Joint Capabilities for Decontamination

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Presented by:
CWO4 George Lawson, USMC
Joint Requirements Office for CBRN Defense
Directorate for Force Structure, Resources and Assessment (J-8), The Joint Staff
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

- **Immediate** - minimizes casualties and limits the spread or transfer of contamination (recommended time after exposure 1-15 min)
- **Operational** - The reduction of contamination for MOPP reduction and limits the spread of contamination (recommended time after exposure 1-6 hrs)
- **Thorough** - The reduction of contamination for MOPP reduction/elimination to lowest detectable level (when time permits)
- **Clearance** - Allows unrestricted transportation, maintenance, employment and disposal of previously contaminated items (when time permits HN and International MOUs)

### ORDER OF BATTLE

![Decontamination Order of Battle Diagram](image-url)
**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

- **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 (XXXXXXXX) CWAS
  - Thorough Decontamination of multiple surfaces
  - Efficacy is < 0.0000XX Vapor and 0.000XX Contact
  - No premixing
  - Storage and Operational Environmental Conditions are -25°F to 160°F
  - Not exceed 500lbs
  - 1 Person to operate/2 to carry/every Military Occupation Specialty
  - No degradation in Mission Essential Functions
  - 30 minutes
• 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

- Where will investments return the highest cumulative risk reduction at minimum cost?
- What is acceptable Operational Risk?
- "Ultimate" decontaminant in a 3-decon process ≠ higher throughput!

Hazard Reduction process categorized by levels

Operational Risk after time

Effort/Resources & Time

FWD

Soon

Priority

Necessary

Soon FWD

Priority

Necessary

“Cost”
QUESTIONS?

Contact me:

CWO 4 GEORGE E LAWSON, USMC
GEORGE.LAWSON@JS.PENTAGON.MIL
703-602-9032