

# Risk-informed Decision-making

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Safety-Security Risk-  
Informed Decision-Making

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# Risk-informed Decision-making

- In the safety area, risk insights have shown:
  - Compliance with the design basis does not necessarily ensure negligible risk
  - The risk to the public is dominated by beyond design basis conditions
  - The risk level is not “linear” with increasing hazard
  - Some design basis requirements do not provide significant safety benefit
  - There are often modest changes that can be made to significantly increase safety

A risk-informed approach provides a unique, integrated perspective on safety

# Industry-sponsored RAMCAP Risk Assessments

- After 9/11 initiated a fleet-wide, site-by-site security risk assessments
- DHS-initiated effort called:
  - Risk Assessment & Management  
for Critical Asset Protection (RAMCAP)*
- Tabletop assessment of reactors, SFPs, dry casks for a spectrum of postulated security threats
  - Waterborne Explosives
  - Armed Attack Forces
  - Airborne
  - Vehicle Explosives

# RAMCAP Process

- Voluntary initiative by industry
- Facilitated on-site assessment to ensure consistency across fleet
- Plant personnel performed the assessment
  - Security, operations, PRA
- Focus on the conditional risks associated with each threat
  - Likelihood of consequential effect
  - Financial and safety consequences of effect
- Results presented in a consistent Likelihood-Consequence matrix to allow comparisons across hazards and sites

# What Did We Learn?

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- Important scenarios are site-specific
- Plants are quite robust
  - Severe consequences only for largest threats
- Some “cliff-edge” effects identified
  - Improvements in procedures, fortifications, strategies
- Informed some of the generic B.5.b strategies implemented

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# Safety-security Interface

- Plant PRA, RAMCAP, B5b, and more recently FLEX have identified insights on the safety security interface
  - Security features can hamper operator response
  - Approaches to enhancing plant safety can be problematic for security
  - Traditional PRA can be used to enhance security
  - In-plant operator response during a security event can be a challenge
  - Operator actions can put plant in a safer, more stable condition in a security event