



# BIOLOGICAL DEFENSE

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## Advanced Planning Briefing to Industry

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# Outline



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- **Joint Product Director, Stand-off Detection**
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# Overview



## S&T

- **Vision**

- We will nurture a vibrant S&T organization that **CREATES** programmatic vision in **COLLABORATION** with intramural and extramural communities, and **COMMUNICATES** impact to the warfighter as revolutionary products and capabilities are achieved.

- **Mission**

- To invest in transformational ideas, innovative people, and actionable technology development for Chemical Biological Defense solutions
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## JPM BD

- **Strategic Vision**

- Lead the world in Biological Defense.

- **Mission**

- Develop, test, produce and sustain biological defense capabilities within established **COST, SCHEDULE, PERFORMANCE** criteria and **CONTINUOUSLY IMPROVE** our Nation's ability to **SURVIVE AND DEFEAT** the threat of biological warfare to our Joint Warfighter.



# JPM Biological Defense Organization



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# Joint Product Manager Point Family of Systems



# S&T Challenges



- **Joint Biological Tactical Detection System (JBTDS)**
  - **Automated Sample to Sequence Capability**
    - Environmental and Clinical matrices
    - Portable, battery operated (less than 1 cu ft)
    - Response time of 60 min or less
  - **Development of New Sources and Detectors**
    - Optimal Performance at Room Temperature
    - Low Cost, Solid State
    - Smaller, Lighter, and Lower Power Components
  - **Enhanced bio-informatics/meta-genomics**
    - Simpler/faster Algorithms
    - Automated data to decision tools



# Science & Technology (S&T) Needs



- **Environmental Bio-Surveillance (EBS)**
  - **Automated Sample to Sequence Capability**
    - Environmental and Clinical matrices
    - Portable, battery operated (less than 1 cu ft)
    - Response time of 60 min or less
  - **Low Cost Point of Need Assays**
    - Handheld like HHA
    - Confirmation of known targets
    - Easy to produce, long shelf-life
  - **Enhanced bio-informatics/meta-genomics**
    - Simpler/faster Algorithms
    - Automated data to decision tools

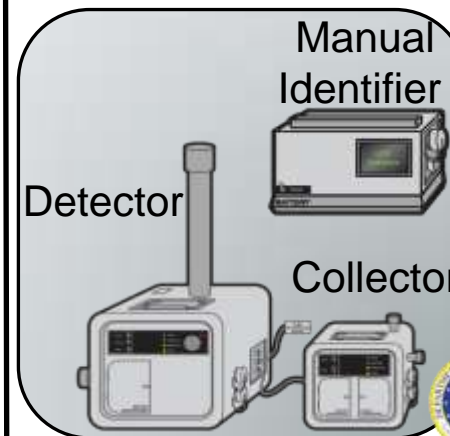
## What JBTDS brings to the fight?

- First increment of tactical biological aerosol point detection, collection and identification capability to the joint forces
  - Provides capability to facilitate rapid initiation of medical countermeasures for casualty management actions
  - Provides capability to limit BW casualties by increasing area commander's situational awareness

## Technology

- Multiple technologies will be demonstrated during competitive prototyping:
  - Collection: Dry collection
  - Detection: Raman; UV fluorescence
  - Identification: PCR; Immunoassay

## System Overview



## Milestone Dates

MDD – Jul 09  
 MS A – Jan 11  
 MS B – 3QFY13

## Users



## Why Invest in this Technology?

- Lightweight, low cost, Near COTS
- Compatible with multiple power sources
- Net Ready
  - CCSI compliant
  - JWARN compatible
- Near real time detection
  - (Detect < 1 min; Identify < 60 min)
- Organic capability





# Warfighter Needs



- **JBTDS**

- **Tactical BWA aerosol detection capability**

- **Lightweight**
    - **Easy to use**
    - **Minimal training**
    - **Battery-operable**
    - **Low cost**
    - **Low false alarm rate**
    - **Near real time detection & identification**
    - **Reduced Logistics**
    - **Expeditionary Forces**



# JBTDS Program Acquisition Strategy



- **Technology Development Phase Underway**
  - CP contracts awarded July 2011
- **MS B planned for 3Q13**
- **EMD will focus on integration of detection, collection and identification capabilities into a deployable, employable and sustainable system**



# Joint Product Director Stand-off Detection



# Science & Technology (S&T) Needs



- **Joint Biological Stand-off Detection System (JBSDS)**
  - **Understanding biological cross section data and how it relates to optical technologies to provide agent classification, decreased false alarms, and possible inclusion of chemical aerosol detection.**

# JBSDS-2 Overview

## What JBSDS brings to the fight?

- Given near real time acquisition, it supports the “detect to warn” model offering an opportunity to:
  - Preemptively adjust MOPP or initiate other protective actions
  - Finalize contamination avoidance efforts
- Rapidly initiate medical BW casualty management actions prior to biological agent arrival
- Increase the area commanders situational awareness by providing:
  - Time/Origin of attack
  - Real Time Mapping/Tracking of Suspect Aerosol Cloud

## Technology

- Three Light Detection and Ranging (LIDAR) Technologies being investigated for JBSDS 2
  - Differential Elastic Scattering (DISC)
  - Elastic Scatter Depolarization (Depol)
  - Laser Induced Fluorescence (LIF)
- All assessed at TRL 4 or above

## System Overview



## Milestone Dates

**MDD – Jul 09**

**MS A – Jan 11**

**MS B – 1QFY15**



## Why Invest in this Technology?

- Day/Night Operation
- Low False Alarm Rate
- Network Ready
- Significant Discrimination Range/Warning Time
- Enhanced Cloud Mapping and Tracking
- Reduced Size, Weight and Power



# Warfighter Needs



- **JBSDS**

- **Stand-off (Detect to Warn) BWA aerosol detection capability**

- **Day/Night Operation**
    - **Lower False Alarm Rate**
    - **Network Ready**
    - **Enhanced Cloud Mapping and Tracking**
    - **Longer Discrimination Range**
    - **Reduced Size, Weight and Power**



# JBSDS Program Acquisition Strategy



- **Technology Development Phase will determine and mature the appropriate set of technologies to be integrated into a full system, and demonstrate Critical Technology Elements (CTEs) on prototypes**
  - CP contracts to be awarded 1QFY12
  - MS B planned for 1QFY15
- **Engineering and Manufacturing Development Phase will focus on complete full system integration based on the results of the TD Phase**



# S&T Program Schedule



Fiscal Year	FY10	FY11	FY12	FY13	FY14	FY15	FY16
Algorithm Development	[RDTE]						
Automated Sample to Sequence	[RDTE]						
Auto Sample to Sequence Phase II					[RDTE]		

■ RDTE ■ PROC ◆ MS





# Program Schedule



PD/JPM	Program	FY11	FY12	FY13	FY14	FY15	FY16
FOS	JBPDS	PROC	PROC	PROC	PROC	PROC	Sustainment
FOS	JBTDS	6.4	6.4	6.4	6.5	6.5	6.5
Stand-off	JBSDS	6.4	6.4	6.4	6.4	6.5	6.5





# S&T Funding (\$M) (FY11 President's Budget)



<b>YEAR/ RTDE</b>	<b>FY12</b>	<b>FY13</b>	<b>FY14</b>	<b>FY15</b>	<b>FY16</b>	<b>TOTAL FY12-16</b>
<b>6.2</b>	<b>24.9</b>	<b>18.8</b>	<b>20.4</b>	<b>19.7</b>	<b>24.7</b>	<b>108.5</b>
<b>6.3</b>	<b>15.3</b>	<b>26.2</b>	<b>21.2</b>	<b>21.2</b>	<b>21.7</b>	<b>105.6</b>
<b>TOTAL BUDGET</b>	<b>40.2</b>	<b>45.0</b>	<b>41.6</b>	<b>40.9</b>	<b>46.4</b>	<b>214.1</b>



# Program Funding (\$M) (FY11 President's Budget)



<b>YEAR/ RTDE</b>	<b>FY11</b>	<b>FY12</b>	<b>FY13</b>	<b>FY14</b>	<b>FY15</b>	<b>TOTAL FY11-15</b>
<b>6.4</b>	<b>44.3</b>	<b>9.5</b>	<b>2.9</b>	<b>4.2</b>	<b>3.2</b>	<b>64.1</b>
<b>6.5</b>	<b>17.4</b>	<b>39.7</b>	<b>32.4</b>	<b>25.6</b>	<b>16.7</b>	<b>131.7</b>
<b>Proc</b>	<b>43.6</b>	<b>49.6</b>	<b>91.7</b>	<b>123.2</b>	<b>141.6</b>	<b>449.6</b>
<b>TOTAL BUDGET</b>	<b>105</b>	<b>92</b>	<b>127</b>	<b>153</b>	<b>161</b>	<b>639</b>

Defense Wide Funding Only

Army Procurement Funding FY11PB for BIDS - \$150.4M



# S&T Business Opportunities



OPPORTUNITY	TIME-FRAME
<b>Algorithm Development (Annual)</b>	
– NSF BAA <a href="http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503427">http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503427</a>	Open now
<b>CB Defense Physical Science and Technology (Bi-annual) BAA</b>	
– For New Start Projects (FY10-15)	November 2011
<b>TRA/Field Trial – Automated Sample to Sequence Platform</b>	
– TBD	Summer 2013
<b>CB Defense Small Business Innovation Research (SBIR)</b>	
– <a href="http://www.acq.osd.mil/sadbu/sbir/homepg.htm">http://www.acq.osd.mil/sadbu/sbir/homepg.htm</a>	
– For New Start Projects (FY10-15)	Mid-Nov 2011



# Upcomming Business Opportunities



OPPORTUNITY	TIME-FRAME
<b>JBTDS</b>	
<ul style="list-style-type: none"><li>- RDECOM Acquisition Center (Full and Open Competition)</li><li>- DRFAT RFP for EMD</li></ul>	FY12
<b>JBSDS</b>	
<ul style="list-style-type: none"><li>- RDECOM Acquisition Center (Full and Open Competition)</li><li>- DRAFT RFP for EMD</li></ul>	FY14



# S&T Points of Contact



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