

Joint Project Manager Nuclear Biological Chemical Contamination Avoidance



APG/JPEO-CBD Advanced Planning Brief To Industry JPM NBC CA

6 November 2015

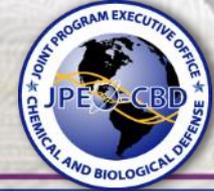


NBC Defense- All Hazards...All Services

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Our Vision and Mission

PROGRAM VISION

Equip and sustain the world's most capable, powerful and respected Joint Forces with world class chemical, biological, and radiological contamination avoidance products, capabilities and services.



PROGRAM MISSION

The Joint Project Management Team for Nuclear, Biological, and Chemical Contamination Avoidance is responsible for the development, production, integration, testing, and fielding of NBC detection, obscuration, and reconnaissance systems.

We ensure our system developments, integration efforts and services focus on delivering capability to the Joint Warfighter at the right cost and at the right time.



Joint Program Executive Office for Chemical and Biological Defense



Joint Program Executive Office for Chemical and Biological Defense

Joint Project Manager Elimination

Joint Project Manager Medical Countermeasures Systems

Joint Project Manager Radiation / Nuclear

Joint Project Manager Information Systems

Joint Project Manager Protection

Joint Project Manager Guardian



Joint Project Manager

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Cross Commodity
Advanced Threats and
Test Infrastructure
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JPM NBC CA...Path Forward

Today's Shortfalls

- Non-Specific Detection
- Chemical Identification (requires library spectra)
- Chemical Aerosol Detection/Identification
- Identification of Emerging Threats
- Availability of Validated Assays for Emerging Threats
- Identification of operational purity CB threats

Moving Beyond

- Early Warning
- Sampling and sensing automation
- Ubiquitous Sensing
- Health Monitoring
- Proximate Detection/Collection
- Platform Integration (Bio/Chem) Sensor
- Non-intrusive CB detection and identification
- Low cost highly distributed sensing
- Sampling to improve in-the-field detection and identification

Continued Considerations



- Size
- Weight
- Power
- Affordability
- Performance
- Ease of Use
- Reduced Logistical Burden

Tomorrow's Challenges

- Enhanced Algorithms (classification)
- Tactical/Handheld
- Various Form Factors (NGCD variants)
- All Chemical Hazards/All States of Matter (traditional, NTA, TIC, explosive)
- Compilation/Interpretation of disparate sensors
- Wearable detection identification for warning and/or exposure monitoring
- Repackaging of sensors for effective platform integration



Product Director

Cross Commodity Advanced Threats & Test Infrastructure

Mission Statement

The Product Director for Cross Commodity Advanced Threats & Test Infrastructure (PD CCAT&TI) provides the Milestone Decision Authority, Joint Warfighter, Joint Project Manager, and the Test and Evaluation Community relevant and timely infrastructure resources for the test and evaluation of Chemical, Biological, and Radiological Defense Systems throughout the life cycle acquisition process. Additionally, PD CCAT&TI serves as the enterprise-wide focal point for executing Non-Traditional Agent (NTA) Trail Boss responsibilities to protect the Warfighter from NTAs and other emerging threats.

Whole System Live Agent Test Chamber



Test Grid



NTA
Defense
Test
System



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Cross Commodity Advanced Threats

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Priorities and Initiatives

- ◆ Engineering and integration of NTA sensors designed for unmanned applications
- ◆ Testing and characterization of aerosols on surfaces and in the air
- ◆ Field/Tunnel Test Infrastructure (JABT/ASC)
- ◆ Improved chemical challenge referee systems



FY16 Opportunities

Joint Ambient Breeze Tunnel (JABT) & Active Standoff Chamber (ASC) Upgrades

Description:

The JABT and ASC allow for the testing of chemical and biological defense systems with the tester having more control over chemical biological simulant clouds than in open air testing to bridge the gap between laboratory/chamber and field testing.

Key Milestones:

- Request for Proposal: July 2016
- Contract Award: January 2017
- Period of Performance: January 2017 to December 2017 (potential for option year(s))

Contracting Contact:

Challenges:

Design and execution of building upgrades. Integrate IT systems to be compatible with external data management networks.



FY16 Opportunities

Safari Test Grid System Infrastructure

Description:

The Safari addition to the existing Test Grid architecture allows for the global mobility of the Test Grid System capability. It will provide the ability to test in all major environmental conditions with a closed network capable of data analytics.

Key Milestones:

- Request for Proposal: November 2016
- Contract Award: February 2017
- POP: February 2017 to January 2018 (potential for option year)

Contracting Contact:

Challenges:

Fielding a mobile prototype with real time data collection.



Product Director Sensors

Mission Statement

The Product Director for Sensors develops, produces, integrates, tests, and fields Chemical Detection Systems and provides Systems Engineering expertise and support to the Joint Project Manager NBC Contamination Avoidance. We ensure our efforts for system development, integration and services focus on the Joint Warfighter's needs within the parameters of cost, schedule, performance and risk.

Current

M4 / M4A1 / VBSS
Joint Chemical
Agent Detector



Improved Chemical
Agent Point Detection
System

M22 Automatic
Chemical Agent Alarm

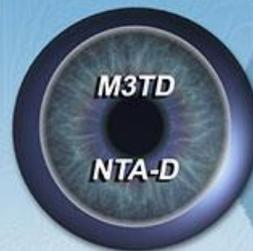


Improved Chemical
Agent Monitor

Legacy



Joint Chemical Biological Radiological
Agent Water Monitor



Future

NGCD Core Technologies

NGCD-1	 Differential Mobility Spectroscopy (DMS)	 Rapid Thermal Modulation Ion Spectrometry	 Compact Ion Trap Mass Spec	
NGCD-2	 Short Wave IR (SWIR) Hyperspectral Imagery (HSI)	 Long Wave IR (LWIR) HSI and Raman (785 nm)	 LWIR HSI and Raman (1064 nm), Quantum Cascade Laser (QCL) IR	 Dual Wavelength Raman (1064 nm and 830 nm)
NGCD-3	 Ion Trap Mass Spec	 Triple Quad Mass Spec	 GC-DMS and Raman (1064 nm)	
NGCD-4	<p>Colorimetric Nano-Electrochemical Resistive Sensing Metal Organic Framework</p>			

Product Director Sensors





Priorities and Initiatives

- ◆ Joint Science and Technology Office (JSTO) Alignments
 - Chemical Agent Raman Detector (CARD)
 - Aerosol and Vapor detection technology with potential transition to NGCD 1
 - Single Particle Infrared Elastic Scattering (SPIRES)
 - Aerosol detection technology with potential transition to NGCD 1
 - Micro Gas Analyzer (MGA)
 - Micro Gas Chromatograph Mass Spectrometry Technology with potential transition to the NGCD 1 and 3
 - NGCD 4 – Individual Detector
 - New start effort to pursue technologies for transition to the NGCD 4 program in FY 19
 - Joint Exposure Status Sensor (JESS)
 - Utilize technologies from the Health-based Orthogonal Lightweight Manned Early warning Suite (HOLMES) effort to integrate with other sensor inputs into a status sensor



FY17 Opportunities

Next Generation Chemical Detector (NGCD)

Description:

NGCD will detect and identify non-traditional agents, chemical warfare agents, toxic industrial chemicals in the air and on surfaces.

- NGCD 1 - Detector Alarm: Rapid vapor /aerosol area monitor to detect to warn; continuous monitor post encounter
- NGCD 2 - Survey Detector: Indirect scanning/ targeting of surface to locate and survey contamination boundaries
- NGCD 3 - Sample Analysis: Analytical sensor/ identifier with multi-phase sampling capabilities to collect at site and introduce to sensor

Key Milestones:

- Request for Proposal: September 2016
- Contract Award: June 2017
- POP: 24 Months

Contracting Contact: Eric Braerman (ACC-APG Edgewood), 410-436-4469

Challenges:

Aerosol detection and identification, detection of solids and liquids on surfaces



Joint Product Manager Reconnaissance Systems & Platform Integration

Mission Statement

The Joint Product Manager for Reconnaissance Systems and Platform Integration develops, produces, integrates, tests and fields NBC reconnaissance and obscuration systems. We ensure our efforts for system development, integration and services focus on the Joint Warfighters' needs within the parameters of cost, schedule, performance and risk.



Global Operations

Joint Portal Shield (JPS)



CBRN Contractor Logistics Support (CLS)

Dismounted Reconnaissance



Dismounted Reconnaissance, Sets, Kits, and Outfits (DR SKO)



Joint Urgent Operational Needs System (JUONS)



NBC Reconnaissance Vehicle Sensor Suite

Domestic Response Capability (DRC)

Joint CBRN Advanced Capability Sets Advanced Technology Demonstration (JCACS ATD)



Obscuration Systems

Screening Obscuration Module (SOM)



Light Vehicle Obscuration Smoke System (LVOSS)



Joint Product Manager

Reconnaissance and Platform Integration



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Priorities and Initiatives

- ◆ **NBCRV Sensor Suite Upgrade**
 - Lower Sustainment Costs and Improve Reliability, Effectiveness, & Mission Performance
 - **Chemical Surface Detector:** Ground Chemical Presumptive Detection and Identification. Replaces Double-Wheel Sampling System - greatly improving maneuver speed.
 - **Chemical Mass Spectrometer/NGCD 3 Mounted Variant:** Ground Chemical Confirmatory Identification: Replaces CBMS II – Addressing the primary reliability and sustainment cost driver.
 - **JSLSCAD:** Chemical Vapor Stand-off Detection. Reduce Field of View to increase probability of detection at greater ranges.
 - **Joint Biological Tactical Detection System:** Biological Aerosol Point Detection. Increased sensitivity and reduced consumable costs for biological warfare detection and identification.
 - **Sensor Processing Group Update / Common Operating Environment V3:** Reach-back Capability for sensor spectral data.

- ◆ **Dismounted Reconnaissance Sets Kits and Outfits (DR SKO)**
 - Full Rate Production and Fielding
 - Obsolescence and Technology Insertion

- ◆ **Obscuration**
 - Restart of the Screening Obscuration Module program
 - Large Area – VCSA decision to retain 156 M56 Smoke Generator Systems. Supporting TRADOC Requirements Study – Camouflage, Concealment, & Deception.

- ◆ **Joint CBRN Advanced Capability Sets (JCACS) Advanced Technology Demonstration**
 - Evaluation of equipment to enhance CBRNE mission capabilities.
 - Objective: Field “Quick Wins” in Protection, Contamination Mitigation, Characterization, & Situational Awareness.



FY16 Opportunities

NBCRV Sensor Suite Upgrade Chemical Surface Detector (CSD)

Description:

Mounted on the Stryker Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV). Provides replacement for the Dual Wheel Sampling System to increase maneuver speeds. Adds Toxic Industrial Chemical and Non Traditional Agent Detection and Identification Capability to the NBCRV.

Key Milestones:

- Request for Proposal: December 2015
- Contract Award: March 2016
- Period of Performance: FY16-FY18

Contracting Contact: William Mebane, Army Contracting Command, 410-346-6797

Challenges:

Detection at NBCRV maneuver speeds



FY16 Opportunities

Dismounted Reconnaissance Sets, Kits and Outfits Tech Refresh

Description:

Procure components which can better meet requirements, are becoming obsolete, have poor reliability and high sustainment cost, etc. Focus on detection and identification capabilities with other components as demand requires.

Key Milestones:

- Request for Proposal: Multiple Requests for Information (RFI) annually
- Contract Award: Follow-on third-party purchase for test articles (RDT&E) through existing contract mechanisms (existing prime, DLA, etc.)
- Period of Performance: Continuous technology refresh/insertion programmed

Contracting Contact: Jonita Joyner, Army Contracting Command, 410-346-8426

Challenges:

- Predicting obsolescence of COTS
- Identifying new Technologies/Components



FY16 Opportunities

Screening Obscuration Module (SOM)

Description:

A small obscuration generator system designed to replace outdated smoke pots.

- Effort will include the research, development, test/evaluation (RDTE) and an option for production.
- The SOM will be capable of being deployed on manned and unmanned platforms or dismounted and operated as a stand-alone system.

Key Milestones:

- Request for Proposal: December 2015
- Contract Award: March 2016
- POP: March 2016 - December 2023

Contracting Contact: Alex Schupp, Army Contracting Command, 410-436-1331

Challenges:

Achieving desired obscuration performance within required size and weight constraints



FY16-FY17 Opportunities

Joint CBRNE Advanced Capability Sets Advanced Technology Demo (JCACS ATD)

Description:

Provide the Joint Forces dismantled reconnaissance equipment with an integrated CBRNE operational capability to execute mission command and conduct operations to counter the range of complex CBRNE threats.

- Protective ensembles with reduced burden
- Improved personnel and materiel contamination mitigation
- Improved CBRNE sensors and robotic platforms
- Sensor networking and real-time reach-back capabilities

Key Milestones:

- Request for Proposal: Through FY17
- Contract Award: Multiple awards anticipated through FY17
- Period of Performance: FY16-FY18

Contracting Contact: Alex Schupp, Army Contracting Command, 410-436-1331

Challenges:

Aggressive schedule



FY17 Opportunities

NBCRV Sensor Suite Upgrade

Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD)

Description:

Product Improvement for JSLSCAD Mounted on the Stryker Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV). Provides enhanced detection capability through development of a reduced field of view scanner.

Key Milestones:

- Request for Proposal: October 2016
- Contract Award: March 2017
- Period of Performance: FY17-FY18

Contracting Contact: Alex Schupp, Army Contracting Command, 410-436-1331

Challenges:

Mounting space constraints on the NBCRV and operation with the current Sensor Electronics Module



Joint Product Manager Biological Detection Systems

Mission Statement

The Joint Product Manager for Biological Detection Systems (JPM BDS) creates and sustains affordable material solutions that accurately detect, identify, warn, deter, and defeat any biological threats to Joint Forces.

Joint Biological Point Detection System (JBPDS)



Joint Biological Tactical Detection System (JBTD)



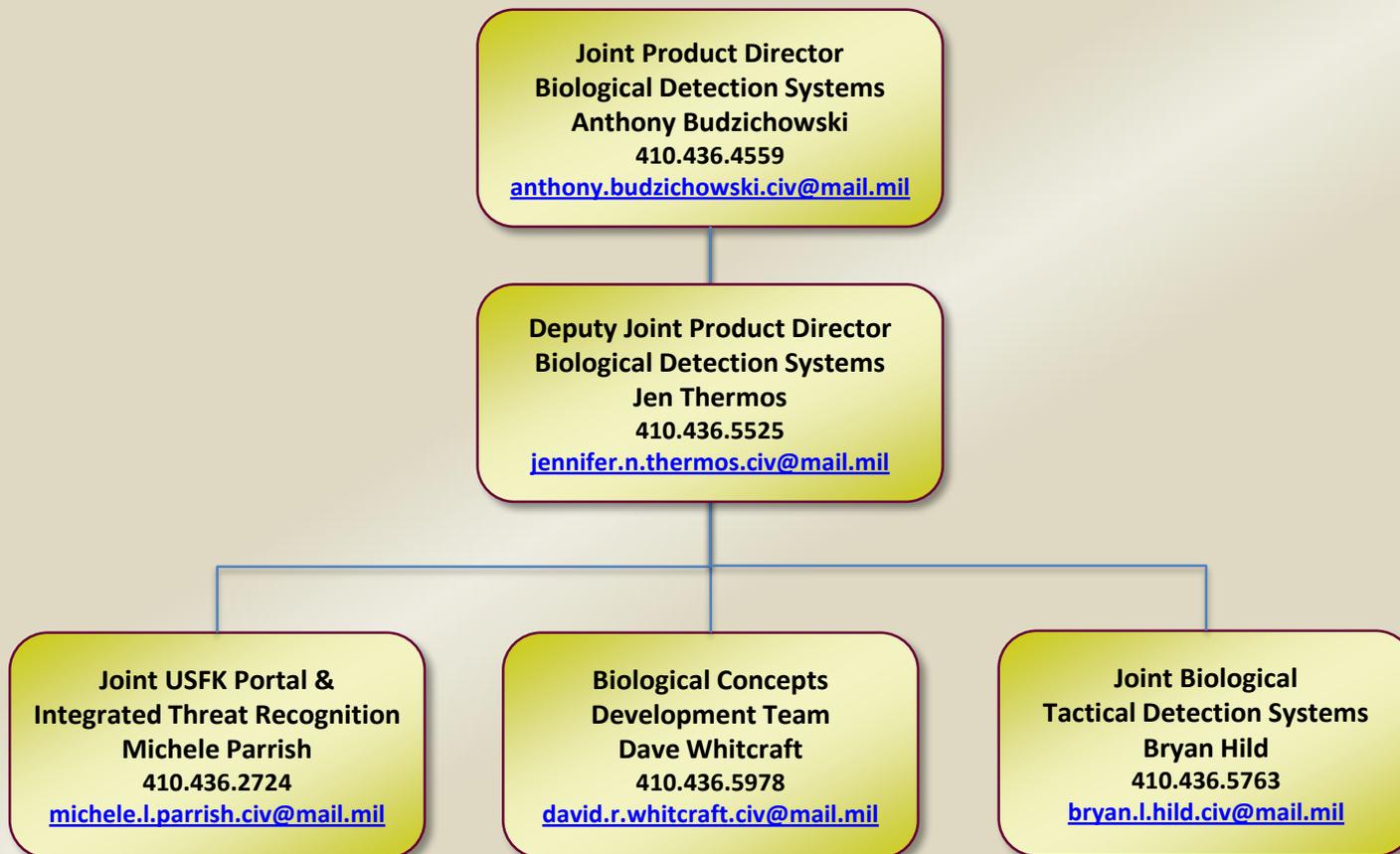
Enhanced Maritime Biological Detection



Joint USFK Portal & Integrated Threat Recognition Assessment of Environmental Detection (JUPITR AED)



Joint Product Director Biological Detection Systems





Priorities and Initiatives

- ◆ Management of the Assessment of Environmental Detection (AED) leg of the Joint US Forces Korea Portal and Integrated Threat Recognition (JUPITR) Advanced Technology Demonstration (ATD)
 - Live-agent testing of seven point detection sensors (DEC 15 – JAN 16)
 - Conditional materiel release which supports a 3QFY16 capability on the Korean peninsula; continue to provide this capability as defined in future requirements
- ◆ Transition a technology from the ATD to provide the US Navy an enhanced maritime biological detection capability (FY17)
- ◆ Development of the Increment 1 JBTDS
- ◆ Continue development of common identifier effort with Bio Fire
- ◆ Integration of the JBTDS into the NBCRV Stryker



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