DTRA
DEFENSE THREAT REDUCTION AGENCY

Detect
Deter
Defeat

Agenda

6 March 2019

Emerging Technologies to Combat Weapons of Mass Destruction

Time	Briefing	Name
12:45	Welcome	Dr. Rhys Williams
12:55	Agenda/Overview	Dr. F. Michael Von Fahnestock
13:00	IEW/Wide Area Recon	Mr. Ryan Madden & Ms. Kathleen Quinn
13:30	Decision Tools	Dr. Swetna Batni & Mr. Edward Argenta
13:50	Sample to Sequence	Ms. Kathleen Quinn
14:10	Low-Light Agent Disclosure	Dr. Annie Lu
14:25	Rad Detection	Dr. Hongguo Zhu
14:40	Counter UAS	Mr. Mark Rosenberg
15:00	Collective Protection Filters	Dr. Annie Lu
15:15	Decon	Mr. Glenn Lawson
15:45	Blowfish	Mr. Michael Neill
16:00	Adjourn	

Emerging Technologies to Combat Weapons of Mass Destruction

1. **Sprayable Decontamination Slurry – Glenn Lawson**
   A sprayable zirconium hydroxide based slurry is for immediate and operational decontamination of both military vehicles, crew-served weapons and contaminated sites effectively and expeditiously.
2. **Chemical Hot Air Decontamination (CHAD) – Glenn Lawson**
   Chemical Hot Air Decontamination (CHAD) with low percentage of humidity has been shown to be highly effective at removing and/or detoxifying absorbed chemical warfare agents from military relevant surfaces.
3. **Low-Light Disclosure and Mapping using Agent Disclosure Spray – Annie Lu**
   Warfighters require a means to rapidly and reliably map CWA contamination for targeted decontamination in all environments, with low cost. Agent Disclosure Spray (ADS) is low cost, highly specific nerve agent and fentanyl indicator spray that emit positive signals in the UV or IR spectrum.
4. **Collective Protection Filters – Annie Lu**
   Existing CBRN M98 air purification filters are degraded by ambient air pollutants, reducing filter life by unknown amounts. This increases the cost and logistical challenges of maintaining the filter systems.
5. **Integrated Early Warning – Novel Early Chemical Warning – Ryan Madden**
   This effort is part of a planned series in support of U.S. Air Force (USAF) operational requirements for a networked below-threshold chemical agent detection system which can support stand-off monitoring and lower nuisance alarms (false positives).
6. **Maneuver Warfare Decision Management in a CBRN Environment – Ryan Madden**
   Demonstrates the ability to execute an 'on-the-move', multi-service field demonstration of the IEW 'system of systems' prototype solution to assess the utility and feasibility of current and future CBRN tactical communications (voice/data) to enable common battlefield awareness/ understanding. Improved situational awareness of the CBRN threat environment at the tactical level enhances the commander's decision cycle.
7. **Physiological and Environmental Monitoring for Chemical Scenarios (PEM-CS) – Ryan Madden**
   Combined physiological and environmental monitoring combined to provide early warning of a chemical vapor threat.
8. **Sample-to-Sequence Whole Genome Sequencing System (PanGIA) – Kathleen Quinn**
   PanGIA (Pan-Genomics for Infectious Agents) is a sample to sequence system capable of detecting pathogens from clinical and environmental samples.
9. **COTS/GOTS PBA Detector Assessment – Kathleen Quinn**
   The COTS/GOTS PBA project assesses three technology categories with the potential to detect PBAs. The technology categories investigated in this effort are optical based spectroscopy systems, colorimetric based detectors, and portable mass spectrometry based systems.
10. **Wide Area Recon**
    The wide area reconnaissance portfolio incorporates detection capabilities to be integrated with the JPEO CBRN Sensor Integration on Robotics Platforms (C-SIRP) program. The technologies include optimization of an aerosol biological collector to be integrated on the Deep Purple UAV as well as initial efforts for low size, weight and power (SWAP) sensors to be utilized in conjunction with UAV applications.
11. **CBRN Casualties & Treatment – MPTk – Sweta Batni**
    Supports a Joint Staff tasking to implement CBRN medical planning in MPTk and Joint Medical Planning Tool (JMPT). This talk will provide an overview of JSTO's medical modeling portfolio specifically highlighting the process for importing CBRN event data from the Joint Effects Model (JEM) into the JMPT and for developing medical treatment profiles. It will also provide an overview of DTRA RD-CBI's EpiGrid.
12. **Digital Detection Technologies – Ed Argenta**
    DTRA is managing a research and development portfolio investigating the use of wearable physiological monitoring data to provide a queue that an individual has been exposed to a chemical or biological agent of concern prior to overt signs and symptoms.
13. **Tactical Decision Tools – Ed Argenta**
    DTRA is beginning to develop a suite of tactical applications to aid with CBRN decisions at the forward edge.
14. **Skyview – Counter UAS**
    UAS detection system.
15. **Wingman –Counter UAS**
    UAS detection system.
16. **Blowfish – Waterborne IED (WBIED) Neutralization**
    Remotely operated underwater vehicle (ROV) with a disrupter armed with a reactive material dart that enables EOD personnel to neutralize WBIEDs from a safe stand-off distance and with low or no collateral damage to seaport infrastructure or shipping.
17. **PRISM hand-portable 3D mobile imager – Hank Zhu – NT**
    Portable Radiation Imaging Spectroscopy and Mapping System (PRISM) is a versatile search, location, and identification sensor.
18. **sUAS- mounted family of LAMP systems: mini-PRISM; CsI Array; CLLBC dual n/g – Hank Zhu - NT**
    sUAS mounted sensor capable of searching, locating, and identifying radiation sources.
19. **Wearable Detection Devices – Hank Zhu – NT**
    Wearable gamma and neutron sensors, networked with coming operating picture tools for search, early warning, and force protection.