

**Soldier Systems TRM  
Visioning Workshop**

**Joint CBRN Physical Protection**  
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## Outline

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- Mission
- Threats
- Mask
- J CBRN GSR Project
- Canister
- Gloves
- Overboots
- *CAD PAT™* Chemical warfare protective coverall (CWPC)
- *Lightweight CAD PAT™* CWPC

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## D CBRN D Mission

- “To provide expert CBRN support to operations and co-ordinate the development of joint capabilities to enable the CF to survive and operate effectively in an CBRN environment”



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## The Threat

The Cold War



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# Contemporary Operating Environment



Threat – more complex/dynamic/TIM's/smaller in scale Iran Mahmoud Ahmadinejad



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# Today's Environment



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## C4 Mask - Status



- **AirBoss Defence manufactured**
- **Purchased 40K this past FY**
- **Option to buy 50K using NP monies over these next two FYs**



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## C4 Mask History

- **Developed by DRDC late 80s / early 90s**
- **One of the leading masks in the world**
- **Production runs in 92/93, 03 and 08**
- **Life Expectancy tested in 03, 05, and 07**
- **QNFT started in 2004 = higher attrition**



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## Capability Improvements

- **Leverage Technology:**
  - Filtration – C & B Agents & TIMs
  - Breathing resistance
  - Field of view & FFD
  - Communications
  - Higher NATO challenges
  - Cooling and sweat management
  - Compatibility with...



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## Future Activities

- **Deliver J CBRN GSR 2015/2016**
  - Many options... rubber or cloth face piece
  - Dual canister and or single canister
  - Packed or supported bed canister
  - Protection for CB and TIMs
  - Accommodate facial hair and beards



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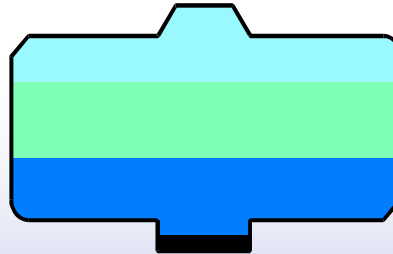
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## C7A Canister

- 3M manufactured
- Protects against chemical agents and some TIMs
- Particulate filter **granular** dual bed **packed** carbon
- Good production capability



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## C7A Canister - Action Plan

- **Short/Mid Term:**
  - Lower profile canister
  - Non slip canisters
  - Testing environmental effects
  - Reduce breathing resistance
  - R&D to develop adsorbents like carbon nanotubes, activated carbon, and silica
  - Combine R&D discoveries with J CBRN GSR project



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## C7A Canister - Action Plan

### Long Term:

- Supported sorbent structures and particulate media offer lower profile filters with broad spectrum protection capabilities

### Packed Bed:

- ideal for higher capacity >50K CT
- narrow spectrum chemical
- max sorption activity per unit bulk volume
- lower unit cost

### Supported Bed:

- ideal for lower capacity <50K CT
- broad spectrum chemical
- sorbent on fibre composite
- suitable for large & shallow bed configurations
- higher unit cost



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## Hand Protection

- AirBoss Defence manufactured
  - Fielded Jan 02
  - Two part glove
    - inner liner (3 sizes) and the outer shell (7 sizes)
  - Improved tactility, thinner rubber
  - Ambidextrous



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## Hand - Action Plan

- **Short/Mid Term:**
  - Continue to make product improvements
- **Long Term:**
  - Have integrated CB and TIM protection built into everyday hand wear



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## Overboot

AirBoss Light Weight Overboot:

- **Lighter**
- **Improved fastening mechanism**
- **Ambidextrous**
- **7 sizes**



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## Overboot - Action Plan

- **Short/Mid Term:**
  - Working with DLR to introduce a converged overboot
- **Long Term:**
  - Have integrated CB and TIM protection built into everyday footwear



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## The CAD PAT™ Chemical Warfare Protective Coverall (CWPC)

- CADPAD shell
- Activated carbon fibre based barrier material
- Lighter fit
- Air permeable
- Higher protection for vapour/aerosol than legacy
- 23 sizes in TW and AR



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## Light Weight CADPAT CWPC

- Deliver two or three piece duty uniform with chemical and biological agent aerosol, vapour, and biocidal protection



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## Light Weight CADPAT CWPC

- Design Factors:
  - Closer fit = increases protection and thermal comfort
  - **“Transparent 24/7”** - protection for 2- 4 hours
  - Reduce physiological burden
  - Balance between protection, performance and comfort
  - Integration with other systems
  - Increase air permeability = reduced thermal load
  - Same functionality of duty uniforms
  - FR and anti static
  - Close gap - cold war vs **future threat** clothing needs



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## Light Weight CADPAT CWPC

- **Future users:**
  - For direct action operations in CBRN environs
  - CANSOFCOM
  - Naval boarding parties
  - Pilots and ground crews
  - First responders
- **Does this concept negate the need for the current CADPAT CWPC - NO**



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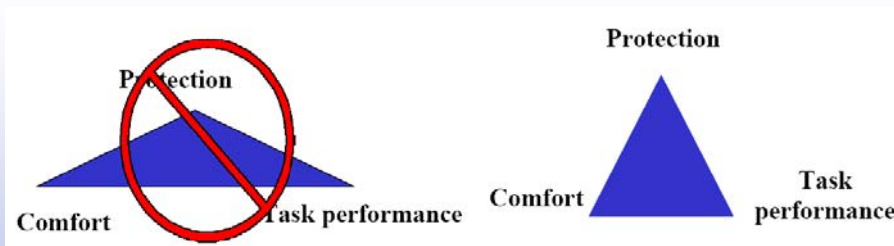
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## The Challenge for CB PPE

Striking the correct balance between Protection, Comfort and the ability to perform tasks at acceptable levels of performance (Task performance)



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# Questions??



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