



INDIVIDUAL PROTECTION

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Advanced Planning Briefing to Industry

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Outline



- **Science and Technology Overview**
- **Program Overview**
- **Science and Technology Needs**
- **Warfighter Needs**
- **Technical Challenges**
- **Acquisition Strategy/ Funding/ Schedule**
- **Upcoming Business Opportunities**
- **Contacts**



S&T Overview



- **Objective: Develop Science and Technology that will Protect the Warfighter From the Full Range of Chemical and Biological Agents by Supporting Acquisition Programs of Record and Providing the Material Developer with Innovative and Revolutionary Alternatives That Meet the User's Objects**

What is Revolutionary?



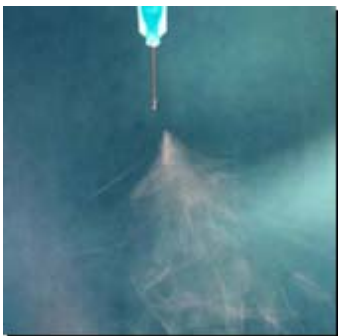
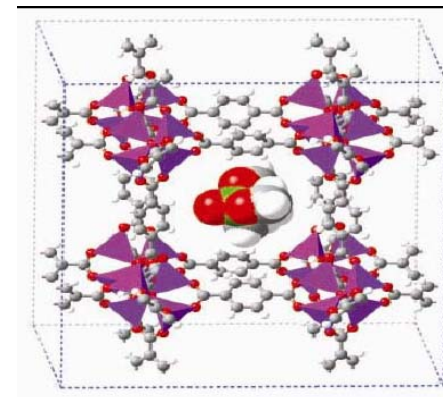
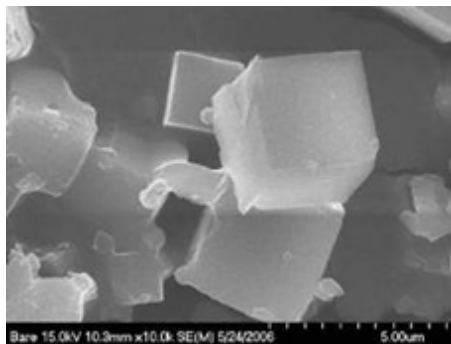
\$135 Billion¹ Apollo program makes 6 landings on the moon and stimulates development of many spin-off technologies including integrated circuits and fuel cells. Journey has not been repeated in over 34 years.

1. Adjusted to 2006 dollars

Automatic rifle designed by Mikhail Kalashnikov and introduced in 1947 is revered for its simplicity and reliability. Produced worldwide and used by 55 national armies, it has become a cultural icon.

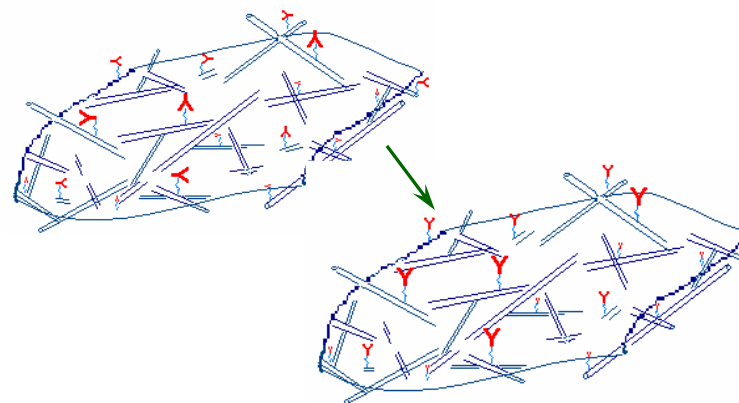


Reticular Chemistry



Nano-Composite Assembly

Nano-Fibers





Program Overview



- **The Joint Project Manager for Individual Protection (JPM-IP) is Responsible for the Development, Procurement, Fielding, and Overall Life Cycle Management of all Individual Protective Equipment Programs and Reports to the Joint Program Executive Officer for Chemical & Biological Defense (JPEO-CBD)**
- **Our Ultimate Outcome is to Deliver the Best Individual Protective Ensembles (Including Respiratory, Ocular, and Percutaneous Protection) and Mask Test Equipment to the Warfighter**



S&T Capability Strategy



- **Overall: Maintain a Far-term Focus:**
 - Develop and Demonstrate IPE as a Fully Integrated System
 - Invest in Revolutionary Technologies
 - Exploit Short-term Success to Improve the Fielded Capabilities
- **Test and Evaluation: Develop Methodologies to Improve IPE Test Range Capabilities Over the Near Term and Mid-term**
 - Relevant and Reproducible Methodologies
 - Whole-system Approaches



S&T Targets



- **Near Term (FY08 – FY10)**
 - Integrated Ensemble Demonstration
 - New Standardized Test Methodologies
- **Mid Term (FY11 – FY13)**
 - Integrated Protective Fabric
 - Revolutionary Respiratory/ Ocular Protection
- **Far Term (FY14 & Beyond)**
 - Intelligent Materials
 - Switchable Materials
 - Integrated Sensors (Within Textile Fibers)
 - Network Enabled IPE



S&T Needs and Challenges



- **Air Purification**
 - Tailorable Adsorbents for Low-molecular Weight Chemical Vapors
 - Energy Efficient Reactive/Regenerative Processes
 - Highly-Efficient, Low-Resistance Sub-micron Particulate Removal
 - Residual Life Indicators
- **Textile and Material Science**
 - Ultra-thin, High-strength, and Flexible/Tactile Barrier Materials
 - Lightweight/Low-Power or Passive Integrated Cooling
 - Stable, Selectively Reactive, Self-detoxifying Materials
 - Air-permeable Fabrics w/ Highly-Efficient Sub-micron Aerosol Removal
 - Intelligent (Switchable), Controlled Permeable Materials
 - Fiber-based Sensors
- **Human Performance**
 - Respiratory/Ocular Protection Interfaces
 - Cognitive and Physiological Parameters Related to “Comfort” and Performance



Warfighter Needs



- **Respiratory/Ocular Protection**
 - **Protection Against Toxic Industrial Chemicals/Materials (TICs/TIMs)**
 - **Improved Seals/Integration with Suit/Helmet**
 - **Residual Life Indicator**
 - **Operate at Higher Flow Rates**
 - **Longer Life, Lighter and Smaller Filters**

- **Vision and Comfort**
 - **Reduced Lens Distortion**
 - **Increased Field of View**
 - **Reduced Lens Fogging**
 - **Minimize Physiological Burden**
 - **Heat Stress and Sweat Management**

- **Percutaneous**

- **Cooler System (Lightweight, More Breathable Materials, Increased Water Vapor Transport Properties)**
- **Integrate Protection into Duty Uniform**
- **Improve Protection Around Areas of Integration**
- **Increased Protection (TIC, TIM, Aerosol, etc.)**
- **Residual Life Indication**
- **Low Cost Flame Retardant Materials**
- **Form Fitting Garments (Elasticized)**
- **Self-Detoxifying Materials**



Warfighter Needs (Cont'd)

- **Footwear**

- Boots - Common Combat Footwear with Integral Chem/Bio (C/B) Protection
- Socks - Self Detoxification



- **Gloves**

- Improved Protection (TIC, TIM, Aerosol, etc.)
- Integrated Closure Technology
- Better Tactility & Dexterity
- Improved Breathability
- Self Detoxification



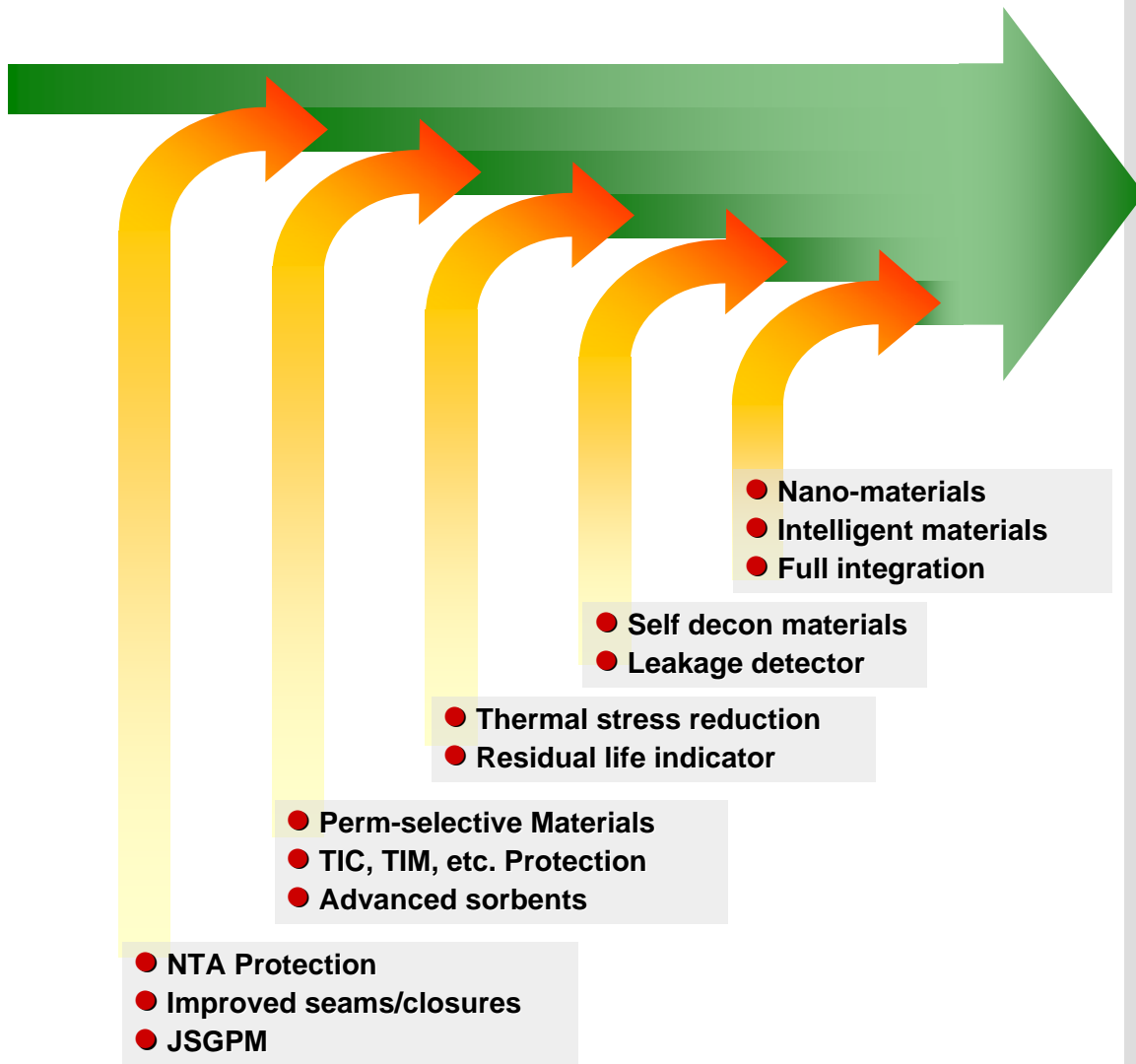


Program Technical Challenges



- **Develop Test Methodologies for Next Generation Materials/Components/Ensembles**
- **Develop Model That Correlates Test Data to Toxicological Endpoints**
- **Develop Effective Manufacturing Procedures**
 - **Cost**
 - **Production Rates**
 - **Consumption Rates**
- **Integration of Mask, Gloves, Boots and Suit**
- **Identify Peculiar Logistic Requirements**
 - **Repair**
 - **Residual Life Indicator/Determination**
- **Establish Disposal Procedures**

Program Acquisition Strategy



Joint Chemical Ensemble

Next generation protective ensemble:

- Cool & Lightweight
- CB Protective
- Standard duty uniform
- Increased mission duration
- Reduced logistics burden
- Fully integrated w/ mask, boots, gloves, helmet, body armor & weapons
- Reduced doffing hazard



S&T Funding (\$M)

YEAR/ RTDE	FY08	FY09	FY10	FY11	FY12	FY13	TOTAL FY08-13
6.2	23.0	28.4	29.3	28.1	24.9	22.8	<u>156.5</u>
6.3	2.9	2.9	1.9	1.9	1.9	1.9	<u>13.6</u>
TOTAL BUDGET	<u>25.9</u>	<u>31.3</u>	<u>31.2</u>	<u>30.0</u>	<u>26.9</u>	<u>24.7</u>	<u>170.1</u>

Total Protection S&T Funds includes Decon for FY09 and beyond

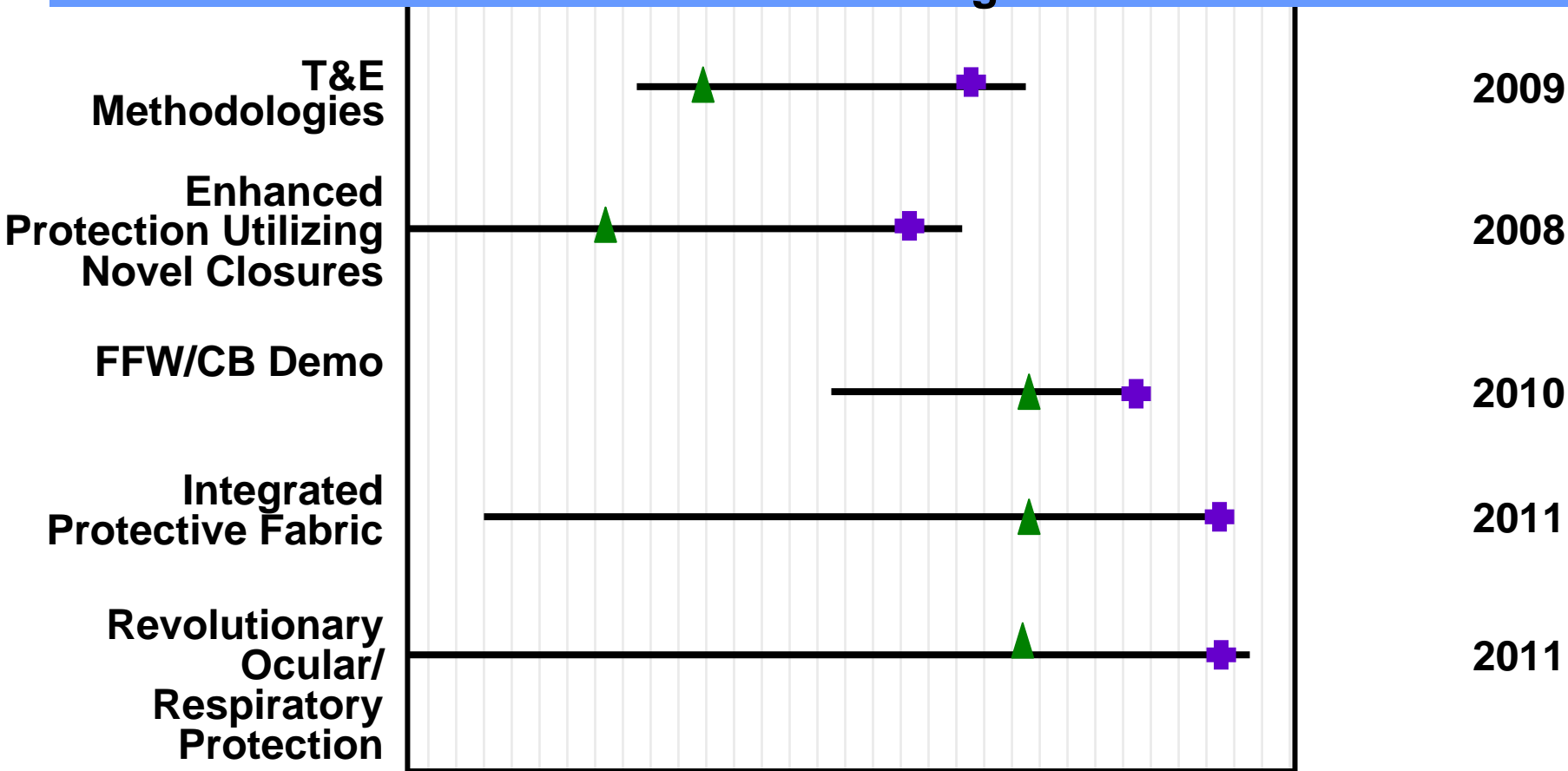


S&T Schedule

FY04 FY05 FY06 FY07 FY08 FY09 FY10 FY11

Proposed
Transition

DoD Funded Programs



LEGEND:

▲ Technology Transition Agreement (TTA) ✚ Transition



Program Funding (\$M)



YEAR	FY07	FY08	FY09	FY10	FY11	FY12	FY13	TOTAL FY07-13
RDT&E	17.1	12.9	2.2	4.4	4.8	5.4	4.2	<u>51.0</u>
PROCUREMENT	76.4	127.5	118.9	85.4	60.9	63.0	59.2	<u>591.3</u>
TOTAL BUDGET	<u>93.5</u>	<u>140.4</u>	<u>121.1</u>	<u>89.8</u>	<u>65.7</u>	<u>68.4</u>	<u>63.4</u>	<u>642.3</u>

Total Protection RDT&E and Procurement Funds



Program Schedule

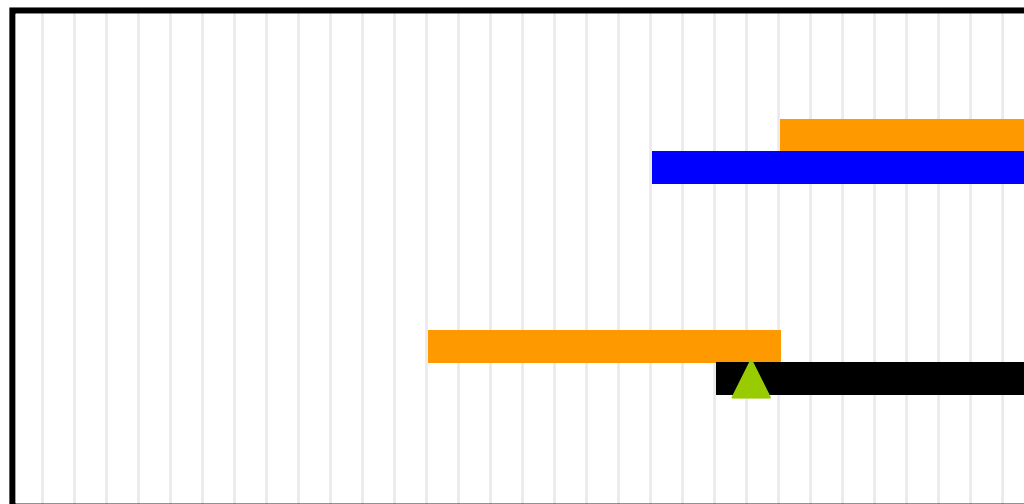


FY05 FY06 FY07 FY08 FY09 FY10 FY11

Joint Chemical Ensemble

JSLIST Lightweight

Chem/Bio Protective Suit



LEGEND: ■ RDT&E ■ DT/OT ■ Procurement ▲ IOC



S&T Business Opportunities



OPPORTUNITY	TIME-FRAME
CB Defense Physical Science and Technology (annual) BAA – For FY2009 New Start Projects	Dec 2007
CB Defence Small Business Innovation Research (SBIR) – http://www.acq.osd.mil/sadbu/sbir/homepg.htm	Nov 13, 2007
Chem-Bio Defense Initiative Fund (CBDIF) – BAA	Dec 2007



Upcoming Business Opportunities



PROGRAM	DESCRIPTION	YEAR
JSLIST Lightweight Chem/Bio Protective Suit	<ul style="list-style-type: none">• RFI Released March 2007• RFP Release June 2007	FY07
Joint Chemical Ensemble	Next Generation Protective Ensemble	FY10



S&T Points of Contact



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