Current Status of Terrorism Risk Insurance

A Modeler's Perspective

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http://www.casact.org/education/reinsure/2008/handouts/seaquist.pdf (retrieved 16 May 2016)

Agenda

- The terrorism threat today
- Open issues in the Terrorism Risk Insurance Program Reauthorization Act of 2007
- Terrorism risk management best practices

"The US Homeland will face a persistent and evolving terrorist threat over the next three years"

- Al-Qa'ida is and will remain the most serious threat to the Homeland
- It's central leadership continues to plan high-impact plots
- Al Qa'ida's homeland plotting is likely to continue to focus on prominent political, economic, and infrastructure targets with the goal of producing mass casualties, visually dramatic destruction, significant economic aftershocks, and/or fear among the US population
- They will continue to try to acquire and employ CBRN material in attacks and would not hesitate to use them if it develops sufficient capability
  --- National Intelligence Estimate, The Terrorist Threat to the US Homeland, July 2007
- Al-Qa'ida is improving the last key aspect of its ability to attack the US: the identification, training, and positioning of operatives for an attack in the Homeland
  -- Annual Threat Assessment of the U.S. Director of National Intelligence for the Senate Select Committee on Intelligence 5 February 2008

Observations Regarding Al-Qa'ida

- Al-Qa'ida's span of operations
  - Iraq
  - Afghanistan
  - Pakistan
  - Palestine } **The near enemy**
  - Other Middle East
  - Northern Africa
  - South Asia
  - Western Europe ---- **Oppressors and US supporters**
  - US ---- **The far enemy**

- Active plots thwarted in 2007
  - Denmark, Germany, Austria, Belgium, United Kingdom, Scotland, New Jersey, New York, Canada, Southeast Asia
  - UK MI5 reports they are tracking over 2,000 suspects in 200 groups and about 30 plots
- Major attacks against the US in the first year of the past 2 administrations
  - World Trade Center truck bomb in 1993
  - 9/11/2001
  - 2009?

TRIA – Still Open For Business

TRIA Was Extended Seven More Years To Protect Against Large Losses

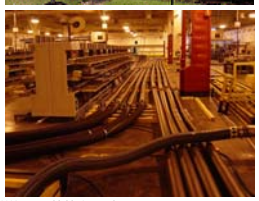
- Domestic terrorism is now included
- Other terms are essentially unchanged from 2007
  - Commercial P&C lines
  - Deductible 20% of applicable premium
  - 15% insurer co-pay
  - $100 million event trigger
  - "Make available" provision
  - $100 billion aggregate limit
  - Post-funded

"…make available property and casualty insurance coverage for insured losses that does not differ materially from the terms, amounts, and other coverage limitations applicable to losses arising from events other than acts of terrorism."

(i.e., Nuclear Hazard and Pollution Exclusions in Commercial Property)

GAO study to examine availability and affordability of NBCR coverage; the outlook; and capacity of the industry to manage the risk (due before the end of 2008)

Contamination Cleanup is a Daunting Task

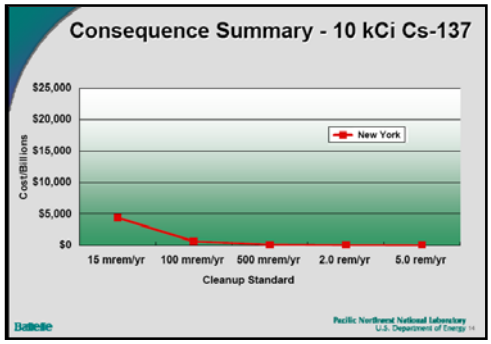

Example of Contamination Impact: a DHS Dirty Bomb (Cesium) Planning Scenario

- Damage, contamination and casualties are on a much smaller scale than from a nuclear bomb
- Contamination – 36 city blocks
- Recovery timeline – months to years
  - In a Radiological Dispersal Device (RDD), most contamination will fall out within approximately 2,000 feet (although many variables exist), but a small amount may be carried great distances, even hundreds of miles
  - Decontamination activities are undertaken for building exteriors and interiors, streets, sidewalks, and other areas
  - It may chemically bind to concrete and other masonry, or become lodged in crevices in these surfaces
  - Any and all affected surfaces will likely need to be removed
  - Demolition and rebuilding may be the most cost-effective approach
  - Many square blocks will be unavailable to businesses and residents for several years
- Largely uninsured today

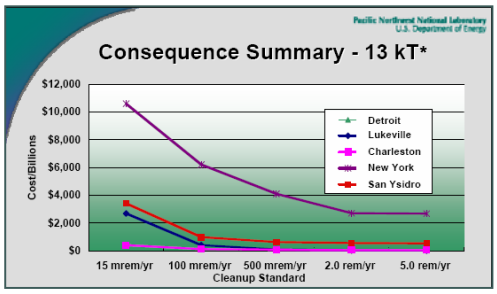
There is a Wide Range of Government Standards for Residual Contamination Cleanup

15 mrem/yr	EPA, "Establishment of Cleanup Levels for CERCLA Sites With Radioactive Contamination" (e.g., Hanford Site)
25 mrem/yr	NRC, Final Rule on Radiological Criteria for License Termination (10 CFR Part 20 Subpart E)
100 mrem/yr	Health Physics Society Position Statement, "Guidance for Protective Action Following a Terrorist Event" Also the NRC limit for General Public Exposure
500 mrem/yr	EPA, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," 400-R-92-001 "doses in any year after the first will not exceed 0.5 rem"
2 rem/yr	EPA, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," 400-R-92-001 "doses in the first year will not exceed 2 rem"
5 rem/yr	NRC, "Standards for Protection Against Radiation," recommendation and established dose limit for workers of 5 rem/yr (10 CFR 20 Subpart C)

Dirty Bomb (Cesium) Cleanup Cost Sensitivity to Cleanup Standard



Radiation Contamination (Small Nuclear Bomb) is Subject to Post-event Standard Selection



*** Similar to Hiroshima size bomb, but that was an air burst**

DHS Proposed Protective Action Guides for Radiological Dispersion and Improvised Nuclear Devices

- A pre-established numeric guideline was not recommended as best serving the needs of decision makers in the late phase.
- The proposed guidance recommends a decision-making framework, referred to as the **optimization process for reaching a consensus on the desired level of cleanup** that is responsive to federal, state, and local needs including, most importantly, the protection of the local public health and welfare.

With no pre-defined cleanup standard, radiological contamination is problematic.

How Should Insurers Manage Terrorism Risk?

- Exposure concentration analysis
  - Clusters
  - Landmarks

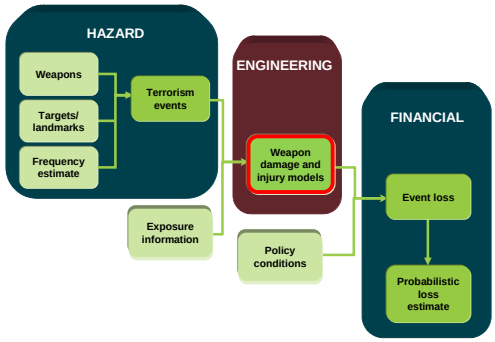
- Deterministic loss ("what-if")
  - Maximum event loss scenarios
  - Key event loss analysis

- Probabilistic loss analysis (portfolio loss distribution)

A.M. Best Has Refined the SRQ to Differentiate Risk in Three Tiers

- Exposure data quality
- Exposure concentration
  - Single location
  - 500-foot ring
- Deterministic loss scenarios
  - Delivery truck bomb
- Zonal aggregations (reinsurers)
- Report accumulations and losses in each tier:
  - New York, Chicago, Washington, San Francisco, Los Angeles
  - Atlanta, Baltimore, Boston, Buffalo, Cleveland, Dallas, Denver, Detroit, Houston, Las Vegas, Miami, Minneapolis/St. Paul, Newark, Orlando, Philadelphia, Phoenix, San Diego, San Jose, Seattle, St. Louis, Tampa/St. Petersburg
  - All others

Terrorism Model Changes Focus on Conventional Weapon Damage and Injury Functions



Highest Density Has Tallest Buildings, Narrow Streets, and No Open Spaces

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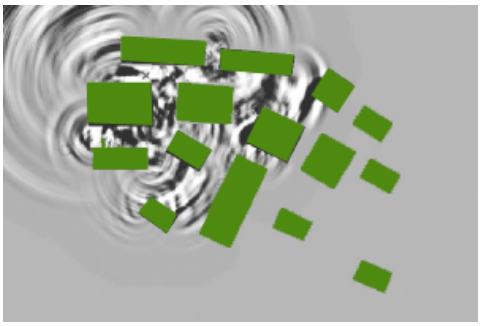
Mid-rise and Scattered High-rise With Wider Streets and Some Open Parking Areas

Built-up Area With Low-rise Buildings and Space Between Buildings

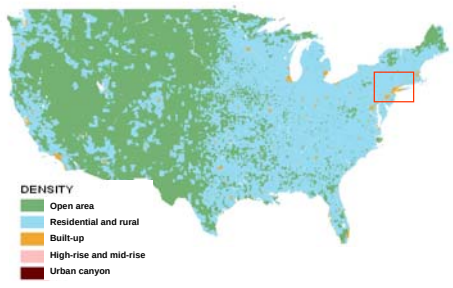
In an Urban Environment, the Blast Load Varies Greatly, But is Most Sensitive to Building Density and Heights



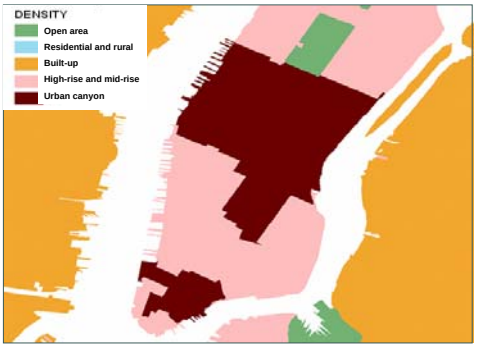
AIR Has Classified All Locations into 5 Density Categories

Category	Description
0	Open area
1	Residential and rural areas and low density centers
2	Built-up areas in smaller cities and surroundings of large cities
3	High-rise and mid-rise urban environment
4	Urban canyon (e.g., downtown Manhattan)

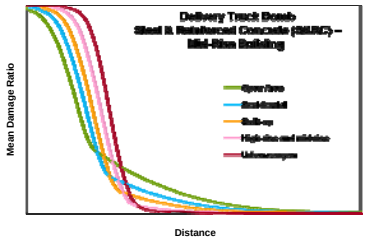
High Resolution Urban Density Maps Are Used to Associate the Appropriate Set of Damage Functions



Urban Density Varies Significantly within Cities



Urban-Area-Sensitive Damage Functions Capture the Effects of Reflecting Blast Waves



Summary

- The terrorism threat remains persistent with continued concern regarding CBRN attacks
- The extension of TRIA for 7 more years postponed consideration of CBRN coverage for property lines, a risk that would be extremely difficult for insurers to cover
- Best practices emphasize management of modeled deterministic loss scenarios and monitoring changes to the probabilistic model results
- Newest AIR terrorism model release includes a more detailed differentiation in losses due to blast as affected by the local building density