



PROGRAM EXECUTIVE OFFICE SOLDIER

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On the Move Hydration

Advanced Planning Brief for Industry

14 May 2009

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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



OTMH Description



- On the Move Hydration is a PM-CIE designation that covers two distinct programs, each with staged delivery of capabilities:
 - Program 1: NBC Environment Personal Hydration System (NEPHS)
 - Proponent: US Army Chemical School
 - Purpose: Provide a personal hydration system for use in a CBRN environment
 - Program 2: Individual Water Treatment Device (IWTD)
 - Proponent: US Army Infantry Center
 - Purpose: Provide Water Filtration/Purification capability at the individual level
- NEPHS
 - 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: 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
 - Provide enhanced CBRN resistance while reducing overall cost
- IWTD
 - Block I: Filtration/Purification
 - Provide enhanced system capabilities to filter and purify non-potable fresh water
 - Block II: 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 systems will be based on commercially available CBRN resistant materials, reservoirs, and water purification/filtration devices



Briefing Topics



■ Current Hydration Efforts

- NEPHS
- IWTD
- SBIR(s)
 - Novel In-Line Water Purification System
 - Man Portable Desalination System

■ Additional Efforts

- USACHPPM Surface Water Study
- Multi-Service Individual Water Working Group
- US Army Armament Research, Development and Engineering Center (ARDEC) – Arsenic Reduction Effort

Current Methods of Water Carriage



MOLLE Hydration System



1 Qt Canteen



Cold Weather Canteen



2 Qt Canteen

Current Methods of Water Purification



Type Classified

Unit Purchased/Not Type Classified



Iodine Tablets



Chlor-Floc Tablets



Commercial Water Filters/ Purifiers



Commercial Oxidants



NEPHS



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:

- Currently undergoing evaluation by ATEC, with expected completion 1QFY10
- MSC 2QFY10
- IOC 3/4QFY10



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



IWTD



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

NOTE: The IWTD is intended to fill the capability gap for water purification at the individual level. Small Unit Purifiers (SWPs) and Bulk water requirements are being addressed at TARDEC.

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

ACTIONS:

- Solicitation: 1QFY10
- Initiate ATEC evaluation: 2QFY10
- Follow-on P248 Testing: 2QFY10
- User evaluation: 3QFY10
- MS-C: 1QFY11
- IOC 2QFY11



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





SBIR Efforts



- Novel In-Line Water Purification System
 - **OBJECTIVE:** Design and build a Soldier-portable, hydration system compatible, in-line water purification system to support Soldier On-The-Move Hydration.

- Man Portable Desalination System
 - **Objective:** Design and build a Soldier portable desalination system to support Individual Soldier On-The-Move Hydration. The desalination system will interface with in-line water purification technologies to provide potable drinking water from any indigenous water source, and be compatible with the current Modular Lightweight Load-carrying Equipment (MOLLE) Personal Hydration Systems (National Stock Number (NSN)8465-01-525-5531).



Summary



- Initial increment of NEPHS will go into fielding FY10
- Initial increment of IWTD will go into fielding FY11
- Overarching Requirements
 - Usability
 - Hands-Free Operation
- Future Requirements:
 - Refill in an NBC Environment
 - Desalinization
 - Improvement in NEPHS and IWTD capabilities
 - Reduced Cost
- SBIRs are intended to support Future Requirements and to investigate novel solutions





Additional Efforts



- USACHPPM Surface Water Study
 - Being conducted with Army and Marine Corp to characterize surface water qualities globally
- Multi-Service Individual Water Working Group
 - Working group consisting of all Services and many Government research groups to leverage efforts on the individual level
- US Army Armament Research, Development and Engineering Center (ARDEC) – Arsenic Reduction Effort
 - Working group with CHPPM, TARDEC, and PM-CIE to characterize novel filtration media for arsenic reduction



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