

# Terrorism and the Maritime Shipment of Nuclear Materials

Monterey, April 2007

# Possible cargoes

- Containers on container ships
  - Yellow cake, or Uranium hexafluoride
- Cargoes on dedicated ships
  - Separated military plutonium ('Eurofab')
  - Separated civilian plutonium
  - Civilian spent fuel
  - Mixed oxide fuel
  - Fission products
  - Operational wastes

# Terrorist scenarios

- Taking the ship
  - Removing the cargo
  - Using the ship and cargo together
- Not taking the ship
  - Surface attack (*Cole/Limburg* scenarios)
  - Aircraft attack
  - Missile attack
  - Sub-surface attack

# Seizing a PNTL ship (the 'Eurofab' case)

(Applies in varying degrees to all 'plutonium' cargoes)

- Finding and approaching
  - Vessel alarm station and reporting schedule
- Boarding
  - 3x30mm rapid-fire naval guns
  - Civil Nuclear Constabulary
- Inside help

# Using the cargo

- Removing the cargo
  - Opening a transportation flask
  - Taking the flask from the ship
  - Making a nuclear explosive device
  - Making a radiological device
- Using the ship and cargo together
  - Sinking, fire, or explosion
  - Defensive measures

# Conclusions

- Taking PNTL ships with plutonium cargoes is beyond the capabilities of any but the special forces of the major states
- Taking non-plutonium cargoes would be very difficult and the possibilities would be very limited, even if it were done
- There are easier sources of nuclear material on land
- The most likely consequence of any attack on a ship carrying nuclear material is public anxiety
- This general problem of nuclear terrorism needs to be addressed via a programme of public education

# Greenpeace on 'Eurofab'

- 'an invitation to catastrophe: either a radioactive leak or *an attempt by a terrorist group to seize the shipment and make a nuclear bomb of its own*'

# Global initiative to combat nuclear terrorism – simple, practical questions

- How will terrorists acquire the material they need to make a nuclear weapon or dirty bomb?
- How will they assemble a weapon and move it to the desired target location?
- What targets will terrorist seek to attack?
- What attack scenarios are most probable?



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