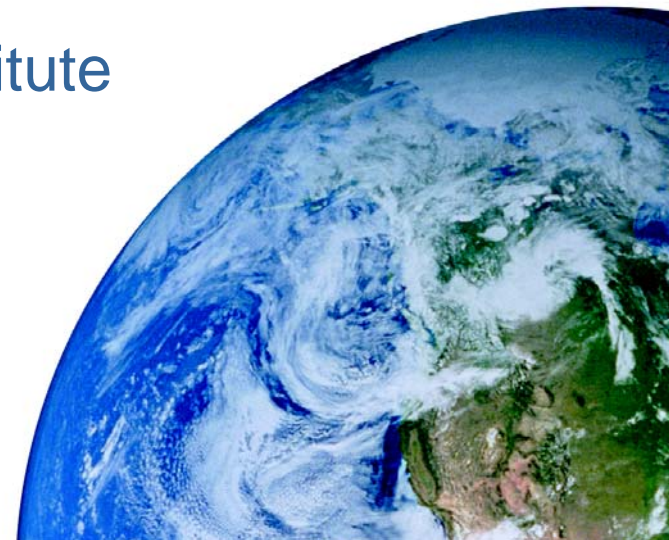


Transport Security – An Operational View

Matt Fox and Andre Stasse
World Nuclear Transport Institute



Security Measures

- Security
 - is the various measures to guard against malicious acts
 - is the responsibility of the State
- Industry must comply with State Security regulations
- Nuclear Fuel Materials
 - Subject to extensive national protection measures including
 - Design of the transport vehicle
 - Use of security forces
 - Employee screening
 - Satellite tracking

Security Measures

- Physical protection measures for international transports include
 - Limiting the time in transit
 - Varying the routes used
 - Avoiding bottle necks
 - Limiting the knowledge of the shipments on a “need to know basis”

Security Measures

- Since 2001 interest has shifted to all nuclear fuel cycle materials including
 - HLW
 - MOX
 - Fuel assemblies
- All these materials are transported by sea in dedicated vessels
- Land transports are also by dedicated road or rail wagons
- Routes have to be approved by the competent authorities in the countries concerned

IAEA- Nuclear Security Series

No 9



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- In the past the IAEA main focus was on safety so this was a major change in direction for the IAEA and the industry.
- In 2002 work began on developing security requirements for all radioactive materials
- 2008 publication Nuclear Security Series No 9 “Security in the Transport of Radioactive Materials”

- The United Nations Model Regulations contain provision for
 - basic security measure for all dangerous goods
 - enhanced security measures for *high consequence dangerous goods*
 - *high consequence dangerous goods include*
 - *dangerous chemicals*
 - *flammable liquids*
 - *gasses*
 - radioactive materials in type B and C packages

- Additional Security for Maritime Transports
 - International Maritime Organisation
 - International Ship and Port Facility Security Code
 - Security for the ports and shore side
 - Amendments to the Safety of Life at Sea Convention
 - Long range identification and tracking of ships
 - The 2005 Protocol to the Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation, 1988
 - states that a person commits an offence

Suppression of Unlawful Acts Against the Safety of Maritime Navigation



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- uses against or on a ship or discharging from a ship any radioactive material in a manner that causes or is likely to cause death or serious injury or damage;
- transports on board a ship any radioactive material, knowing that it is intended to be used to cause, or in a threat to cause, death or serious injury or damage
- transports materials knowing that it is intended to be used in a nuclear explosive activity or in any other nuclear activity not under safeguards
- transports any equipment, materials or software that significantly contributes to the design, manufacture or delivery of a BCN weapon, with the intention that it will be used for such purpose.
- The transportation of nuclear material is not considered an offence if such items or materials are transported to or from the territory of, or is otherwise transported under the control of, a State Party to the Treaty on the Non Proliferation of Nuclear Weapons

Three Instruments & The Transport Industry



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- Three International Instruments
 - INFCIRC 225
 - Nuclear materials with a potential to produce a nuclear device
 - UN Model Regulations for high consequence dangerous goods (HCDG)
 - All dangerous goods consider to have a grave consequence if used maliciously
 - IAEA Security in the Transport of radioactive materials
 - All radioactive materials in transport

Industries Concern

- UN Model Regulations
 - High consequence radioactive materials
 - 3000 A1 for large sources
 - 3000 A2 for other radioactive materials
- IAEA Security in the Transport of Radioactive Materials
 - Enhanced security level
 - Radioactive sources (CoC) – 10D
 - Other materials – 3000 A2
- Difference in values for enhanced security
- Transporters do not understand D values

Industries Concern

- Difference in values for enhanced security levels
- Transporters do not understand D values

- Lack of harmonisation
 - IAEA v UN
 - At least for the next 4 years to resolve
 - Governments
 - Inconsistency between government requirements
 - this is specially of concern for international land transports

Assessment of the Real Risk

- Perceived risk
 - it is important to communicate a realistic assessment of the danger and the real risk
 - taking into account the properties of the material and the packaging
 - exaggerated perceptions in the minds of public and politicians could have a serious impact on the transport industry and the supply chain
 - In the event of an incident proper communication of the real danger

Risk assessment

- Risks are manageable
 - Un-irradiated materials present low radiological hazard
 - Unlikely targets
 - Consequences would not be severe
 - Highly radioactive materials
 - Metallic, ceramic, or vitreous
 - Not easily dispersed
 - Transported in robust packages
- Packages and the transport system are designed to ensure safety but they also provide security for realistic terrorist activities

Burden on Industry

- Many new requirements
 - Advance notice
 - This could increase the security threat
 - Monitoring
 - GPS, RFID
 - Escorts
 - Personnel screening
 - Additional training
 - Container screening
 - All adding additional cost which may lead to

- Denial and delays to transports