JOINT COLLECTIVE PROTECTION EQUIPMENT PROGRAM (JCPE)

Presenter

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AGENDA

- BACKGROUND
- ACQUISITION STRATEGY
- CURRENT WORK
- FUTURE WORK
- SUMMARY

BACKGROUND

- Joint Collective Protection Equipment (JCPE) program established in FY 2000
- U.S. NAVY designated lead Service
- Considers CPE for fixed site, building, shipboard, portable shelter, and vehicle platforms
- Equipment modification program aiming to resolve deficiencies & logistic burdens of fielded systems
- Not a research, development and acquisition program

ACQUISITION STRATEGY

- Consolidate into one Joint program, required modifications & improvements to fielded Collective Protection (CP) systems or systems requiring CP
- Use proven CP solutions to achieve improvements, standardization, and reduced logistic burden
- Limit JCPE program procurements to product verification and initial, limited outfitting
- Services procure products through phased replacement or by attrition through the supply system

CURRENT WORK

- Chem/Bio Protective Liners
  - Improve durability, UV and flame resistance
  - Improve closures, seam testing and repairing
  - Reduce thermal loading
- Filtration
  - Extend filter life for CBR filters sized for 100, 200, and 2000 CFM
  - Improve re-circulation filter performance
  - Reduce CBR filter packaging costs
- Utilities
  - Integrate ECU, filtration & power
  - Improve fan motors power efficiency and reduce noise & heat load
  - Integrate shelter lavatory/latrine
- Egress/Ingress subsystem
  - Improve airlock and functionality of contamination control areas
- Develop Collective Protection Capability Sets
  - Compatibility with five existing tent systems

M28 LINER FOR MODULAR GENERAL PURPOSE TENT SYSTEM (MGPTS)

MGPTS

Interior of MGPTS Liner

- Deficiency: The United States Marine Corps did not have a functional collective protection system for their MGPTS.
- Task: Design, test, and integrate a collective protection liner, hardened motor/ blower, protective entry and the CBR filter.
- Result: M28 liner compatible with MGPTS and effectively provides a functional collective protection system for an existing shelter.

M28 LINER FOR EXPEDITIONARY MEDICAL SUPPORT (EMEDS)

Interior of EMEDS LINER

Restraining barrier

- Deficiency: The Air Force did not have a function collective protection system for the EMEDS shelter.
- Task: Design, test, and integrate a 32-foot one-piece liner system and thermal barrier into the Small Shelter.
- Result: M28 liner compatible with EMEDS and effectively provides a functional collective protection system for an existing shelter. Systems distributed to School of Aerospace Medicine at Brooks and Langley Air Force Base.

FILTRATION

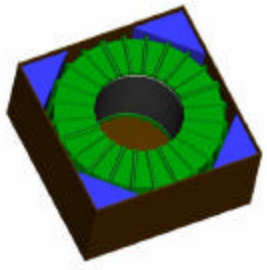
Commercial tubing

FIF with commercial tubing

120 CFM FIF filter

120 CFM new packaging

200 CFM filter set



200 CFM filter set new packaging

- Deficiency: Current life cycle cost for filter replacement and packaging adversely affect operational budgets.
- Task: Design/test new packaging designs, filter housings and media.
- Results:
  - FIF packaging/housing improvements saved $18K/1200 CFM unit. Sixteen units have been purchased for a savings of $288K.
  - 200 CFM Filter packaging costs reduced by $57/filter for an annual savings of $171K. Savings of $4.8M by FY12 and $11.2M by FY18 for filter life extension of three to four year service life.

LIGHTWEIGHT ENVIRONMENTAL CONTROL UNIT (ECU):

Lightweight Environmental Control Unit (LECU)

- Deficiency: The Air Force required an NBC rated ECU to be compatible with the Air Expeditionary Force mission.
- Task: Design, test, and integrate a NBC capable ECU that is lighter and smaller than the Field Deployable Environmental Control Unit (FDECU)
- Results:
  - Lightweight ECU is 522 lbs (28% lighter) and 30.33 ft3 (26% smaller) in cube.
  - Sixteen Lightweight ECU's (33% increase) can be palletized on a 463L pallet vs. twelve FDECU.

BUMP THROUGH DOOR (BTD) AIRLOCK FOR TRANSPORTABLE COLLECTIVE PROTECTION SYSTEMS (TCPS) AND MEDICAL SERVICE

BTD Airlock on SSS (EMEDS)

Airlock Interior View

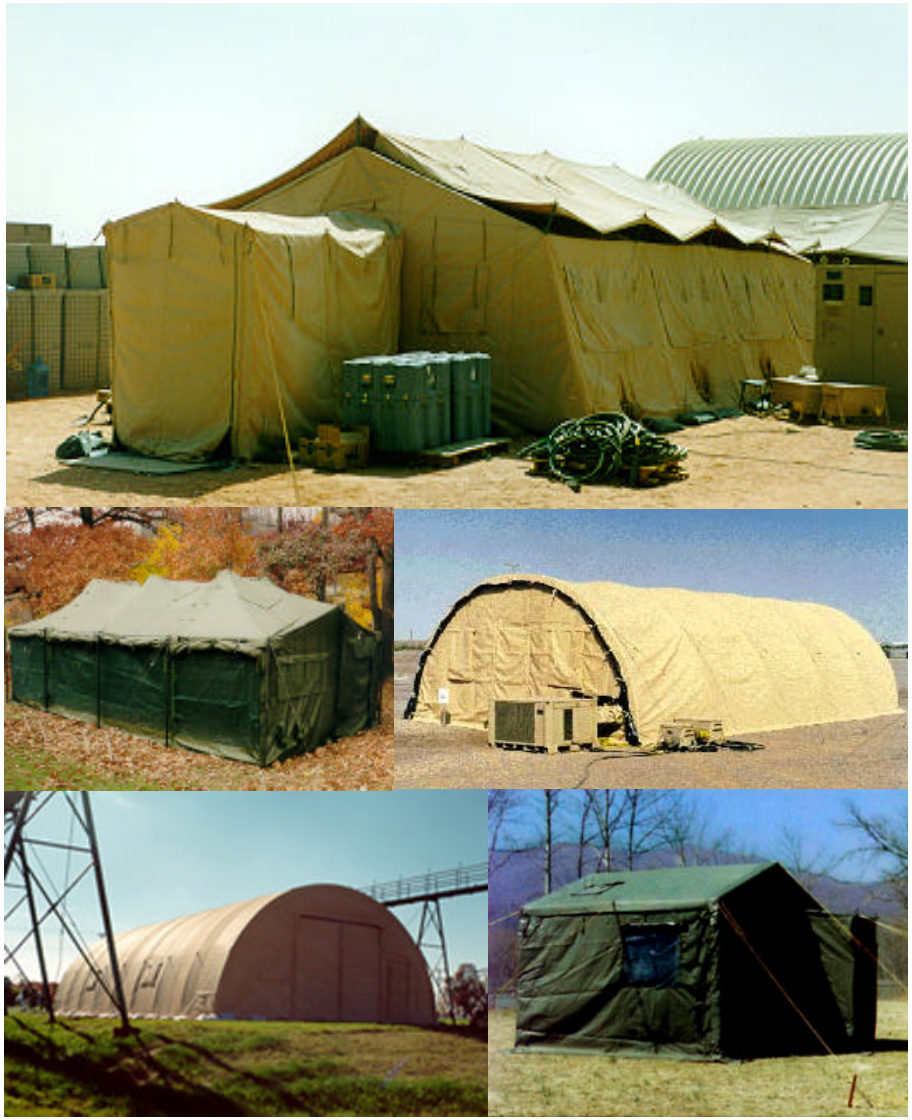
- Deficiency: Medical personnel unable to provide care to personnel while entering a CP shelter. The existing airlock for litter patients could not accommodate medical personnel and patients and the process time was too long.
- Task: Procure an airlock that allows ambulatory personnel to have medical care during the shelter ingress process, while ensuring that the shelter remains toxic free.
- Results: Procured BTD airlocks which allows processing up to 15 ambulatory personnel or two litter patients with attending medical care personnel into the CP shelter in 3 minutes.

FFA400-100 MOTOR/BLOWER

FFA400-100

- Deficiency: Motor/blowers are unreliable, noisy, inefficient expensive, heavy and bulky.
- Task: Build and test new motor/blowers to overcome deficiencies.
- Results:
  - Size reduced from 40 to 27 ft3
  - Weight reduced from 270 to 235 lbs
  - Inserted new 2 HP motor with controls that include motor protection
  - Added fixed orifice plate vs. Iris valve

COLLECTIVE PROTECTION CAPABILITY SETS



- Deficiency: Myriad of portable shelters without collective protection capability.
- Task: Develop a kit that integrates CP into fielded shelters by incorporating protective liners, filtration, utilities, and air locks.
- Goal: Stock-number CP kits for five selected shelter systems:
  - Tent, Extendable, Modular, Personnel (TEMPER)
  - Modular General Purpose Tent System (MGPTS)
  - Small Shelter System (SSS)
  - Medium Shelter System (MSS)
  - Modular Command Post System (MCPS)

FUTURE WORK

- Regenerative filter systems
- TIC/TIM filtration
- Alternate particulate and gas filter technologies
- Residual life indicators
- Improved motor/blowers
- UV technologies for bio agent destruction
- Novel filtration
- Novel shelter materials

SUMMARY

- **The JCPE program continues to look for new technologies for insertion into fixed site, building, shipboard, portable shelter, and vehicle Collective Protection Systems to enhance the the war fighting capability of the military.**