

Global
Material
Security



Identifying Transport Security Threats

Office of Global Material Security

U.S. Department of Energy
National Nuclear Security
Administration

Understanding the transport challenge



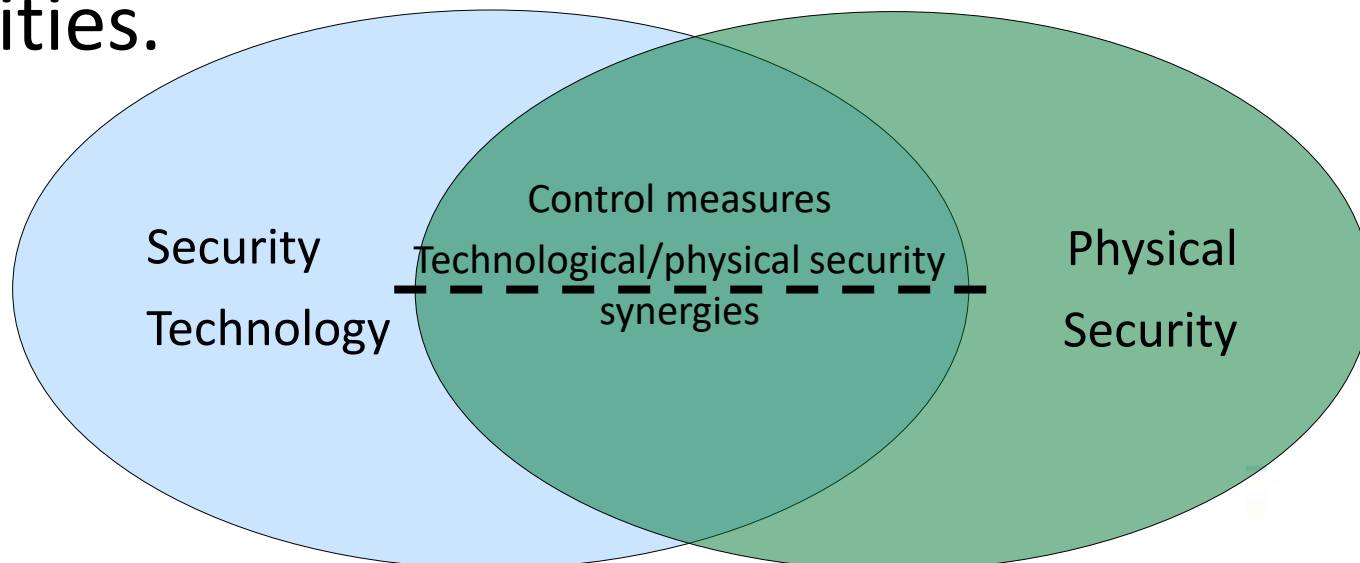
Volume: About 1,000,000 worldwide shipments each year (Category 1 and 2 radioactive sources).

Vulnerability:

- The Center for Nonproliferation Studies discovered 170 transport incidents with nuclear and radiological materials that were lost, stolen, or outside of regulatory control.
- According to the IAEA's ITDB 44% of the 479 theft-related incidents between 1993-2016 were transport related
- Transport occurs by water, road, rail, and air in the public domain
- Transport may involve modal and intermodal transfers where diversion is more easily accomplished



Physical (nuclear) security: The prevention and detection of and response to, theft, sabotage, unauthorized access, illegal transfer or other acts for malicious purposes using nuclear materials, other radioactive substances or their associated facilities.





Threat: A characterization of an adversary capable of causing undesirable consequences, including the objectives, motivation and capabilities, e.g. number of potential attackers, equipment, training and attack plan.



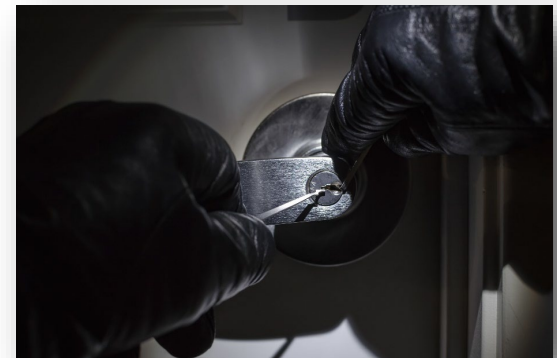
Malicious Act: is a deliberate act to remove radioactive material from authorized control (theft) or an act directed against radioactive material (sabotage) that could endanger:

- Workers
- The public
- And the environment by exposure to radiation or the release or dispersal of radioactive material
 - including the deliberate dispersion of radioactive material to cause economic and social disruption



Unauthorized Removal: is the theft or other unlawful taking of nuclear and other radioactive material during transport and in-transit storage

- For nuclear material, the unauthorized removal could be undertaken by an individual or group with malevolent intent for use in the construction of a nuclear explosive device, or for subsequent exposure or dispersal leading to harmful radiological consequences.
- For other radioactive material, the unauthorized removal of the material could be undertaken by an individual or group with malevolent intent for subsequent exposure or dispersal leading to harmful radiological consequence.



Key definitions



Sabotage: is any deliberate act directed against radioactive material in transport which could directly or indirectly endanger the health and safety of personnel, the public or the environment by exposure to radiation or release of radioactive substances.



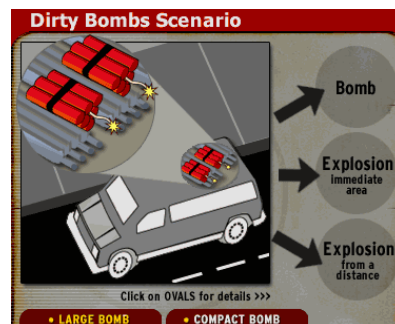
Adversary intent



The Nuclear Option Holds No Fear for ISIS, **August 5, 2015** (Syria)

“...The question being posed by western intelligence services is: **what will Isis do next** ? It may be partly answered by an **article on dirty bombs** in a recent issue of the group's glossy magazine **Dabiq**. Such a bomb isn't particularly ingenious, it's not even a nuclear device – it packs high explosive together with radioactive material. Flown in a light plane and crashed into a western transport hub, it would be unlikely to cause mass casualties, but **it would paralyze cities, spread fear and distract from actions planned elsewhere...**”

<http://www.thetimes.co.uk/tto/opinion/columnists/article4517360.ece> (Times Online – United Kingdom)



Threats or events encountered during transport



There are a wide range of events or incidents that could occur during shipments of radiological materials:

- Vehicle breakdown
- Vehicle accident
- Equipment road damage
- Fire and emergency medical services
- Vehicle hijacking
- Equipment sabotage
- Protest
- Attack on the radiological cargo

How we respond to these types of events requires planning.

Incident response and recovery



How we address or respond to incidents while a shipment is in route reflects our safety and security posture, preparedness and ultimately our transport system effectiveness.

We view response under two categories, Non-tactical (Non-hostile, Fire, Emergency Services) and Tactical (Law Enforcement Response)

Question:

Based on the previous slide, what would the response be within your respective countries?



As recommended by the IAEA, contingency planning is one of the most important actions we take for shipments of nuclear and radioactive materials.

Documenting these response actions should reflect how they will be accomplished.

Questions:

- How are relationships with responding agencies established?
- Are there written agreements or standing procedures between the regulatory body and responder agencies?
- Are responding agencies aware of appropriate precautions for radiological shipments?



Once established, coordination with response agencies should be an ongoing practice that communicates the types, forms, and category of materials transported.

Questions:

- Is training or familiarization provided by the regulatory body, carrier or shippers for response agencies, both Non-tactical and tactical?
- Has a program for drills or exercises been established evaluating agency capabilities and timely response to incidents?