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

Science & Technology (S&T) Overview

- **Overall Objective is to Develop the Science and Applied Technology Supporting the Joint Acquisition Programs of Record for Decontamination Systems by:**
  - **Developing Decontaminants That Are:**
    - **Not Restricted by or Overcome by 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)**
    - **Integrate Decontamination Into Protective Systems**

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**
- **<u>Near Term</u>: Build Good Strategic Partnerships with JSTO, JRO, Services, Academia and Industry to Focus on Threat Characterization, Operational Concepts and Well-defined Requirements for Technology Insertions Utilizing a System of Systems Approach**
  - **Focus Research Efforts Primarily on Dual-use Devices and Technological Adaption of Decontaminants to Reduce Mechanical Engineering Challenges**
  - **Significantly Reduce Logistics Burdens Associated with Decon Ops**

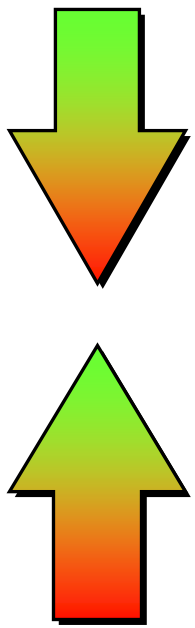
Program Overview *(Cont'd)*

- **<u>Mid Term</u>: Leverage S&T Results to Upgrade Fielded Decontamination Capabilities; Begin New Program Starts, as Appropriate**
  - **Explore Strippable Coatings and Other Non-traditional Approaches**

- **<u>Long-Term</u>: Optimize Material Self-Decontamination Capabilities; Plan Spiral System Development and Fielding (Plug-&-Play)**

S&T Needs

- **Decontamination is Divided into Four Technical Areas:**
  - **Process Fundamentals**
  - **Solution Chemistry**
  - **Solid Phase**
  - **Alternative Process**



S&T Needs

- **Near Term (FY07 – FY08) Objectives**
  - **Understanding Basic Decontamination Science Related to Near-term 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 – FY13) 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, Toxic Industrial Chemicals**
  - **Effective On Any Type of Surface / Substrate**
  - **"Smart Systems" that SENSE, RESPOND, and SIGNAL**
  - **Integrated Into Protective Systems**

Warfighter Needs

- **Human Remains Decontamination System**
  - **Decontaminate and Return Remains to US for Burial**
  - **Increment I, FY08-10**
    - **Leverage Commercial Off The Shelf (COTS) Equipment to Support Established Processes for External Decontamination of Human Remains and Evacuation Within Theater**
    - **POM Funding Supports an Executable Program**
  - **Increment II, TBD**
    - **Adds Capability for Internal Decontamination Inter-theater Evacuation and Return to the US**

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**
  - **Semi-autonomous Operation**
  - **Decontaminate Top and Undercarriages of Vehicles**
    - **8 Large Sized Vehicles/Hour or One Aircraft (C-9/B-1B/C-5 Equivalent)/Hour**
  - **Terrain Decontamination 5m Wide Path in Single Pass**
  - **Facility Decontamination**
    - **Decontaminate and Ensure Decontaminants have been Applied to Elevated Structures 13 m High**

S&T Technical Challenges

- **Basic Understanding of Decontaminant Reactivity:**
  - **With Agents – Chemical, Biological, Toxic Chemicals, etc.**
  - **With Material Surfaces – Interior, Exterior, Sensitive Equipment, etc.**
  - **With Agents and Combinations of Agents and daughter Products on Material Surfaces**
- **Developing Analytical and Predictive Algorithms and Models**
- **Determining Decontaminant Application/Dispersion Methodology(ies), Maximizing/Optimizing Process Efficacy**
- **Development of Alternative Decontamination Scientific Processes/Approaches:**
  - **Reduce Logistics Burden of Decon**
  - **Sacrificial and Catalytic Reactive Coatings**
  - **Mixed Novel Solvent / Reactant Systems**
  - **Novel Enzyme and Biomimetic Systems**
  - **Integration into "Smart Materials" – Merging with Protection Areas**

Program Technical Challenges

- **Human Remains Decontamination System (HRDS)**
  - **By-agent Understanding of Requirement for Decontamination**
  - **Clearly Defining Policy and Concepts of Operation.**
- **Joint Service Transportable Decon System-Large Scale (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 (for Some Operations)**
  - **Throughput and System Capacity Requirements**
  - **Dedicated Platform**

S&T Acquisition 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:**
  - **“Combatting WMD” Centralized Investment in Basic Research**
  - **Identify and Rapidly Exploit Technology Opportunities in the Pursuit of “Revolutionary Technologies”**
  - **Identify and Respond to New and Emerging Threats**
  - **Maintain a Robust Technology Base: Knowledge, Research Capabilities, and Test and Evaluation Methodologies**

Program Acquisition Strategy *(Cont'd)*

- **JSTDS Large-Scale Program**
  - **Actions Underway:**
    - **Update Requirement**
    - **Explore Technologies**
    - **Prepare for Milestone B Review and RFP in FY-08**
  - **Program 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.**

- **HRDS (Human Remains Decontamination System)**
  - **Early Concept Exploration (Proof of Concept/Conops)**
  - **MS-B/SDD Phase FY-08**

S&T Funding ($M)

YEAR/ RTDE	FY08	FY09 *(notional)*	FY10 *(notional)*	FY11 *(notional)*	FY12 *(notional)*	FY13 *(notional)*	TOTAL FY08-13
6.2	5.8	5.4	7.5	6.2	5.6	5.7	36.2
6.3	2.1	2	2	2	3.1	3.2	14.4
TOTAL BUDGET	7.9	7.4	9.5	8.2	8.7	8.9	50.6

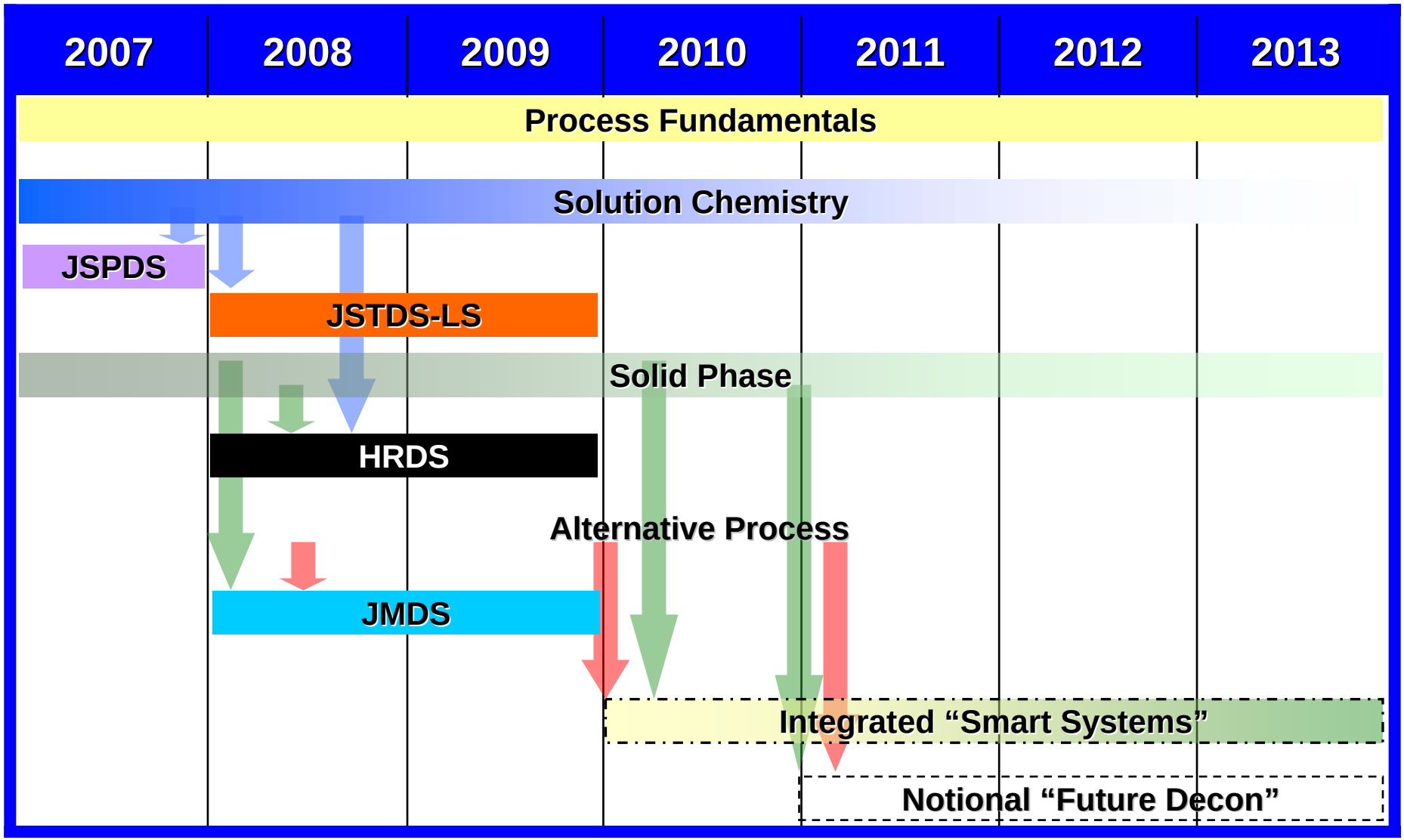
Note: Pending merger of Decontamination and Protection Research Areas in FY09 and beyond emphasizing "integrated smart systems"

Program Funding ($M)

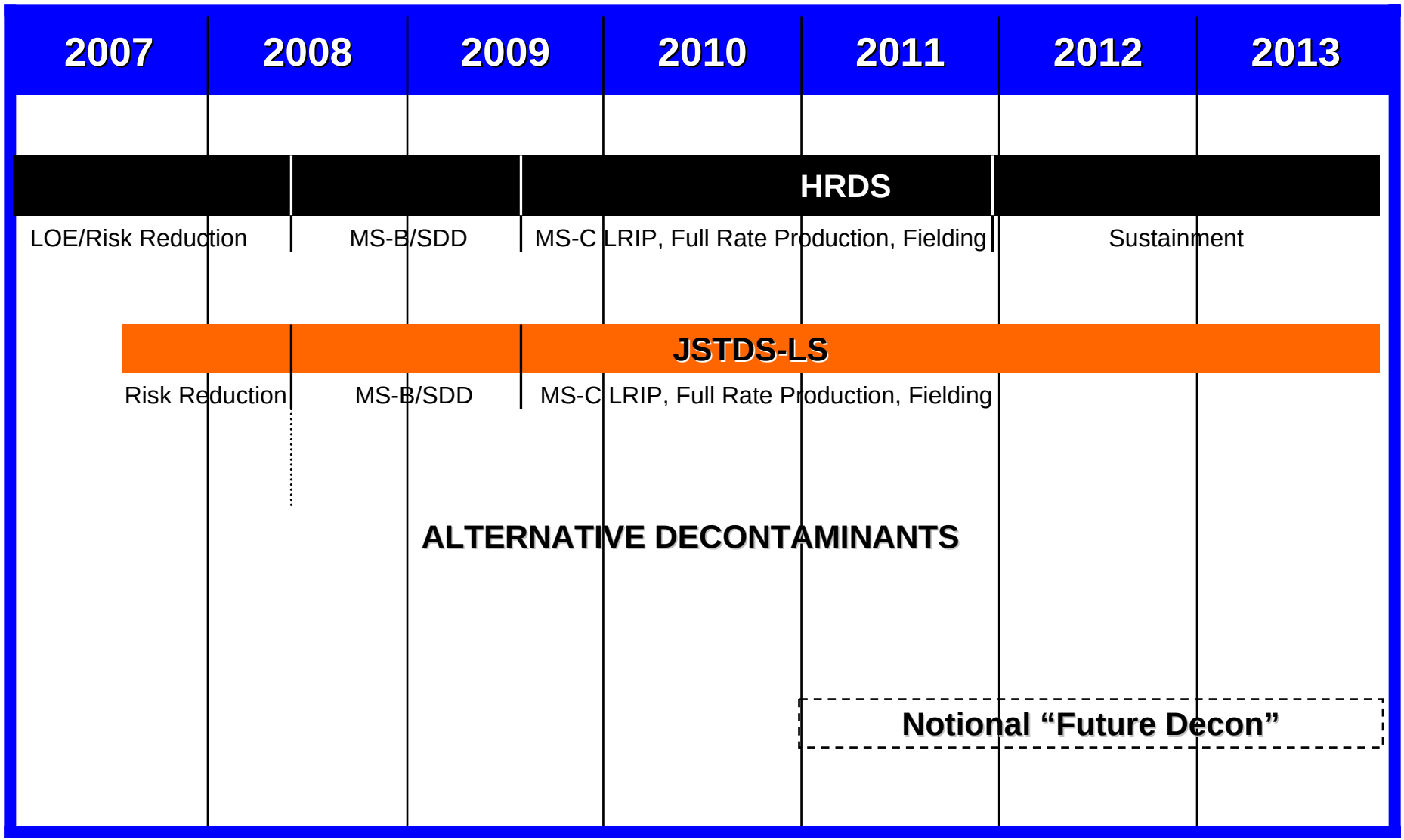
YEAR	FY07	FY08	FY09 *(notional)*	FY10 *(notional)*	FY11 *(notional)*	FY12 *(notional)*	FY13 *(notional)*	TOTAL
RDT&E	$1.0	$11.7	$5.5	$10.0	$7.9	$3.9		$40.0
Procurement				$1.0	$8.2	$13.4	18.0	$40.6
TOTAL BUDGET	$1.0	$11.7	$5.5	$11.0	$16.1	$17.3	$18.0	$80.6

Program funding for HRDS/JSTDS-LS

S&T Program Schedule



Program Schedule



S&T Business Opportunities

OPPORTUNITY	TIME-FRAME
CB Defense Physical Science and Technology (annual) BAA – For New Start Projects (FY09-13)	**December**
CB Defense Small Business Innovation Research (SBIR) – http://www.acq.osd.mil/sadbu/sbir/homepg.htm – For New Start Projects (FY08-13)	**Mid-Nov**
Chem-Bio Defense Initiative Fund (CBDIF) – BAA for New Start Projects (FY08-13)	**December**

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**
- **HRDS**
  - **Proof of Concept**
  - **MS-B/System Design and Development**
  - **Expected RFP Release 2QFY-08**
- **Long Term:**
  - **Product Improvements for Fielded Capabilities**
    - **DF 200 (Based on Enhanced Efficacy Levels/Logistics Considerations)**
    - **Skin Decon: Consolidated Equipment and Skin Wipes, Improved Operating Temperatures, etc**

S&T Points of Contact

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