On the Move Hydration

Advanced Planning Brief for Industry

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Mr. Jeff Pacuska
Office of the Product Manager
Clothing and Individual Equipment

Program Purpose

The On-the-Move Hydration System will provide a hands-free, on-the-move hydration capability to warfighters conducting missions of all types in all environments

Program Description

- An umbrella program comprising two efforts with staged delivery of capabilities:
  - Water Carriage with NBC Hydration Capability
  - Water Filtration/Purification
- Spiral Development Program
  - Block I: CBRN Hydration System
    - Provides a CBRN resistant, on-the-move, hands free hydration system that will have the capability of interfacing with current and developmental CBRN protective gear
  - Block II: Filtration/Purification
    - Provide enhanced system capabilities to filter and purify non-potable fresh water
  - Block III: Refill in CBRN Environment
    - Provide enhanced system capabilities to enable the NEPHS to be refilled in a CBRN contaminated environment with non-potable fresh water and existing available drinking water systems
  - Block IV: Desalinization
    - Provide enhanced system capabilities to include the ability to desalinate water. The NEPHS Block IV will include the development of a total dissolved solids measuring device to validate water purity for the purification
- The system is based on commercially available NBC materials, reservoirs, and water purification/filtration devices

Briefing Topics

- Hydration Efforts
  - NBC Hydration System
  - Filtration/Purification
    - Individual Water Treatment Device (IWTD)
    - Individual Water Purification System (IWPS)
  - With USACHPPM
    - Commercial Oxidant Study
    - USACHPPM Water Purifier Database (Phase II)
  - Cold Weather Canteen (CWC) Replacement

Current Methods of Water Carriage

MOLLE Hydration System

1 Qt Canteen

Cold Weather Canteen

2 Qt Canteen

Current Methods of Water Purification

Type Classified

Iodine Tablets

Chlor-Floc Tablets

Unit Purchased / Not Type Classified

Commercial Water Filters / Purifiers

Commercial Oxidants

NBC Hydration

OBJECTIVE: To replace the canteen as the primary method of water carriage by the individual Soldier in all battlefield environments, including CBRN/TIM environments.

BOI: 1 per authorized user, plus spare bite valve and gas mask attachment

SYSTEM DESCRIPTION:

- Will provide a steady flow of water on demand during the performance of mission essential duties.
- The system will function both independently and while integrated with the protective mask.
- Consists of a Chemical/Biological agent and radioactive particle resistant reservoir with carrier.
- This system will be compatible with current CBRN protective masks, suits and individual load bearing equipment (LBE).

ACTIONS:

- System Evaluation by ATEC end of FY08
- MSC 1FY09
- IOC 3FY09

Filtration / Purification

SYSTEM DESCRIPTION:

- Enables the Soldier to filter/purify water from indigenous water sources
- Removes microbes and viruses
- Accelerate Treatment Time
- Reduce turbidity
- Improve water taste
- Light Weight and Hands Free
- Compatible with NBC Hydration System
- Ultimate objective: the removal of CBRN, TICs and TIMs

OBJECTIVE: The system will enable the Soldier to drink from indigenous water sources by removing contaminants to EPA Guide Standard levels.

BOI: 1 system per authorized user. Parts to be replaced as expended

ACTIONS:

- User evaluation 3FY08
- Follow-on P248 Testing 4FY08
- MS-C 1FY09
- IOC 2FY09

USACHPPM / PM-CIE Efforts

- Commercial Oxidant Study
  - Conducted to determine the effectiveness of commercially available chemical treatments
  - Tested against bacteria, cryptosporidium, and virues
  - Tested in EPA Type I (Clear) and Type II (Dirty) water

- USACHPPM Water Purifier Database (Phase II)
  - Database was created to provide Warfighters with centralized information on commercial filtration/purification devices
  - Phase I consisted of Manufacturer data/information only
  - Phase II conducted testing on representative devices and technologies to determine their efficacy
  - Testing was performed according to USACHPPM/NSF Protocol P248
  - Website: http://usachppm.apgea.army.mil/WPD/

Desired / Future Capabilities

- Hydration System
  - Temperature Regulation
    - Prevent Freezing
    - Water Cooling
  - Refill in CBRN environment
  - Refill without removing bladder from carrier
  - Improved NBC capabilities and durability at lower cost
  - Antimicrobial in all components
  - Water Volume Indicator

Desired / Future Capabilities

- Purification/Filtration
  - Improved filter life, flow rate, lower pressure drop
  - Filter Life indicator
  - Full TIC/TIM removal
  - Single Purification/ filtration solution (1 item)
  - Desalinization
  - Alternate Technologies
  - Prevention from freezing or low temperature operation

Summary

- Initial increments of Blocks I and II will go into fielding FY09

- Overarching Requirements
  - Usability
  - Hands-Free Operation

- Future Requirements:
  - Refill in an NBC Environment
  - Desalinization
  - Improvement in Block I and II capabilities
  - Reduced Cost

Contact Information

US Army PM-CIE:
APM: MAJ Henry Washington
Product Manager – Clothing and Individual Equipment (PM-CIE), Fort Belvoir
Phone: 703-704-2570, DSN 654-2570
Email: henry.washington@us.army.mil

Lead System Engineer: Jeffrey Pacuska
PM-CIE, Natick Soldier Systems Center
Phone: 508-233-6434, DSN 256-6434
Email: jeffrey.pacuska@us.army.mil

System Engineer: Christopher Pentheny
Natick Soldier Systems Center, PM-CIE
Phone: 508-233-5476, DSN 256-5476
Email: christopher.pentheny@us.army.mil

USACHPPM:
Ground Water Engineer: Art Lundquist
US Army Center for Health Promotion and Preventive Medicine, Aberdeen
Phone: 410-436-8112
Email: art.lundquist@us.army.mil