DECONTAMINATION

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Advanced Planning Briefing to Industry

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Outline

- Overview
- S&T and Warfighter Needs
- Technical Challenges
- Acquisition Strategy/ Funding/ Schedule
- Upcoming Business Opportunities
- Contacts

Program Overview

- **Strategic Vision: Provide the warfighter an affordable family of modern decontaminants and applicators for immediate, operational and thorough decontamination to sustain operations in a contaminated environment with the least necessary burden and minimum degradation to mission accomplishment.**
- **Short/Mid Term: Provide the warfighter with an enhanced capability to conduct immediate, operational and thorough decontamination through spiral development.**
- **Long-Term: Optimize the warfighter's decon capability in the following areas:**
  - **Logistical footprint including materials, manpower, water, power, fuel, transportation, etc. for decon operations**
  - **Environmental friendliness**
  - **Self-decontamination**

Science & Technology (S&T) Overview

- **Overall objective is to develop the science and applied technology supporting the acquisition programs of record within the Joint Family of Decontamination Systems by:**
  - **Developing decontaminants that are:**
    - **not restricted by/overcome pH and other current reaction condition restrictions**
    - **regenerative/catalytic**
    - **easily and uniformly dispersed**
    - **non-toxic or less toxic than current decontaminants**
  - **Exploring new directions:**
    - **Broader Involvement of Academic and Industrial Research**
    - **Analytical and Predictive Decontamination Modeling**
    - **Wide-Area Solutions**
    - **Alternative Scientific Process Methodologies to Maximize Efficacy**
    - **Process application/dispersion methodology(ies) to maximize decontamination efficacy**

S&T Needs

- **Decontamination is divided into four thrust areas:**
  - **Process Fundamentals**
  - **Solution Chemistry**
  - **Solid Phase**
  - **Alternative Process**

S&T Needs

- **Near Term (FY06 – FY08) Objectives**
  - **Understanding basic decontamination science related to current and candidate decontaminants**
  - **Develop a broad-spectrum CWA/BWA decontamination solution that is reactive, non-corrosive, environmentally benign, and effective on a multitude of surfaces**

- **Mid Term (FY09 – FY11) Objectives**
  - **Algorithms for decontamination analytical and predictive modeling**
  - **Process application/dispersion methodology(ies) to maximize decontamination efficacy**
  - **Alternative process/science decontamination**

S&T Needs *(Cont'd)*

- **Far Term (FY12 & beyond) Objectives**
- **Robust Decontamination Analytical and Predictive Modeling:**
  - **Agent-Surface Interaction**
  - **Identification and Selection of Candidate Decontaminants**
  - **Efficacy of Candidate Decontaminants**
  - **Decontaminant Effects on Sensitive & "Durable" Materials**
- **New Generation/Alternative Science Decontaminants and Decontamination Systems**
  - **Demonstrated efficacy against all agents, including the full spectrum of chemical agents, biological agents, TICs, TIMs, and other novel agents and materials**
  - **non-corrosive**
  - **environmentally benign**
  - **effective on a multitude of surfaces**

Warfighter Needs

- **Joint Service Personnel/Skin Decontamination System (JSPDS)**
  - **Effective decontaminant for CB agents, TIC/TIMs and FDA Approved for use on skin**
  - **Compatible with detectors; other decontaminants; petroleum, oils, lubricants and other material found on the battlefield**
  - **Suitable for use on casualties and individual equipment and for use in mortuary affairs**
- **Joint Service Transportable Decon System-Small Scale (JSTDS-SS)**
  - **Provide tactical vehicle and equipment decontamination in close proximity to combat operations**
  - **Adaptable to multiple missions**
  - **Transportable off-road over any terrain on High Mobility Multi-purpose Wheeled Vehicles (HMMWV) and larger vehicles (no dedicated platform)**
  - **Set-up and operational in 30 minutes by 2 personnel**
  - **Throughput 8 medium sized vehicles/hour or one aircraft (F/A-18, E/CH-53 equivalent)/hour**

Warfighter Needs *(Cont'd)*

- **Joint Service Transportable Decon System-Large Scale (JSTDS-LS)**
  - **Decontaminate facilities, areas, terrain and exterior of large airframes**
  - **Readily adaptable to multiple missions**
  - **Operable while on the move from medium sized vehicles (e.g., Family of Medium Tactical Vehicles), primarily on roads/hard surfaces, limited off-road**
  - **Uses an enclosed/protected control station**
  - **Semi-autonomous two person operation**
  - **Decontaminate top and undercarriages of vehicles**
    - **Eight large sized vehicles/hour or One aircraft (C-9/B-1B/C-5 equivalent)/hour**
  - **Terrain decontamination 5m wide path in single pass and 3000 m2 without re-supply**
  - **Facility decontamination**
    - **Decontaminate and observe where decontaminants have been applied to elevated structures 13 m high**

Warfighter Needs *(Cont'd)*

- **Joint Portable Decon System (JPDS)**
  - **Provides immediate decontamination capabilities of tactical vehicles and equipment for completion of mission tasks**
  - **Easy to operate**
  - **Hand-held/back-pack system**
  - **Rapidly employable**
  - **Require minimal training and maintenance**

Warfighter Needs *(Cont'd)*

- **Joint Materiel Decontamination System (JMDS)**
  - **Decontaminate sensitive equipment and the interiors of aircraft, vehicles and ships**
  - **Effective against:**
    - **Chemical Agents**
    - **Biological Agents**
    - **Toxic Industrial Materials (Chemical/Biological/Radiological)**
    - **Non – traditional agents**
  - **Be able to operate during routine platform operations**
  - **Compatibility with detectors; petroleum, oils, lubricants and other material found on the battlefield**
  - **Suitable for use on aircraft, vehicles and ships in various environmental conditions**

S&T Technical Challenges

- **Basic understanding of decontaminant reactivity:**
  - **with agents – chemical, biological, TICs, TIMs, etc.**
  - **with material surfaces – interior, exterior, sensitive equipment, etc.**
  - **with agents and combinations of agents on material surfaces**
- **Developing analytical and predictive decontaminant/decontamination algorithms and models**
- **Determining decontaminant application/dispersion methodology(ies), maximizing decontamination process efficacy**
- **Development of alternative decontamination scientific processes/approaches that:**
  - **support field/on-site generation of decontaminants**
  - **move beyond solution chemistry and solid phase/absorption approaches; including gaseous, kinetic, energetic, and/or other novel approaches**

Program Technical Challenges

- **JSPDS**
  - **Effective against a broad spectrum of agents**
  - **Compatibility with detectors; other decontaminants; petroleum, oils, lubricants and other material found on the battlefield**
  - **Storage temperatures and shelf life**
  - **Durable packaging and easy to open**
- **JSTDS-SS**
  - **Effectiveness - broad spectrum, benign, compatible with materials, environmentally friendly**
  - **Decontaminant compatibility with a variety of materials, Protective equipment, detection devices, and other material that may be exposed to decontaminants**
  - **Applicator compatibility with multiple decontaminants**

Program Technical Challenges *(Cont'd)*

- **JSTDS-LS**
  - **Effectiveness - broad spectrum, benign, compatible with materials, environmentally friendly**
  - **Decontaminant compatibility with a variety of material, protective equipment, detection devices, and other material that may be exposed to decontaminants**
  - **Applicator compatibility with multiple decontaminants**
  - **Storage temperatures and shelf life**
  - **Containment/disposal (recycling) of runoff**
  - **Throughput and system capacity requirements**
  - **Dedicated platform**

Program Technical Challenges *(Cont'd)*

- **JPDS**
  - **Effectiveness**
    - **Against broad spectrum of agents**
    - **Variety of materials**
  - **Multiple Decontamination Missions**
    - **Aircraft decontamination**
    - **Non-sensitive building/facility interior space**
    - **Broad range of equipment (large and small)**
  - **Decontaminant compatibility with**
    - **Protective equipment, detection devices and other decontaminants**
  - **Applicator compatibility with multiple decontaminants**
  - **Light-weight man-portable – backpack**
  - **Storage temperatures and shelf life**

Program Technical Challenges *(Cont'd)*

- **JMDS**
  - **Effectiveness**
    - **Against broad spectrum of agents**
    - **In operating temperature extremes -25^{o}F to 120^{o}F**
  - **Material Compatibility**
    - **No degradation of sensitive equipment**
    - **Tactical vehicles, aircraft, facilities interior materials and removable sensitive equipment has a large range of material and different variety of equipment**
    - **Aircraft flight certification process**
  - **Size and Weight**
    - **Transportability**
    - **Inside through small entry hatches**

S&T Capability Strategy

- **Balance between requirements pull:**
  - **Align with the Joint Requirements Office (JRO) to address capability needs**
  - **Align with Joint Program Executive Office (JPEO) programs to address technology gaps**
  - **Answer critical science questions that support policy, doctrine and requirements decisions**
- **… and technology push:**
  - **Centralize investment in basic research (6.1)**
  - **Identify and exploit technology opportunities**
  - **Identify and respond to new and emerging threats**
  - **Transition new and innovative technologies with JPEO**
  - **Maintain a robust technology base: knowledge, research capabilities, and test and evaluation methodologies**

Program Acquisition Strategy

- **The JSPDS and JSTDS-SS programs are implementing an evolutionary acquisition strategy using spiral and incremental development.**
  - **JSPDS Increment I will leverage commercial off-the-shelf (COTS) systems. This increases the warfighter's capability and addresses near-term support issues with the M291 Skin Decontamination Kit (SDK) predecessor system.**
  - **JSTDS-SS Increment I will focus on fielding hardware systems that improve upon the capability of the M17 Lightweight Decontamination System.**
  - **JSPDS and JSTDS-SS Increment II will focus on improving overarching decontamination and expanding capabilities.**

Program Acquisition Strategy *(Cont'd)*

- **The JSTDS Large-Scale program is implementing an evolutionary acquisition strategy using incremental development.**
  - **Increment I will focus largely upon fielding COTS hardware systems that improve upon the capability of the M12A1, Power Driven Decontamination Apparatus.**
  - **Increment II will focus on improving overarching decontamination processes, efficacy, and system capabilities for operational and thorough decontamination of equipment, aircraft and non-sensitive building/facility interior spaces.**

Program Acquisition Strategy *(Cont'd)*

- **The JPDS program is implementing an evolutionary acquisition strategy using an incremental development.**
  - **Increment I will provide initial or improved capabilities to decontaminate a broad range of equipment (e.g., ships, tactical vehicles and crew-served weapons). In addition, JPDS will be used for immediate decontamination of individual equipment. JPDS will be used with existing approved detergents to perform decontamination operations on aircraft and aircraft support equipment.**
  - **Increment II will focus on improving decontamination processes, efficacy, and system capabilities to include thorough decontamination of select aircraft and non-sensitive building/facility interior spaces.**

Program Acquisition Strategy *(Cont'd)*

- **JMDS program is implementing an evolutionary acquisition strategy using an incremental development.**
  - **Working with Industry to determine a realistic approach concerning sensitive equipment, tactical vehicles, airframes and ship interior decontamination.**
  - **Incremental acquisition will be the mainstay of the effort**
  - **Chemical and biological decontamination will use the same technology**
  - **Funding is being worked to fully fund the program**

S&T Funding ($M)

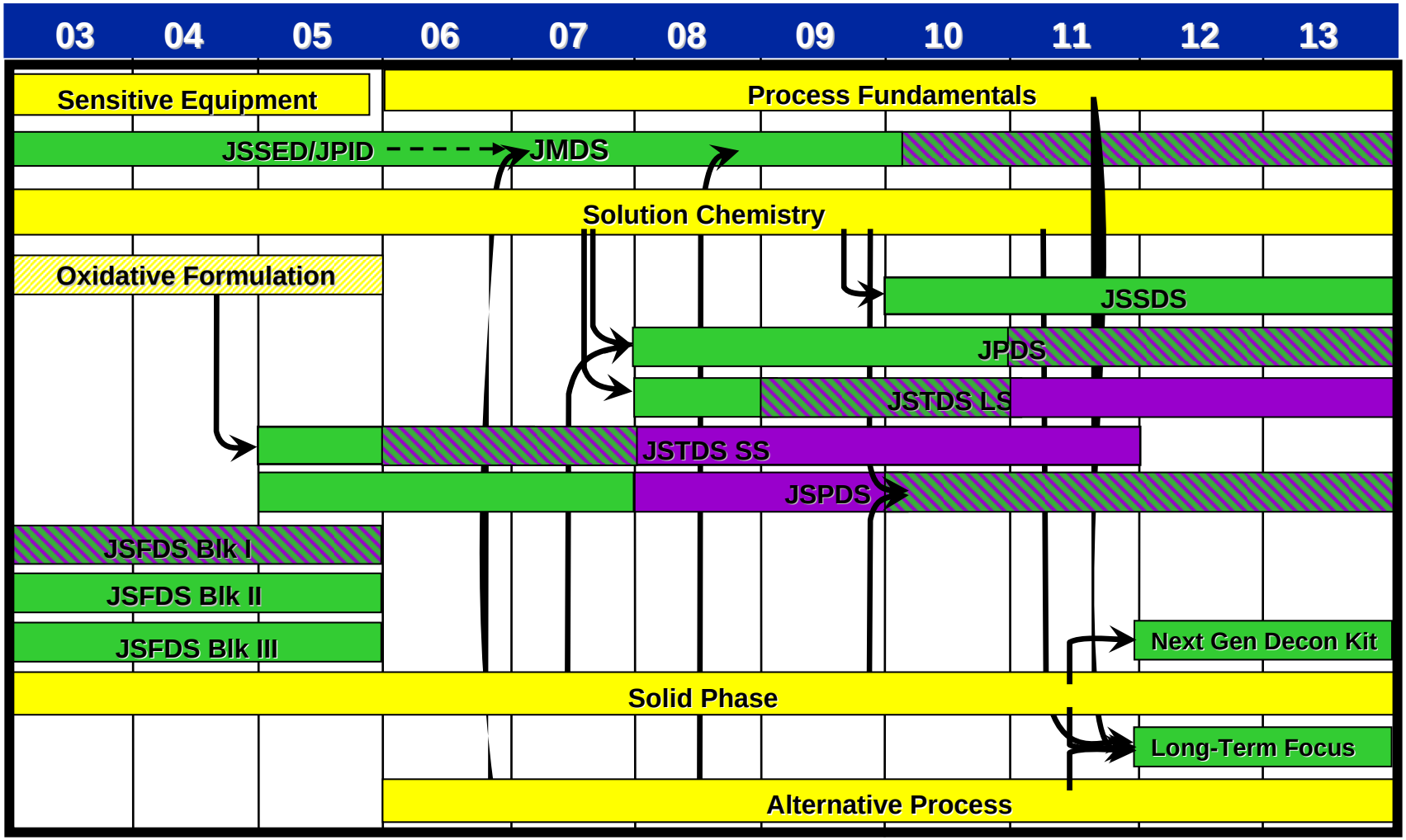
YEAR/ RTDE	FY06	FY07	FY08	FY09	FY10	FY11	TOTAL FY06-11
6.2	4.9	5.6	5.5	5.4	7.5	6.2	35.5
6.3	4.3	4.8	4.2	2.0	2.0	2.0	19.3
TOTAL BUDGET	9.2	10.8	9.7	7.4	9.5	8.2	54.8

Note: Alternative Process Thrust Area = 36% during POM Years

Program Funding ($M)

YEAR	FY06	FY07	FY08	FY09	FY10	FY11	TOTAL FY06-11
RDT&E	17.5	13.0	9.9	17.6	17.6	11.4	87.1
PROC	2.9	16.8	24.1	24.3	48.5	73.9	190.5
TOTAL BUDGET	20.4	29.8	34.0	41.9	66.1	85.2	277.6

S&T and Program Schedule



Upcoming Business Opportunities

- **Physical Science and Technology Broad Agency Announcement (BAA) – Annual (Late 1st Quarter FY)**
- **Physical Science and Technology BAA – Basic Research – Annual (Early 3rd Quarter)**
- **Small Business Innovation Research (SBIR) – Annual**
- **Chem-Bio Defense Initiative Fund (CBDIF) BAA – Annual**

Upcoming Business Opportunities *(Cont'd)*

- **JSTDS-LS**
  - **Increment I JSTDS Large Scale**
    - **Expected RFP Release for R&D/test quantities: FY08**
    - **Estimated production quantities (option): 500-1000 systems**

- **JPDS**
  - **Increment I JPDS**
    - **Expected RFP Release for R&D/test quantities: FY08**
    - **Estimated production quantities (option): Up to 18,424***

** Please Note: This is a corrected number from what was briefed at the APBI on April 10, 2006*

Upcoming Business Opportunities

JMDS

- **Milestone B for System Design Demonstration 4Qtr/FY06**
- **RFP will be full and open competition**
- **Anticipated Initial Operational Capability will be FY13 (Total Quantities – 175)**
- **Considering Performance Based Logistics dependent upon results of Business Case Analyses**

S&T Points of Contact

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