Joint Capabilities for Decontamination

Joint Chemical, Biological, Decontamination & Protection Conference

Virginia Beach Convention Center

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AGENDA

- What the User Wants
- The Doctrine of Decontamination
- Threat Event
- Translating Wants to Requirements
- Assessment
- Re-thinking Decontamination
- Hazard reduction

WHAT THE USER WANTS

- **Clean every surface,**
- **of every chemical and biological warfare agent and toxic industrial chemical,**
- **in every conceivable environmental condition,**
- **without any damage to that surface,**
- **while being environmentally safe,**
- **with no effects on unprotected personnel,**
- **and in minimal time.**

PRINCIPLES

- **Limited Area - Decontaminate as far forward as possible**
- **Speed - Decontaminate as soon as possible**
- **Need - Decontaminate only what is necessary**
- **Priority - Decontaminate by priority**

METHODS

- **Neutralization- Most widely used and is the reaction of contaminating agent with other chemicals as far forward as possible**
- **Physical Removal- The relocation of contamination from one mission critical surface to a less important location**
- **Weathering- The contamination is exposed to sun, wind, heat, precipitation to dilute or destroy the contaminant**

LEVELS

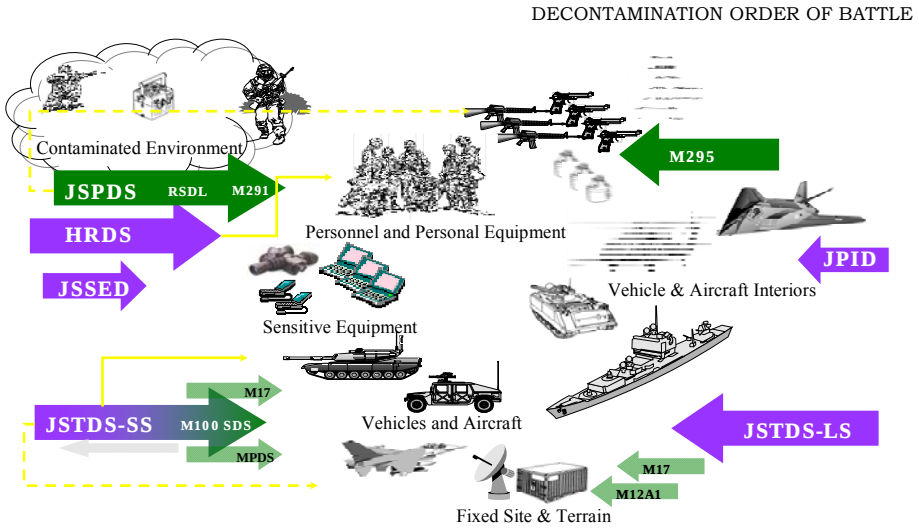
<u>Immediate-</u> minimizes casualties and limits the spread or transfer of contamination (recommended time after exposure 1-15 min)

<u>Operational-</u> The reduction of contamination for MOPP reduction and limits the spread of contamination (recommended time after exposure 1-6 hrs)

<u>Thorough-</u> The reduction of contamination for MOPP reduction/elimination to lowest detectable level (when time permits)

<u>Clearance-</u> Allows unrestricted transportation, maintenance, employment and disposal of previously contaminated items (when time permits HN and International MOUs)

ORDER OF BATTLE



THREAT EVENT

• Irregular

• Potential accidental or purposeful release of CBRN agents / materials in multiple geographical locations within the US and its territories
• Example: Most likely threat will come from terrorists (or criminal) actions

• Catastrophic

• Acquisition, possession, or employment of WMD (or WMD like effects) against high profile targets by terrorists, potential threat of exposure to Nuclear Electromagnetic pulse
•Example: WMD attack against symbolic, critical or other high-value targets with little or no warning

Higher

LIKELIHOOD

Lower

Higher

VULNERABILITY

Lower

• Traditional?

• Potential CBRN threats to US Forces engaged in major combat operations or deployed in support of other missions
•Example: Adversary state-sponsored military actions against US Forces OCONUS

• Disruptive

• Potential terrorists actions intended to supplant U.S. advantages
•Example: Insider threat where a person with access intentionally disrupts operations through disruption of health and transportation networks

Translating "USER WANTS" into Requirements

- **Example of Current requirements for program XXX**
  - **Contamination challenge (XXg/m2) of (XXXXXX) CWAS**
  - **Thorough Decontamination of multiple surfaces**
  - **Efficacy is < 0.0000XX Vapor and 0.000XX Contact**
  - **No premixing**
  - **Storage and Operational Environmental Conditions are -25^{o}F to 160^{o}F**
  - **Not exceed 500lbs**
  - **1 Person to operate/2 to carry/every Military Occupation Specialty**
  - **No degradation in Mission Essential Functions**
  - **30 minutes**

ASSESSMENT

- The user can't have what he wants (right now or in the near future)
- Have we limited ourselves in how we have defined system attributes?
- There should be some "trade space"
- Apparent mismatch between future operating environment and doctrinal application of decontamination
- Focus on a task (decon) versus effect (hazard reduction)

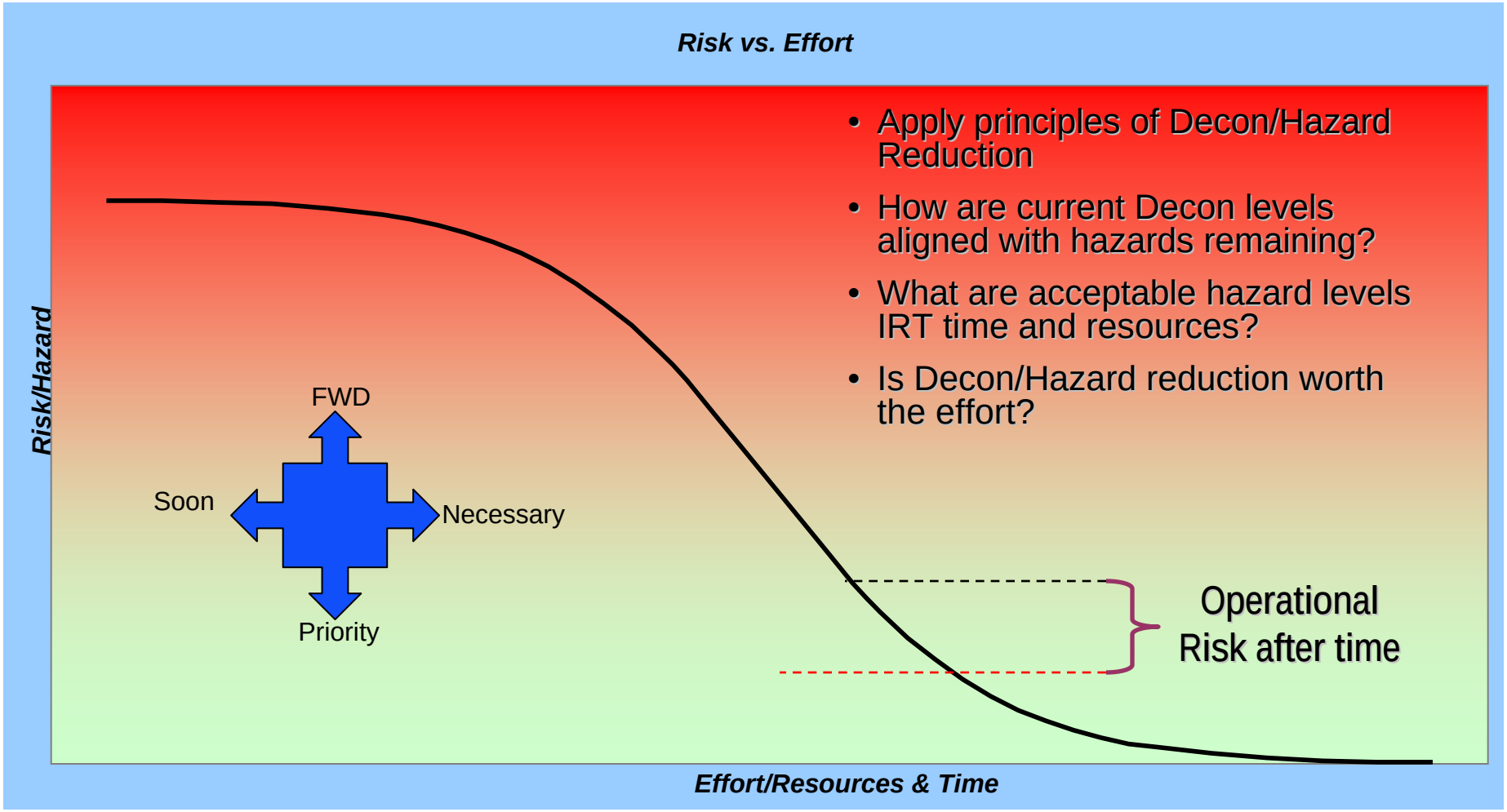
RE-THINKING DECONTAMINATION

- **Is the current doctrine still valid?**
  - **Linear battlefield**
  - **Current threat environment**
  - **What is the real purpose of Decon?**
- **If the user prioritizes the need, what is the benefit?**
  - **Hazard to personnel, Damage to Equipment, Select Agents, Select Surfaces, Select Environmental Conditions and Time.**

QUESTIONS TO ASK

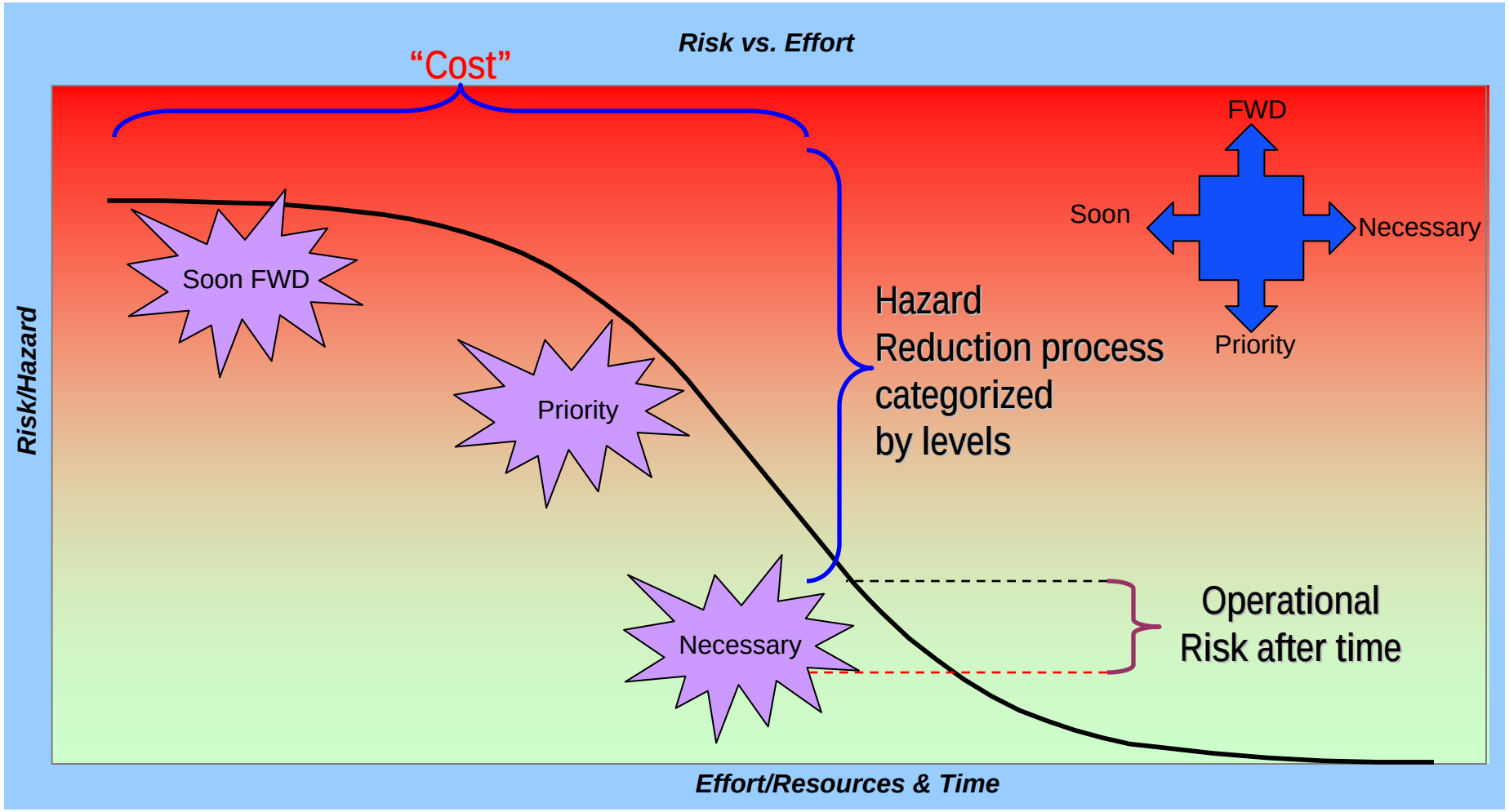
- Focus on neutralization only?
- Scale the solution to the problem?
  - High demand low density items?
  - Focus on sensitive equipment and interiors?
- What other “solutions” are available?
  - Coatings
  - “Sense, Shield and Sustain” – combined technologies

HAZARD REDUCTION



- Apply principles of Decon/Hazard Reduction
- How are current Decon levels aligned with hazards remaining?
- What are acceptable hazard levels IRT time and resources?
- Is Decon/Hazard reduction worth the effort?

HAZARD REDUCTION



QUESTIONS?

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