in order to devise a better set of criteria.
 - WNTI provided industry prospective.



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Fissile Exceptions



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- A major change has been made to the requirements for fissile-exceptions in the latest edition of the IAEA transport regulations (SSR-6).
- In addition to the 2012 edition of SSR-6, IAEA is aiming to publish Guidance on the Revised Provisions in SSR-6 for Transport of Fissile Material.
 - Review of the Guidance is still in progress.
- In parallel, WNTI published Information Paper No. 10
 - ✓ *New Fissile Exception Provisions in the IAEA Transport Regulations (SSR-6)*
 - http://www.wnti.co.uk/media/60110/IP10_EN_NOV13_V1.pdf

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Transport of Large Objects



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- Issue: Large Objects as IP-2 packages cannot meet necessarily SSR-6 requirements (e.g. drop test).
- Progress: transported under “special arrangements”
 - The approval from Competent Authority can be difficult and time-consuming...



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Transport of Large Objects



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- In the last review cycle of the IAEA Transport Regulations, intensive discussion on such transport had been conducted and a new guidance for the transport of large objects was included in the new Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (SSG-26).
 - WNTI provided industry prospective
- Appendix VII of SSG-26
 - *Guidance for Transport of Large Components under Special Arrangements*

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Transport of Large Objects



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- In addition, IAEA established WG for discussing change proposals on Transport of Large Objects for the next review cycle.
 - WNTI provided industry prospective
 - IAEA review cycle starting in 2015
- In parallel, WNTI published Fact Sheet No. 9
 - ✓ *Transport of Large Objects and Special Arrangement*
 - http://www.wnti.co.uk/media/61396/FS9_EN_NOV13_V1.pdf

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Dual Purpose Casks (DPC)



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- Issue: Spent Fuel accumulating in nuclear power Plants
- Use dual purpose casks
- However, today we have different time scales for which approvals for storage and transport are valid
- There is the need for the use of dual purpose casks



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Dual Purpose Casks (DPC)



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- The WNTI participates in the IAEA Joint Working Group
 - Joint Working Group on the Guidance for an Integrated Transport and Storage Safety Case for Dual Purpose Casks for Spent Nuclear Fuel
- Draft IAEA TECDOC
 - *Preparation of a Safety Case for a Dual Purpose Cask for Storage and Transport of Spent Fuel*
 - Latest draft dated 12 March 2014
- The WNTI participates in the IAEA Consultancy meeting and Correspondence Working Group
 - IAEA review cycle starting in 2015

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Waste Characterisation



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- Issue: wide discrepancies between the forecasting and actual demand
- WNTI will publish shortly a Good Practice Guide identifying the 9 waste inventory principles deemed essential in order to move towards an integrated inventory data set.
 - *WNTI Good Practices Guide - Inventory Principles - A Move Towards Reliable Packaging and Transport Data*



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WNTI Back End Transport Workshop



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- WNTI is looking to determine future trends and issues for Waste and Back End Transport which industry, regulator and stakeholders are encountering now or in the future.
- WNTI BET WG has realised that waste issues such as waste characterisation and forecasting, waste repository and disposal, together with harmonisation of regulatory frameworks may be major challenges for worldwide Back End Transport.
- The WNTI Back End Transport Workshop took place on 9 December 2014 in London.

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WNTI Back End Transport Workshop



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- Outline of the Workshop:
 - Waste streams - Characterisation and Forecasting of Waste
 - Generic global future prospects and challenges for nuclear waste and spent fuel transport, storage and post-storage
 - Country specific examples of future prospects, challenges and current situation

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WNTI Back End Transport Workshop



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- Waste streams - Characterisation and Forecasting of Waste
 - Debrief of IAEA Joint Working Group on Spent Fuel and Radioactive Waste
 - To discuss the preparation of a Status and Trends report referencing the global status of Spent Fuel and Radioactive Waste Management.
 - To identify how the existing IAEA database NEWMDB (The Net-Enabled Radioactive Waste Management Database) could help with the drafting of the report
 - The 4C's of Back End Transport (Categorisation, Conditioning, Characterisation and Classification)
 - Sellafield Ltd experience of Waste management

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WNTI Back End Transport Workshop



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- Generic global future prospects and challenges for nuclear waste and spent fuel transport, storage and post-storage
 - Harmonisation of Regulatory Framework for Waste and Transport
 - Country C vs. Country D
 - Year Y vs. Year Z
 - Waste and Back End material storage vs. Transport
 - Determination of Loadings on Spent Nuclear Fuel Assemblies During Normal Conditions of Transport
 - Validating the safe transport of high burn-up fuels after long term storage

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WNTI Back End Transport Workshop



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- Country specific examples of future prospects, challenges and current situation
 - The United States
 - France
 - Russia
 - Canada
 - Japan
 - Switzerland
 - The United Kingdom
 - China

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Developing awareness



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- 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



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Thank you



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- For more information:
 - www.wnti.co.uk
 - wnti@wnti.co.uk

