

Possible Measures of Consequence

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Why Measure Consequences

- Possibly required by law
- Possibly for emergency response preparations
 - Equipment
 - Worst possible case (shelter or evacuate)
- Possibly to justify physical protection system costs
 - High *risk* may justify high cost PPS
 - Low *risk* may justify low cost PPS
- Possibly to prioritize and address greatest *risks* first



Consequences of a Real Terrorist Incident

- **Short Term:**
 - **Possible fatalities of convoy personnel**
 - **Possible prompt fatalities of public**
 - **Possible dose to public (maximum individual and population)**
 - **Possible emergency response - possible shelter in place or evacuated**
 - **Possible police response - criminal investigations**
 - **Possible news media coverage**
 - **Possible political and public questions (what happened?)**
 - **Possible denial of access (facility or area is removed from use)**



Consequences of a Real Terrorist Incident

- **Long-Term**
 - **Possible fatalities of convoy personnel and public**
 - **Possible news media coverage**
 - **Possible political and public questions (how could this happen?)**
 - **Possible denial of access (facility or area is removed from use)**
 - **Possible cost to replace equipment**
 - **Possible medical costs**
 - **Possible litigation**
 - **Possible cleanup**



Broad Measure of Consequences

- **Broad measures of consequence**
 - **Radiological / human health**
 - **Cost**
 - **Political / Public**
 - **Other**



Measure of Consequence Depends on Need

- **Emergency response - doses, proper equipment, fast decision (shelter in place or evacuate)**
- **News media - injuries and fatalities (not doses)**
- **Manager to justify PPS costs – cost of incident, or public/political outcry**



Prioritizing Consequence and Theft

- **Prioritizing requires a common scale**
 - Which is higher (assume P_{Inter} & P_{Neut} are equal)
 - \$4 M USD total incident cost to JAEA or
 - total population dose of 38 person-Sv?
- **Theft is especially important and difficult**
 - Which is higher
 - Theft of 4 kg of Pu-239
 - Total population dose of 380 person-Sv?
- **Prioritizing requires a common scale and Benson-san will discuss some U.S. systems**