# Department of Defense
# Fiscal Year (FY) 2011 President's Budget

February 2010

## Chemical and Biological Defense Program

*Justification Book*

***Research, Development, Test & Evaluation, Defense-Wide - 0400***

# Table of Contents

**Department of Defense Chemical and Biological Defense Program Overview**

**Fiscal Year (FY) 2011 President's Budget**

**The DoD Chemical and Biological Defense Program (CBDP) is a key part of a comprehensive national strategy to counter the threat of chemical and biological weapons as outlined in the National Military Strategy to Combat Weapons of Mass Destruction, February 2006. The military mission is to dissuade, deter, defend, and defeat those who seek to harm the United States, its allies, and its partners through WMD use or threat of use and, if attacked, mitigate the effects and restore deterrence. This mission is in direct support of the three pillars (non-proliferation, counterproliferation, and consequence management) of the National Strategy for Combating WMD. The DoD CBDP provides research, development, and acquisition (RDA) programs primarily to support the counterproliferation and consequence management pillars. In support of counterproliferation, the DoD CBDP provides passive defenses tailored to the unique characteristics of the various chemical and biological weapons, including emerging threats. These capabilities provide U.S. forces the ability to rapidly and effectively mitigate the effects of a CB attack against our deployed forces. In support of consequence management, the DoD CBDP provides capabilities to respond to the effects of WMD use against our forces deployed abroad, and the homeland.**

**The CBDP funds research to exploit leading edge technologies to ensure that U.S. forces are equipped with world class capabilities to defend against CB threats through the far term. This budget includes support of a comprehensive science and technology base program to assure we have the technologies needed to protect our troops. CBDP Science and Technology (S&T) research provides core capabilities to ensure U.S. technological advantages, including research into advanced chemical and biological detection systems, advanced materials for improved filtration systems and protection systems, advanced decontaminants, investigations into the environmental fate of chemical warfare agents, advanced information technologies, medical biological defense research (including novel biodefense initiatives that focus on interrupting the disease cycle before and after exposure, as well as addressing the bioengineered threat), diagnostics, therapeutics, and vaccines for viral, bacterial, toxin, and novel threat agents), and medical chemical defense (including investigations of low level chemical warfare agent exposures, diagnostics, therapeutics, pretreatments for classical chemical warfare threats and novel threat agents).**

**Technologies currently in Budget Activity 4 (Advanced Component Development and Prototypes) and Budget Activity 5 (System Development and Demonstration) provide leading edge tools that will enhance CB defense capabilities for U.S. forces in all CB defense missions in the near-term. The response to chemical and biological threats requires tailored approaches that recognize the fundamental differences between chemical and biological weapons (and even the different types of these threats). This budget details the comprehensive array of systems under development essential to support principles of contamination avoidance, protection, and decontamination.**

**Key systems in Budget Activity 4 and Budget Activity 5 in FY11 include: the Joint Chemical Agent Detector (JCAD) for portable point chemical agent detection, Joint Effects Model (JEM) and Joint Warning and Reporting Network (JWARN) to provide risk management, comprehensive analysis and response capability tools to the Warfighter, Joint Materiel Decontamination System (JMDS) for interior and sensitive equipment decontamination, Human Remains Decontamination System (HRDS), Sensor Suite Integration (SSI) for NBC Reconnaissance Systems (Stryker), Next Generation Chemical Standoff Detection (NGCSD), Chemical, Biological, Radiological, Nuclear (CBRN) Dismounted Reconnaissance Systems (CBRN DRS) providing equipment integrated into a modular, transportable container for enhanced dismounted operations, Common Analytical Laboratory System (CALS), Joint Biological Point Detection System (JBPDS), Joint Biological Stand-off Detection System (JBSDS) Increment 2, Advanced Anticonvulsant System (AAS), Bioscavenger, Improved Nerve Agent Treatment System (INATS), biological defense vaccines (including botulinum vaccine and plague vaccine), Critical Reagents Program (CRP) to support development of reagents for biological detection and diagnostic systems, Joint Bio Tactical Detection System (JBTDS), Joint Expeditionary Collective Protection (JECP), Joint Service Aircrew Mask (JSAM) and Joint Concept Technology Demonstrations (JCTDs).**

**In FY 2011, the CBDP will start or continue procurement on a variety of CB defense systems intended to provide U.S. forces with the best available equipment to survive, fight, and win in CB contaminated environments. New starts in procurement for FY 2011 include the Non Traditional Agent Detection Program (NTAD) that will enhance the Warfighter's ability to attain situational awareness and respond to unknown and emerging hazards and the HRDS, which will provide the capability for safe intra-theater handling and storage of Contaminated Human Remains resulting from chemical contamination. Programs continuing procurement include the Joint Service Transportable Decontamination System - Small Scale (JSTDS-SS), Joint Service Personnel Decontamination System (JSPDS), the Joint Effects Model (JEM), Joint Service General Purpose Mask (JSGPM), JWARN, Joint Service Protective Clothing (PROT CLTH) technology, CBRN DRS, Joint Bio Point Detection System (JBPDS), biological defense vaccines, CB Protective Shelters (CBPS), Collectively Protected Field Hospitals (CPFH), Joint Biological Agent Identification System (JBAIDS), Collective Protection System Backfit (CPSBKFT), Critical Reagents Program (CRP), and chemical and biological defense equipment for installation force protection.**

**Overall, the FY 2011 Budget Estimate achieves a structured, executable, and integrated medical and non-medical joint CB Defense Program that balances urgent short-term procurement needs that include securing the homeland from terrorist attack and emerging threats, against the long-term S&T efforts required to mitigate future CB attacks. Two key initiatives continuing in the FY 2011 submit include the Transformational Medical Technologies Initiative (TMTI) and efforts to enhance detection, medical countermeasures, decontamination, and protection capabilities against NTAs. TMTI is a FY06 Quadrennial Defense Review initiative to protect the Warfighter from emerging and genetically engineered biological threats by providing a novel response capability from identification of pathogens to the development of medical countermeasures (MCM). The focus of the FY 2010/11 TMTI profile will shift towards advanced development efforts as selected candidates enter the FDA clinical trials process. NTA enhancements provided in FY 2010 continue into this FY 2011 submit with further efforts directed towards providing near-term capabilities to the Warfighter while at the same time addressing next generation capability needs. NTA capabilities are accomplished through an integrated portfolio across the CBDP focusing on the enabling Science, Technology and Testing and the advanced development of detection, medical countermeasures, decontamination, and individual protection products. In summary, the DoD CBDP remains committed to establishing the optimal balance between the near term requirement to field modernized equipment to the field, and the need to protect and replenish our long term investment in technology.**

## Program Element Table of Contents (by Budget Activity then Line Item Number)

***Budget Activity 01: Basic Research***



***Budget Activity 02: Applied Research***



***Budget Activity 03: Advanced Technology Development (ATD)***

***Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)***



***Budget Activity 05: Development & Demonstration (SDD)***



***Budget Activity 06: RDT&E Management Support***

***Budget Activity 07: Operational Systems Development***

## Program Element Table of Contents (Alphabetically by Program Element Title)

Chemical and Biological Defense Program
FY 2011 President's Budget
Exhibit R-1 FY 2011 Base and Overseas Contingency Operations (OCO) Request
(Dollars in Thousands)

Appropriation: 0400D Research, Development, Test & Eval, DW

Date: February 2010

| Line No | Program Element Number | Item | Act | FY 2009 (Base & OCO) | FY 2010 Base & OCO Enacted | FY 2010 Supplemental Request | FY 2010 Total | FY 2011 Base | FY 2011 OCO | FY 2011 Total Request | Sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 0601384BP | Chemical and Biological Defense Program | 01 | 60,355 | 78,764 | | 78,764 | 49,508 | | 49,508 | U |
| Basic Research | | | | 60,355 | 78,764 | | 78,764 | 49,508 | | 49,508 | |
| 14 | 0602384BP | Chemical and Biological Defense Program | 02 | 231,331 | 224,830 | | 224,830 | 169,287 | | 169,287 | U |
| Applied Research | | | | 231,331 | 224,830 | | 224,830 | 169,287 | | 169,287 | |
| 34 | 0603384BP | Chemical and Biological Defense Program - Advanced Development | 03 | 307,351 | 299,680 | | 299,680 | 177,113 | | 177,113 | U |
| Advanced Technology Development (ATD) | | | | 307,351 | 299,680 | | 299,680 | 177,113 | | 177,113 | |
| 78 | 0603884BP | Chemical and Biological Defense Program | 04 | 69,793 | 209,275 | | 209,275 | 277,062 | | 277,062 | U |
| Advanced Component Development & Prototypes | | | | 69,793 | 209,275 | | 209,275 | 277,062 | | 277,062 | |
| 116 | 0604384BP | Chemical and Biological Defense Program | 05 | 286,529 | 300,317 | | 300,317 | 407,162 | | 407,162 | U |
| System Development and Demonstration (SDD) | | | | 286,529 | 300,317 | | 300,317 | 407,162 | | 407,162 | |
| 148 | 0605384BP | Chemical and Biological Defense Program | 06 | 100,470 | 106,033 | | 106,033 | 120,995 | | 120,995 | U |
| 149 | 0605502BP | Small Business Innovative Research - Chemical Biological Def | 06 | 12,713 | | | | | | | U |
| RDT&E Management Support | | | | 113,183 | 106,033 | | 106,033 | 120,995 | | 120,995 | |
| 181 | 0607384BP | Chemical and Biological Defense (Operational Systems Development) | 07 | 12,494 | 6,172 | | 6,172 | 6,634 | | 6,634 | U |
| Operational Systems Development | | | | 12,494 | 6,172 | | 6,172 | 6,634 | | 6,634 | |
| Total Chemical and Biological Defense Program | | | | 1,081,036 | 1,225,071 | | 1,225,071 | 1,207,761 | | 1,207,761 | |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | | | | | | | | | | DATE: February 2010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | | | | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | | | | | | | |
| **COST ($ in Millions)** | **FY 2009 Actual** | **FY 2010 Estimate** | **FY 2011 Base Estimate** | **FY 2011 OCO Estimate** | **FY 2011 Total Estimate** | **FY 2012 Estimate** | **FY 2013 Estimate** | **FY 2014 Estimate** | **FY 2015 Estimate** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 60.355 | 78.764 | 49.508 | 0.000 | 49.508 | 52.024 | 54.543 | 55.018 | 56.107 | Continuing | Continuing |
| CB1: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | 23.871 | 35.475 | 31.041 | 0.000 | 31.041 | 32.670 | 36.744 | 37.688 | 38.458 | Continuing | Continuing |
| CI1: *CONGRESSIONAL INTEREST ITEMS (BASIC RESEARCH)* | 8.090 | 20.036 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)* | 15.086 | 16.782 | 14.352 | 0.000 | 14.352 | 15.499 | 14.845 | 14.402 | 14.672 | Continuing | Continuing |
| TC1: *MEDICAL CHEMICAL DEFENSE (BASIC RESEARCH)* | 13.308 | 5.496 | 3.144 | 0.000 | 3.144 | 2.889 | 2.954 | 2.928 | 2.977 | Continuing | Continuing |
| TR1: *MEDICAL RADIOLOGICAL DEFENSE (BASIC RESEARCH)* | 0.000 | 0.975 | 0.971 | 0.000 | 0.971 | 0.966 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This program element funds the Joint Service fundamental research program for (medical and physical sciences) Chemical, Biological, and Radiological (CBR) defense. The objective of the basic research program is to advance fundamental knowledge and understanding of the sciences with an emphasis in exploring new and innovative research for combating or countering chemical, biological and radiological weapons. Moreover, basic research supports a Joint Force concept of a lethal, integrated, supportable, highly mobile force with enhanced capability by the individual service member. Specifically, the program promotes theoretical and experimental research and studies in the chemical, biological, radiological, medical and related sciences. Research areas are aligned and prioritized to meet Joint Service needs as stated in mission area analyses, joint operational requirements and to take advantage of scientific opportunities. Basic research is executed by government laboratories, industry, and academia to include Historically Black Colleges and Universities and Minority Institutions (HBCU/MIs). Funds directed to these laboratories and research organizations capitalize on scientific talent, specialized facilities, and technological breakthroughs. The work in this program element is consistent with the Chemical Biological Defense Program Research, Development and Acquisition (RDA) Plan. Knowledge and technologies resulting from basic research efforts are expeditiously transitioned to the applied research (PE 0602384BP) and advanced technology development (PE 0603384BP) activities. This project also covers the conduct of basic research efforts in the areas of real-time sensing and immediate biological countermeasures. The projects in this PE are placed in BA1, because they are basic research efforts directed towards non-specific or non-unique military applications.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | **R-1 ITEM NOMENCLATURE**<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* |

**B. Program Change Summary ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 61.194 | 58.974 | 0.000 | 0.000 | 0.000 |
| Current President's Budget | 60.355 | 78.764 | 49.508 | 0.000 | 49.508 |
| Total Adjustments | -0.839 | 19.790 | 49.508 | 0.000 | 49.508 |
| • Congressional General Reductions | | -0.330 | | | |
| • Congressional Directed Reductions | | 0.000 | | | |
| • Congressional Rescissions | 0.000 | 0.000 | | | |
| • Congressional Adds | | 20.120 | | | |
| • Congressional Directed Transfers | | 0.000 | | | |
| • Reprogrammings | 0.000 | 0.000 | | | |
| • SBIR/STTR Transfer | -0.839 | 0.000 | | | |
| • Other Adjustments | 0.000 | 0.000 | 49.508 | 0.000 | 49.508 |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2009 | FY 2010 |
|---|---|---|
| **Project:** CI1: *CONGRESSIONAL INTEREST ITEMS (BASIC RESEARCH)* | | |
| Congressional Add: *Garden State Cancer Center Vaccine Development Program -* | 0.789 | 0.000 |
| Congressional Add: *DNA Safeguard -* | 1.184 | 0.000 |
| Congressional Add: *In Vitro Models for Biodefense Vaccine -* | 0.987 | 1.514 |
| Congressional Add: *Superstructural Particle Evaluation and Characterization with Targeted Reaction Analysis (SPECTRA) -* | 1.184 | 0.000 |
| Congressional Add: *Defense Through Early Containment -* | 1.184 | 0.000 |
| Congressional Add: *Protection from Oxidative Stress -* | 1.579 | 0.000 |
| Congressional Add: *Research on a Molecular Approach to Hazardous Materials Decontamination -* | 1.183 | 0.000 |
| Congressional Add: *Synchotron Beamline and Experimental Station* | 0.000 | 3.187 |
| Congressional Add: *Advanced Development of Antiviral Prophylactics and Therapeutics* | 0.000 | 2.987 |
| Congressional Add: *Countermeasures to Chemical/Biological Control-Rapid Response* | 0.000 | 2.788 |
| Congressional Add: *MEMS Sensors for Real-Time Sensing of Weaponized Pathogens* | 0.000 | 1.992 |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | **R-1 ITEM NOMENCLATURE**<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* |

| **Congressional Add Details ($ in Millions, and Includes General Reductions)** | **FY 2009** | **FY 2010** |
|---|---|---|
| Congressional Add: *Mismatch Repair Derived Antibody to Treat Staph Derived Bioweapon* | 0.000 | 0.996 |
| Congressional Add: *Portable Rapid Bacterial Warfare Detection* | 0.000 | 3.983 |
| Congressional Add: *Potent Human Monocolonal Antibodies Against BoNT, A, B and E Suited for Mass Production* | 0.000 | 0.996 |
| Congressional Add: *High Speed and High Volume Laboratory Network for Infectious Diseases* | 0.000 | 1.593 |
| Congressional Add Subtotals for Project: CI1 | 8.090 | 20.036 |
| Congressional Add Totals for all Projects | 8.090 | 20.036 |

**Change Summary Explanation**

Funding: N/A - Adjustments less than 10% of total program.

Schedule: N/A

Technical: N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>CB1: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CB1: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | 23.871 | 35.475 | 31.041 | 0.000 | 31.041 | 32.670 | 36.744 | 37.688 | 38.458 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This project (CB1) supports basic research efforts in fundamental science phenomenology to include: life sciences; physical sciences; environmental sciences; mathematics; psychology and social sciences; and engineering. The objective of the Basic Research program is to successfully support the advancement of fundamental knowledge and understanding of the sciences with an emphasis on exploring new and innovative research for Chemical and Biological (CB) Defense. It includes new study areas, such as: nanoscale sciences; chemical, biological, and bio-inspired sciences; surface and signature sciences (with an emphasis on non-traditional agents (NTAs); and information sciences. The aim is to promote innovative concepts and directions of research, which could lead to transformational capabilities to enhance the performance and ensure the safety of the Warfighter. Research in nanoscale sciences (nanoelectromechanical systems, molecular motors, and nanometer imaging) may bring about improvements in protection, decontamination and other core CB defense fields. Research in chemical, biological & bio-inspired sciences includes research in concepts such as synthetic biology, biomimetics, and other emerging areas of science to build a foundation for developing novel smart materials. This will combine multiple functionalities into a common autonomous unit or network. Surface and signature sciences focuses on the study of physical and chemical properties, especially with regard to NTAs, that seek to improve physical capabilities such as detection and decontamination. Informational Sciences includes research in understanding cognitive and physiological effects on human decision-making, behavior and performance, and modeling and simulation of CB threats. Breakthroughs and advances in functional capabilities gained from these scientific disciplines could impact the entire chemical and biological defense science and technology program. Basic research activities described in this budget justification leverage existing research programs and activities within the DoD and other government agencies to accelerate transformational breakthroughs, which may be transitioned to applied research or advanced development initiatives. Due to the exploratory, academic, and theoretical nature of basic research efforts, projects described in this justification typically have a duration period, from conception to completion, of three to five years. Promising basic research efforts will be further exploited for their application to chemical and biological defense in Budget Activity 2 (Applied Science). The basic research program promotes cross-pollination between government and academia, as well as sponsors world class scientists while promoting the development of young researchers.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) SBIR | 0.000 | 0.584 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>CB1: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Small Business Innovative Research. | | | | | |
| 2) Basic Research Core<br>Nano-Scale Sciences: Improve understanding of nano-scale materials (scale of 1-100 nanometers in length) for use in chemical and biological defense.<br><br>*FY 2009 Accomplishments:*<br>Completed efforts investigating new types of materials for potential use in decontamination and protection, and shared information on new techniques for detection of chemical agents through novel applications of physics and chemistry. Continued study of compounds which mimic biological organisms and nano-scale sensing technologies for identification of agents. Continued studies of new materials being developed through nanotechnology for protective equipment, while initiating new efforts into new textiles with a higher resistance to oily substances or with adjustable porosity. Other new efforts studied interfaces between nano-materials and living cells, and systems found in nature for creative solutions for future protection concepts.<br><br>*FY 2010 Plans:*<br>Complete study of some compounds which mimic biological organisms and nano-scale sensing technologies for identification of agents. Continue efforts into new textiles with a higher resistance to oily substances or with adjustable porosity, as well, as efforts studying interfaces between nano-materials and living cells. Continue the study of systems found in nature for creative solutions for future protection concepts. Continue to identify new topics for investments in basic research to support the fundamental scientific phenomena in nano-scale science technology. Investigate new concepts in nano-scale chemical and biological sensing/detection. Initiate new studies to develop nano-scaled porous materials. Identify/leverage state-of-the-art breakthroughs to fill capability gaps. | 5.572 | 9.009 | 8.700 | 0.000 | 8.700 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>CB1: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Complete projects originating in FY09, including new textiles with a higher resistance to oily substances or with adjustable porosity efforts. Study interfaces between nano-materials and living cells, and study systems found in nature for creative solutions for future protection concepts. Continue to identify new topics for investments in basic research to support the understanding of fundamental scientific phenomena at the nano-scale. Advancements made in nano-scale sciences may apply to and be leveraged by other basic research areas such as biosciences and bio-inspired sciences, surface and signature science, informational science, and threat agent science (TAS) activities funded in Budget Activity 2. | | | | | |
| 3) Basic Research Core<br>Chemical, Biological, and Bio-Inspired Science: Focuses on discovering fundamental phenomena that could impact chemical and biological defense.<br><br>*FY 2009 Accomplishments:*<br>Continued research on projects initiated in FY08, such as novel materials for biomolecular adsorption and cell signaling to mitigate effects of chemical and biological agents, as well as, new hybrid nanomaterials that bridge nanoparticle and metallic surfaces to make biological interfaces. Initiated efforts to investigate reactions of certain chemical compounds in alcohol media for possible decontaminant applications, and new peptide structures for alternative active sites on the molecule for recognition and decontamination. Investigated new approaches for the classification of biological agents and specifically engineered genetics.<br><br>*FY 2010 Plans:*<br>Continue previous FY08/FY09 projects related to bioscience. Continue research to investigate new hybrid nanomaterials that bridge nanoparticle and metallic surfaces to make biological interfaces, which will allow for improved understanding of cellular reactions and responses to chemical and biological agents. Continue to characterize new mechanisms of reaction for these new materials. | 4.800 | 11.518 | 8.341 | 0.000 | 8.341 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>CB1: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Begin developing novel tools to investigate cells and cell mechanisms. Characterize NTA toxicokinetic properties and mechanisms of toxicity for NTAs. Assess effectiveness of developmental general purpose decontaminants, as well as, explore new formulations. Maintain visibility of relevant research which could be leveraged for the benefit of chemical and biological defense.<br><br>*FY 2011 Base Plans:*<br>Continue developing novel tools to investigate cells and cell mechanisms. Continue to investigate and leverage developments in bioscience, bio-inspired science, and chemical sciences to support and improve fundamental scientific understanding. Leverage and merge developments with other basic research areas such as information sciences and surface and signature sciences. Initiate efforts in response to identified science gaps. | | | | | |
| 4) Basic Research Core<br>Information Science: Leverages new developments in information and computation to impact modeling and other chemical and biological defense efforts.<br><br>*FY 2009 Accomplishments:*<br>Continued research on projects initiated in FY08. Initiated efforts to investigate genetic algorithms to identify optimal material arrangements, quantification and reduction of uncertainty for dispersion models via meteorological predictions through computer experimentation, calculations of the complete electromagnetic response of large macromolecules, and new molecular recognition signatures in the electromagnetic spectrum.<br><br>*FY 2010 Plans:*<br>Continue FY08/FY09 projects. Initiate efforts to support and investigate genetic algorithms. Seek to understand cognitive effects of heightened sensory input. Research conducted will draw from many disciplines, including: cognitive psychology; neuroscience; linguistics; medical sciences; and | 5.925 | 5.876 | 6.000 | 0.000 | 6.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>CB1: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| will leverage advances in physics, mathematics, biology, and other relevant sciences to improve informational and decision making tools.<br><br>*FY 2011 Base Plans:*<br>Continue investigating genetic algorithms and studying effects of heightened sensory input during chemical biological warfare events. Utilize efforts in information sciences to inform other areas of core chemical and biological defense programs, such as modeling and computational efforts. | | | | | |
| 5) Basic Research Core<br>Cognitive Science: Focuses on thinking and decision making to impact support tools for CB defense.<br><br>*FY 2009 Accomplishments:*<br>Continued research on projects initiated in FY08. Initiated efforts to investigate the presentation of risk and uncertainty for chemical and biological defense decision making.<br><br>*FY 2010 Plans:*<br>All Cognitive Science efforts are re-aligned to Information Science. | 3.463 | 0.000 | 0.000 | 0.000 | 0.000 |
| 6) Basic Research Core<br>Integration of Basic Research Science: Focuses on basic research for chemical and biological defense and reaches out to a varied performer base for the best innovations and programs.<br><br>*FY 2009 Accomplishments:*<br>Completed research on projects initiated in FY08, and transitioned relevant information to various physical applied research projects located in Budget Activity 2. | 4.111 | 0.000 | 0.000 | 0.000 | 0.000 |
| 7) Basic Research Core | 0.000 | 8.488 | 8.000 | 0.000 | 8.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>CB1: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Surface and Signature Sciences: A new study area established to focus on the study of physical and chemical properties that seeks to improve physical capabilities, such as, detection and decontamination.<br><br>*FY 2010 Plans:*<br>Identify and exploit novel tools to investigate surface and signature sciences to inform capability gaps in fields such as detection and decontamination. Initiate and combine the efforts that improve the phenomenology needed to protect, detect, decontaminate, or otherwise counter chemical (to include NTAs) and biological threats. Study interactions of chemical and biological agents with biological and environmental matrices.<br><br>*FY 2011 Base Plans:*<br>Continue studying interactions of chemical and biological agents with biological and environmental matrices, and develop novel tools to investigate surface and signature sciences to address capability gaps. Study signature sciences and surface interactions. | | | | | |
| Accomplishments/Planned Programs Subtotals | 23.871 | 35.475 | 31.041 | 0.000 | 31.041 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 102.599 | 110.955 | 88.897 | | 88.897 | 100.243 | 97.979 | 90.686 | 91.554 | Continuing | Continuing |
| • CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* | 19.567 | 25.297 | 15.410 | | 15.410 | 21.450 | 26.120 | 36.775 | 37.148 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>CB1: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* |

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>CI1: *CONGRESSIONAL INTEREST ITEMS (BASIC RESEARCH)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CI1: *CONGRESSIONAL INTEREST ITEMS (BASIC RESEARCH)* | 8.090 | 20.036 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

The efforts listed in this project include congressional interest programs for FY09 and FY10.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: Garden State Cancer Center Vaccine Development Program -<br>*FY 2009 Accomplishments:*<br>Continued the development of a safe vaccine against smallpox that does not require whole or live virus, thereby eliminating the danger of vaccine-associated side effects and transmission for viral infections to immunocompromised individuals. | 0.789 | 0.000 |
| Congressional Add: DNA Safeguard -<br>*FY 2009 Accomplishments:*<br>Continued development of a stable, DNA-based chemical marker (DNA Barcode) capable of encoding information that can be added to any DNA sample in order to label the sample and guarantee its integrity. | 1.184 | 0.000 |
| Congressional Add: In Vitro Models for Biodefense Vaccine - | 0.987 | 1.514 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | **R-1 ITEM NOMENCLATURE**<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | **PROJECT**<br>CI1: *CONGRESSIONAL INTEREST ITEMS (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| *FY 2009 Accomplishments:*<br>Conducted basic research for the use of In Vitro models in vaccine development.<br><br>*FY 2010 Plans:*<br>Continuation of FY09 research | | |
| Congressional Add: Superstructural Particle Evaluation and Characterization with Targeted Reaction Analysis (SPECTRA) -<br>*FY 2009 Accomplishments:*<br>Continued basic research on superstructural particle evaluation and characterization with targeted reaction analysis begun in FY06. | 1.184 | 0.000 |
| Congressional Add: Defense Through Early Containment -<br>*FY 2009 Accomplishments:*<br>Conducted basic research focused on containment of agents following an incident. | 1.184 | 0.000 |
| Congressional Add: Protection from Oxidative Stress -<br>*FY 2009 Accomplishments:*<br>Conducted basic research focused on protection technologies. | 1.579 | 0.000 |
| Congressional Add: Research on a Molecular Approach to Hazardous Materials Decontamination -<br>*FY 2009 Accomplishments:*<br>Continued research on molecular approach to decontamination in collaboration with the Naval Surface Warfare Center (NSWC) begun in FY06. | 1.183 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>CI1: *CONGRESSIONAL INTEREST ITEMS (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: Synchotron Beamline and Experimental Station<br>*FY 2010 Plans:*<br>Build an experimental end-station at National Synchotron Light Source-II for the purpose of conducting basic research on the structure and processes of pathogens, toxins and their antidotes. | 0.000 | 3.187 |
| Congressional Add: Advanced Development of Antiviral Prophylactics and Therapeutics<br>*FY 2010 Plans:*<br>Apply knowledge of the discovery of a new class of antiviral drugs to develop medical countermeasures against viral biowarfare agents and for therapies against other viral diseases such as Hepatitis C, HIV and Influenza. Explore chemical modifications of previously identified broadly active compounds to target proteins involved in additional viruses of interest. Demonstrate efficacy of active compounds via in vitro and animal trials. | 0.000 | 2.987 |
| Congressional Add: Countermeasures to Chemical/Biological Control-Rapid Response<br>*FY 2010 Plans:*<br>Research Support of Biodefense and emerging infectious disease. | 0.000 | 2.788 |
| Congressional Add: MEMS Sensors for Real-Time Sensing of Weaponized Pathogens<br>*FY 2010 Plans:*<br>Develop a wearable sensor to detect weaponized pathogens utilizing the unique properties of diamond and enable a new class of compact, wearable chemical and biological point sensors, with unprecedented sensitivity, stability, and reproducibility. | 0.000 | 1.992 |
| | 0.000 | 0.996 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | **R-1 ITEM NOMENCLATURE**<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | **PROJECT**<br>CI1: *CONGRESSIONAL INTEREST ITEMS (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: Mismatch Repair Derived Antibody to Treat Staph Derived Bioweapon<br>*FY 2010 Plans:*<br>Develop fully human anti-Staphylococcus enterotoxin B (SEB) monoclonal antibodies (mAbs) that can neutralize >1000 times the human LD50 of the toxin. | | |
| Congressional Add: Portable Rapid Bacterial Warfare Detection<br>*FY 2010 Plans:*<br>Develop a field deployable system based on InfraRed spectroscopy. | 0.000 | 3.983 |
| Congressional Add: Potent Human Monocolonal Antibodies Against BoNT, A, B and E Suited for Mass Production<br>*FY 2010 Plans:*<br>Develop Potent Human Monocolonal Antibodies Against BoNT, A, B and E Suited for Mass Production | 0.000 | 0.996 |
| Congressional Add: High Speed and High Volume Laboratory Network for Infectious Diseases<br>*FY 2010 Plans:*<br>Develop an expanded capability to include other biothreat agents, including bacterial and/or viruses (dual-use). | 0.000 | 1.593 |
| Congressional Adds Subtotals | 8.090 | 20.036 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>CI1: *CONGRESSIONAL INTEREST ITEMS (BASIC RESEARCH)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CI2: *CONGRESSIONAL INTEREST ITEMS (APPLIED RESEARCH)* | 42.714 | 16.630 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • CI3: *CONGRESSIONAL INTEREST ITEMS (ATD)* | 46.971 | 18.622 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)* | 15.086 | 16.782 | 14.352 | 0.000 | 14.352 | 15.499 | 14.845 | 14.402 | 14.672 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This project (TB1) funds basic research of vaccines, diagnostic tools, and therapeutic drugs to provide effective medical defense against validated biological threat agents including bacteria, toxins, and viruses. Advance innovative biotechnology approaches with the potential to rapidly identify, diagnose, prevent, and treat disease due to exposure to biological threat agents. Project categories include core science efforts and technology programs areas in biological defense capability areas, such as Pretreatments, Diagnostics, and Therapeutics. Starting in FY10, all efforts will be combined into a single capability area called Biological Based Basic Research.

This project also includes efforts such as the Transformational Medical Technologies Initiative (TMTI). The TMTI was launched to respond to the threat of emerging or intentionally bioengineered biological threats. TMTI's mission is to protect the Warfighter from genetically engineered biological threats by providing a rapid response capability from identification of pathogens to the delivery of medical countermeasures. This mission is accomplished through two main efforts: 1) developing broad spectrum (multi-agent) therapeutics against biological warfare (BW) agents (e.g, one drug that treats multiple agents); and 2) developing platform technologies to assist in the rapid development of medical countermeasures (MCMs) in response to BW agents (e.g, developing new and innovative ways to mass produce drugs in the event of a biological incident).

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.270 | 0.000 | 0.000 | 0.000 |
| 2) Diagnostics<br>Pursue technologies that enable medical elements to determine exposure or infection of forces by a biological warfare agent and assist in appropriate lifesaving treatment. | 3.026 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued to seek novel avenues for assay design and application. Investigated cutting edge technologies as new genomic techniques become available. Accelerated identification of novel biomarkers of biological warfare agent (BWA) infection and applied to assay development.<br><br>*FY 2010 Plans:*<br>Efforts re-aligned to Biological Based Basic Research. | | | | | |
| 3) Pretreatments<br>Multiagent Vaccines: Research vaccines that protect against multiple agents.<br><br>*FY 2009 Accomplishments:*<br>Utilized novel technologies to define target antigens for different bio-threat pathogens. Explored DNA-based vaccine formulations against multiple agents. Incorporated novel adjuvants and/or delivery systems in the design of a multi-agent vaccine.<br><br>*FY 2010 Plans:*<br>Efforts re-aligned to Biological Based Basic Research. | 0.315 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4) Pretreatments<br>Vaccine Research Support: Research human immune response and pathogenicity of biological agents.<br><br>*FY 2009 Accomplishments:*<br>Conducted basic pathogenicity studies of selected biothreat agents. Developed and refined in vitro correlates of immunity for new antigen in relation to vaccines under development. Pursued the identification and evaluation of novel target antigens for intracellular pathogens by studying the innate and adaptive immune responses to pathogens. Optimized epitope mapping of lead antigen candidates. | 2.937 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Efforts re-aligned to Biological Based Basic Research. | | | | | |
| 5) Therapeutics<br>Viral Therapeutics: Research understanding of viral infection.<br>*FY 2009 Accomplishments:*<br>Delineated the mechanisms of pathogenesis of conventional threats to support the progression of therapeutics to advanced development. Compared the host response of well characterized threats with that of poorly characterized category A and B threats to identify new therapeutic targets.<br>*FY 2010 Plans:*<br>Effort re-aligned to Biological Based Basic Research. | 0.435 | 0.000 | 0.000 | 0.000 | 0.000 |
| 6) Therapeutics<br>Toxin Therapeutics: Research efforts to enhance understanding of toxins and their effects on the host.<br>*FY 2009 Accomplishments:*<br>Improved in silico, in vitro, and in vivo modeling systems that will assist in defining responses to threat agent toxins. Completed development of a mouse model for inhalational exposure to staphylococcal entertoxin B (SEB) using microinstillation technology. Characterized the process of intracellular targeting of BoNT, and initiated intracellular assay model development. Defined the cellular factors responsible for Botulinum Neurotoxin (BoNT) translocation inside cells. Determined the structural requirements of potential restorative therapeutics for neuroparalysis following BoNT intoxication.<br>*FY 2010 Plans:*<br>Efforts re-aligned to Biological Based Basic Research. | 2.606 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 7) Therapeutics | 0.653 | 0.000 | 0.000 | 0.000 | 0.000 |
| Bacterial Therapeutics: Research efforts to enhance understanding of bacterial pathogens.<br><br>*FY 2009 Accomplishments:*<br>Characterized new potential targets for therapeutic countermeasures, focusing on those identified for poorly characterized threats.<br><br>*FY 2010 Plans:*<br>Efforts re-aligned to Biological Based Basic Research. | | | | | |
| 8) Biological Based Basic Research | 0.000 | 9.160 | 8.899 | 0.000 | 8.899 |
| Research to understand biological agents of interest, their pathways, virulence, immunization factors and identification.<br><br>*FY 2010 Plans:*<br>Determine mechanisms of pathogenesis for viral and bacterial biothreat agents and toxins. Define immune responses and mechanisms that confer protection against biothreat agents. Identify novel and/or shared antigens from viral and bacterial threat agents to be used in the design of future vaccine formulations. Determine the contribution of post-translational modification of Botulinum Neurotoxin (BoNT) to the intracellular biology of the toxin. Determine advanced pharmacokinetic models of BoNT intoxication to define the therapeutic window of opportunity.<br><br>*FY 2011 Base Plans:*<br>Conduct studies of pathogenic mechanisms for viral and bacterial biothreat agents and toxins. Clarify mechanisms of host-pathogen interaction to identify mechanisms of pathogenesis and/or correlates of protective immunity against biothreat agents. Define novel and/or shared antigens from viral and bacterial threat agents to be used in the design of future treatment options. Define the contribution | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| of post-translational modification to the structure and biology of BoNT. Research novel constructs for affinity reagents for the identification of biological warfare agents and biomarkers. | | | | | |
| 9) Transformational Medical Technologies Initiative | 5.114 | 5.471 | 0.000 | 0.000 | 0.000 |
| Multiagent (Broad Spectrum) Medical Countermeasures: Basic research efforts focused on the early drug discovery phase of drug development. Active monitoring of scientific literature to generate hypotheses for research. Review scientific findings and assess a foundation for characterizing new therapeutics. Identify and develop brand new compounds that could lead to successful therapeutic candidates. Scientific studies to generate research ideas, hypotheses, and experimental designs for addressing the development of therapeutics against Biological Warfare (BW) agents. Use computer simulation or other virtual platforms to test hypotheses. Begin research, data collection, and analysis to test hypothesis. Explore alternative concepts, identify and evaluate critical technologies and components, and begin characterization of candidates. Demonstrate preliminary efficacy. | | | | | |
| *FY 2009 Accomplishments:*<br>Continued drug discovery research for broad-spectrum countermeasures with new candidates. Continued basic research to identify new candidates for molecular targets for broad-spectrum countermeasures. Continued to evaluate new thrust areas in genomics, proteomics, bioinformatics, and other relevant systems biology research. Focused efforts on promising intervention points for broad-spectrum therapeutic approaches based on results from drug design collaborations. Developed computer models and other methodologies to support rational drug design by determining the three-dimensional structure of important molecules based on the genetic sequences of organisms. Continued to study changes in host response to infection. Initiated study of biomarkers for intracellular bacterial (ICB) and hemorrhagic fever virus (HFV) agents. | | | | | |
| *FY 2010 Plans:*<br>Initiate support for the discovery of conserved host and pathogen directed targets for the development of broad spectrum drugs against BW agents. Validate computer models and other methodologies for | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| rational drug design. Initiate investigation of technological advancements in genetic sequencing and drugs based on protein-to-protein interactions.<br><br>*FY 2011 Base Plans:*<br>All successful and promising efforts will transition to BA2 during FY11. | | | | | |
| 10) Transformational Medical Technologies Initiative<br>Development of Platform Technologies: Invest in components necessary to develop an integrated capability from pathogen identification and characterization to countermeasure delivery. In particular, basic research is needed to develop animal models for diseases caused by BW agents. Such animal models are required to demonstrate drug effectiveness to generate the data required to file for licensure of BW drug countermeasures with the Food and Drug Administration (FDA). Efforts are also directed towards pathogen identification and characterization, using methods such as genetic sequencing to generate high-quality reference information. This data will be used in sophisticated analyses to delineate the exact nature of advanced or genetically engineered bio-threats.<br><br>*FY 2010 Plans:*<br>Initiate the development of host and pathogen based platforms, such as cell, animal and computer models to describe and predict drug interactions during treatment for BW agent exposure. Initiate projects to generate animal models to characterize BW agent disease and to compare human and animal model responses to infection for use in live biological agent testing. Explore pathogen identification and characterization capabilities, including genetic sequencing, integrate existing capabilities, assess future sequence and analysis needs to characterize advance threats. Determine bioinformatics infrastructure needs.<br><br>*FY 2011 Base Plans:*<br>Continue to investigate new drug-based platforms which may be able to generate families of broad spectrum drugs to protect against bio-threat agents. Develop components to evaluate which | 0.000 | 1.881 | 5.453 | 0.000 | 5.453 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| technologies are appropriate for each aspect of the countermeasure development. Continue to support discovery of conserved host and pathogen directed targets for the development of broad spectrum drugs against BW agents. Continue to develop leading edge technologies to assist in pathogen characterization, target identification, countermeasure discovery and countermeasure evaluation. | | | | | |
| Accomplishments/Planned Programs Subtotals | 15.086 | 16.782 | 14.352 | 0.000 | 14.352 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TB2: *MEDICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 50.485 | 53.930 | 43.858 | | 43.858 | 50.866 | 51.077 | 51.051 | 51.959 | Continuing | Continuing |
| • TB3: *MEDICAL BIOLOGICAL DEFENSE (ATD)* | 180.425 | 203.723 | 115.233 | | 115.233 | 125.666 | 109.737 | 115.049 | 117.289 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>TC1: *MEDICAL CHEMICAL DEFENSE (BASIC RESEARCH)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TC1: *MEDICAL CHEMICAL DEFENSE (BASIC RESEARCH)* | 13.308 | 5.496 | 3.144 | 0.000 | 3.144 | 2.889 | 2.954 | 2.928 | 2.977 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This project (TC1) emphasizes the understanding of the basic action mechanisms of nerve, blister, blood, and respiratory agents within the body. Basic studies are performed to delineate biological mechanisms for identified and emerging chemical threats to generate required information for initial design and synthesis of chemical medical countermeasures. In addition, these studies are further designed to maintain and extend a science base. Starting in FY10, all efforts will be combined into a new capability area termed Chemical Based Basic Research.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.093 | 0.000 | 0.000 | 0.000 |
| 2) Therapeutics<br>Respiratory and Systemic: Research efforts that define pathways of injury and therapeutic targets against chemical agent exposure through inhalation.<br>*FY 2009 Accomplishments:*<br>Expanded efforts to elucidate common injury pathways due to multiple agents and routes of exposure, to maximize application to the development of broad-based therapeutics. Established definitive correlation between simulants and live agent effects at the molecular level.<br>*FY 2010 Plans:*<br>Efforts re-aligned to Chemical Based Basic Research. | 5.133 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>TC1: *MEDICAL CHEMICAL DEFENSE (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 3) Therapeutics<br>Cutaneous and Ocular: Research efforts that define pathways of injury and therapeutic targets for chemical agent exposure through skin and eye exposure.<br>*FY 2009 Accomplishments:*<br>Extrapolated the results of genotoxicity studies to the development of cancerous conditions using the appropriate in vivo models. Investigated the effects of solvent vehicles on percutaneous transmission to normalize past, present, and future research endeavors. Investigated new tissue engineering technologies to reduce reliance on grafts.<br>*FY 2010 Plans:*<br>Efforts re-aligned to Chemical Based Basic Research. | 2.541 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4) Therapeutics<br>Neurologic: Research efforts that aim to improve understanding of nerve agents.<br>*FY 2009 Accomplishments:*<br>Researched mechanisms of action of nerve agents and therapeutic interventions using whole animal models, with a focus on data required to support FDA submissions. Initiated research into the development of nerve agent therapeutic alternatives with reduced impact on visual performance.<br>*FY 2010 Plans:*<br>Efforts re-aligned to Chemical Based Basic Research. | 1.703 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5) Therapeutics<br>Medical Toxicology: Research Non Traditional Agents (NTAs) and other agents to improve understanding of NTA exposure. | 3.931 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>TC1: *MEDICAL CHEMICAL DEFENSE (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Demonstrated the biological equivalency of NTA toxicity mechanisms across relevant species.<br><br>*FY 2010 Plans:*<br>Efforts re-aligned to Chemical Based Basic Research. | | | | | |
| 6) Chemical Based Basic Research (CBBR)<br>Research focuses on understanding chemical agents, their mechanism of action, toxicity, cellular injury, and identification.<br><br>*FY 2010 Plans:*<br>Investigate new tissue engineering technologies to reduce reliance on skin grafts. Assess the results of genotoxicity studies. Research mechanisms of action of nerve agents and therapeutic interventions using whole animal models, with a focus on data required to support FDA submissions. Initiate research into the development for novel nerve agent therapeutics with reduced impact on visual performance. Initiate development of new animal models to characterize in vivo effects of NTAs. Demonstrate the biological equivalency of Non-Traditional Agent (NTA) toxicity mechanisms across relevant species.<br><br>*FY 2011 Base Plans:*<br>Research pathways of molecular mechanisms of injury associated with chemical warfare agents. Conduct mechanistic studies using appropriate in vitro models to identify the biochemical cascade of effects following chemical agent exposure. Based on these studies, generate basic information for initial design and synthesis of medical countermeasures, located in Budget Activity 2, Project TC2. | 0.000 | 5.403 | 3.144 | 0.000 | 3.144 |
| Accomplishments/Planned Programs Subtotals | 13.308 | 5.496 | 3.144 | 0.000 | 3.144 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>TC1: *MEDICAL CHEMICAL DEFENSE (BASIC RESEARCH)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* | 35.008 | 40.418 | 33.648 | | 33.648 | 36.327 | 36.500 | 37.475 | 38.150 | Continuing | Continuing |
| • TC3: *MEDICAL CHEMICAL DEFENSE (ATD)* | 21.641 | 28.971 | 29.134 | | 29.134 | 30.401 | 30.546 | 31.356 | 31.877 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>TR1: *MEDICAL RADIOLOGICAL DEFENSE (BASIC RESEARCH)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TR1: *MEDICAL RADIOLOGICAL DEFENSE (BASIC RESEARCH)* | 0.000 | 0.975 | 0.971 | 0.000 | 0.971 | 0.966 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This project (TR1) emphasizes the research and study of medical countermeasures to protect the Warfighter against radiation exposure. Specifically, this project identifies the basic action mechanisms of Acute Radiation Syndrome (ARS) and Delayed Effects of Acute Radiation Exposure (DEARE), as well as, develops possible radioprotectants (Pretreatments), post-irradiation exposure treatments (Therapeutics), and the ability to identify exposure to radiation (Diagnostics). These Basic Research efforts advance promising technology with the potential to rapidly identify, diagnose, prevent, and mitigate ARS and/or DEARE in the event of a radiological incident.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) Medical Radiological Defense | 0.000 | 0.959 | 0.971 | 0.000 | 0.971 |
| Research focuses on understanding mechanisms of injury from radiation exposure.<br><br>*FY 2010 Plans:*<br>Initiate efforts to identify mechanisms of injury from acute radiation exposure and delayed health effects following radiation exposure. Explore novel assays to diagnose radiation injury, through studies of cellular science, metabolism, and bioregulators.<br><br>*FY 2011 Base Plans:*<br>Continue projects begun in FY10 to understand cellular and molecular responses to ionizing radiation and identify biomarkers of radiation exposure. | | | | | |
| 2) SBIR | 0.000 | 0.016 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 1: *Basic Research* | R-1 ITEM NOMENCLATURE<br>PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | PROJECT<br>TR1: *MEDICAL RADIOLOGICAL DEFENSE (BASIC RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Small Business Innovative Research. | | | | | |
| Accomplishments/Planned Programs Subtotals | 0.000 | 0.975 | 0.971 | 0.000 | 0.971 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TR2: *MEDICAL RADIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 0.525 | 2.897 | 2.884 | | 2.884 | 1.904 | 2.855 | 1.913 | 1.903 | Continuing | Continuing |
| • TR3: *MEDICAL RADIOLOGICAL DEFENSE (ATD)* | 4.859 | 2.403 | 0.957 | | 0.957 | 0.966 | 1.922 | 2.901 | 2.927 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | | | | | | | | | | DATE: February 2010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | | | | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | | | | | | | |
| **COST ($ in Millions)** | **FY 2009 Actual** | **FY 2010 Estimate** | **FY 2011 Base Estimate** | **FY 2011 OCO Estimate** | **FY 2011 Total Estimate** | **FY 2012 Estimate** | **FY 2013 Estimate** | **FY 2014 Estimate** | **FY 2015 Estimate** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 231.331 | 224.830 | 169.287 | 0.000 | 169.287 | 189.340 | 188.411 | 181.125 | 183.566 | Continuing | Continuing |
| CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 102.599 | 110.955 | 88.897 | 0.000 | 88.897 | 100.243 | 97.979 | 90.686 | 91.554 | Continuing | Continuing |
| CI2: *CONGRESSIONAL INTEREST ITEMS (APPLIED RESEARCH)* | 42.714 | 16.630 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| TB2: *MEDICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 50.485 | 53.930 | 43.858 | 0.000 | 43.858 | 50.866 | 51.077 | 51.051 | 51.959 | Continuing | Continuing |
| TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* | 35.008 | 40.418 | 33.648 | 0.000 | 33.648 | 36.327 | 36.500 | 37.475 | 38.150 | Continuing | Continuing |
| TR2: *MEDICAL RADIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 0.525 | 2.897 | 2.884 | 0.000 | 2.884 | 1.904 | 2.855 | 1.913 | 1.903 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

Funding under this program element (PE) sustains a robust defense program, which both reduces the danger of a chemical, biological, or radiological (CBR) attack and enables U.S. forces to survive, and continue operations in a CBR environment. The medical program focuses on development of antidotes, drug treatments, casualty diagnosis, patient decontamination and medical technologies management. In the physical sciences area, the emphasis is on continuing improvements in CB defense materiel, including contamination avoidance, decontamination, and protection technologies. Research efforts are planned to be initiated for CB defense technologies that will result from a strategic approach of converging nanotechnology, biotechnology, information technology and cognitive science. This PE also provides for applied research in the areas of real-time sensing and immediate biological countermeasures. The work in this PE is consistent with the Chemical Biological Defense Program Research Development and Acquisition (RDA) Plan. Efforts under this PE transition to or provide risk reduction for Advanced Technology Development (PE: 0603384BP), Advanced Component Development and Prototypes (PE: 0603884BP) and System Development and Demonstration (PE: 0604384BP). This project is placed in BA2, because it includes non-system specific development, directed toward military needs.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | **R-1 ITEM NOMENCLATURE**<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* |

**B. Program Change Summary ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 239.297 | 209.072 | 0.000 | 0.000 | 0.000 |
| Current President's Budget | 231.331 | 224.830 | 169.287 | 0.000 | 169.287 |
| Total Adjustments | -7.966 | 15.758 | 169.287 | 0.000 | 169.287 |
| • Congressional General Reductions | | -0.942 | | | |
| • Congressional Directed Reductions | | 0.000 | | | |
| • Congressional Rescissions | 0.000 | 0.000 | | | |
| • Congressional Adds | | 16.700 | | | |
| • Congressional Directed Transfers | | 0.000 | | | |
| • Reprogrammings | 4.731 | 0.000 | | | |
| • SBIR/STTR Transfer | -2.697 | 0.000 | | | |
| • Other Adjustments | -10.000 | 0.000 | 169.287 | 0.000 | 169.287 |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2009 | FY 2010 |
|---|---|---|
| **Project:** CI2: *CONGRESSIONAL INTEREST ITEMS (APPLIED RESEARCH)* | | |
| Congressional Add: *Rapid Forensic Evaluation of Microbes in Biodefense* | 0.989 | 0.000 |
| Congressional Add: *Chem/Bio IR Detection System* | 1.186 | 1.892 |
| Congressional Add: *Zumwalt National Program for Countermeasures to Bio Chem Threats* | 1.187 | 0.000 |
| Congressional Add: *HyperAcute Vaccine Development* | 2.373 | 3.585 |
| Congressional Add: *Antibody-based Therapeutic against Smallpox* | 0.791 | 0.000 |
| Congressional Add: *Novel Viral Biowarfare Agent Identification and Treatment (NOVBAIT)* | 3.955 | 0.000 |
| Congressional Add: *Mixed Oxidants for Chemical and Biological Decontamination* | 2.769 | 0.000 |
| Congressional Add: *Bio Surety Development and Management Program -* | 1.186 | 0.000 |
| Congressional Add: *Countermeasures to Chemical/Biological Control-Rapid Response -* | 2.372 | 0.000 |
| Congressional Add: *Multiple Applications for Light Activated, Reactive Materiels for Protection of Warfighter, First Responder, and Public Health -* | 1.582 | 0.000 |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: *Chemical Biological Preparedness Center for Advanced Development of Mobile Rapid Response Prototype* - | 3.955 | 0.000 |
| Congressional Add: *Novel System for Developing Therapeutics against Botulism* - | 3.955 | 0.000 |
| Congressional Add: *Ultra-Rapid Next Generation Pathogen Identification* - | 1.978 | 0.000 |
| Congressional Add: *Preventing Long-Term Brain and Lung Damage Caused by Battlefield Trauma Project* - | 2.868 | 0.000 |
| Congressional Add: *Chemical Agent Fate Appropriate Response Tool* - | 1.582 | 1.593 |
| Congressional Add: *Multivalent Marburg/Ebola Vaccine* - | 3.461 | 0.000 |
| Congressional Add: *Botulinum Neurotoxin Research* - | 1.582 | 1.992 |
| Congressional Add: *Miniaturized Chemical Detector for Chemical Warfare Protection (ChemPen)* - | 1.581 | 1.593 |
| Congressional Add: *Continued Expansion of Prototypes for Destruction of Airborne Pathogen* - | 0.791 | 0.000 |
| Congressional Add: *Mismatch Repair Derived Antibody to Treat Staph Derived Bioweapon* - | 1.582 | 0.000 |
| Congressional Add: *Nano Porous Hollow Fiber Regenerative Chemical Filter* - | 0.989 | 0.000 |
| Congressional Add: *Chemical and Biological Resistant Clothing* | 0.000 | 1.593 |
| Congressional Add: *Botulinum Toxin Treatment Therapy* | 0.000 | 0.797 |
| Congressional Add: *Contaminated Human Remains Pouch* | 0.000 | 1.593 |
| Congressional Add: *PaintShield for Protecting People from Microbial Threats* | 0.000 | 1.992 |
| Congressional Add Subtotals for Project: CI2 | 42.714 | 16.630 |
| Congressional Add Totals for all Projects | 42.714 | 16.630 |

**Change Summary Explanation**

Funding: N/A - Adjustments less than 10% of total program.

Schedule: N/A

Technical: N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 102.599 | 110.955 | 88.897 | 0.000 | 88.897 | 100.243 | 97.979 | 90.686 | 91.554 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This project (CB2) provides physical applied research to develop future, multi-disciplinary, multi-functional capabilities in life sciences, physical sciences, environmental sciences, mathematics, cognitive sciences, and engineering. Efforts in this project support the seamless integration of state-of-the-art-technologies into a collection of systems across the spectrum of capabilities required to support chemical and biological defense missions, including specific research to develop defensive capabilities against non-traditional agents (NTAs). Starting in FY11, all NTA-dedicated research will be re-aligned into specific capability areas within this project in order to ensure a focused effort on this high priority area. Capability areas in this project include: detection; detection for NTAs; information systems technology; protection/hazard mitigation; protection/hazard mitigation for NTAs; threat agent science; and threat agent science for NTAs. Detection focuses on developing technologies for standoff and point detection and identification of chemical and biological agents. Information systems technology focuses on advanced warning and reporting, hazard prediction and assessment, simulation analysis and planning, and systems performance modeling. Protection and hazard mitigation focuses on providing technologies that protect and reduce the chemical/biological threat or hazard to the Warfighter, weapons platforms, and structures. Threat agent science is devoted to characterizing threat agents and the hazards they present in terms of agent fate in the environment, toxicology, pathogenicity and the development of simulants, especially with regard to NTAs. This project focuses on horizontal integration of CB defensive technologies in support of the Joint Services.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 1.467 | 0.000 | 0.000 | 0.000 |
| 2) Protection | 5.716 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Integrated Protective Fabric: Development of lightweight chemical and biological protective textiles that can be used as an integrated combat duty uniform.<br><br>*FY 2009 Accomplishments:*<br>Completed development of test methodologies. Completed assessment of elastic, conformable CB protective fabrics with selectively permeable properties. Continued development of interpenetrating polymer networks whose permeability properties can be electrically controlled. Continued work on fabric residual life indicators that can be automatically integrated. Continued development of novel sorbents leap-ahead improvements over activated carbon technologies. Continued development work on ultra light and tactile barrier materials for gloves and boots. Continued fabrication and testing of prototype integrated fabrics to determine protection, mechanical properties, and heat transfer characteristics. Continued use of computational methods for assessment and refinement of prototypes. Continued ensemble design conceptual work based on lessons gathered in the human performance project. Initiated fabrication of prototype ensembles for evaluation and demonstration. Resulting technologies/knowledge transition to an integrated fabric development project in support of advanced development programs such as the Future Force Warrior Demonstration of the Soldier-as-a-System Ground Program and Uniform Integrated Protective Ensemble (UIPE).<br><br>*FY 2010 Plans:*<br>This effort re-aligned to Protection and Hazard Mitigation. | | | | | |
| 3) Protection<br>Human Performance: Analysis and modeling of human performance in chemical and biological protective ensembles to determine design priorities and trade-offs.<br><br>*FY 2009 Accomplishments:*<br>Completed first segment of the comprehensive study to reduce physiological burden on the human performance parameters for various Warfighter subgroups in the performance of their mission when | 3.586 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| CB protective systems are employed. Published findings on trade space between physiological and psychological comfort with regards to Warfighter effectiveness. Continued work to develop an overall comfort and performance model for CB protective equipment. Completed human subject studies on the effects of breathing rates and resistance during high work rates. Transitioned results into the comfort and performance model. Developed a draft standard for Air Purifying Respirator (APR) qualification.<br><br>*FY 2010 Plans:*<br>This effort re-aligned to Protection and Hazard Mitigation. | | | | | |
| 4) Protection<br>Self-Decontaminating Processes: Development and analysis of self-decontaminating coatings and surfaces.<br><br>*FY 2009 Accomplishments:*<br>Continued efforts from FY08 Decontamination Alternative Processes and Solid Phase to develop general purpose formulations and self decontaminating processes using sense and react (smart) systems, gas, kinetic, energetic, and/or novel approaches. Supported concept development for decontamination systems of systems strategies and technologies. Decontamination process fundamental efforts continued, including the integration of innovative surface chemistry apparatus focusing on surface, decontaminant, and contaminant interactions using live chemical agents.<br><br>*FY 2010 Plans:*<br>This effort re-aligned to Protection and Hazard Mitigation. | 6.092 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5) Protection<br>Respiratory Protection (Non Traditional Agent (NTA)/Toxic Industrial Chemical (TIC) Protection): Development and integration of novel filtration media into a lightweight, low-profile, and low-burden | 5.743 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| individual protective filter, which has enhanced performance against a broader range of challenges that includes toxic industrial chemicals.<br><br>*FY 2009 Accomplishments:*<br>Completed integration of the protective mask designs with developmental helmet systems to provide seamless compatibility of CB protection with ballistic protection and the integration of communication and optical systems. Incorporated integrated results into designs under BA3 efforts. Completed the investigation of intelligent seal enhancement materials and technologies that will provide improvements in the field protection factor performance and comfort of a respirator. Continued to define the key development parameters associated with respiratory protective systems and incorporate data and lessons from the human performance project. Continued work on the dual-cavity respirator with increased levels of respiratory protection that provide a real-time indication of mask fit and integrate concept into the final design. Continued project to develop the next generation filter for individual protection. Completed initial phase of development of metal-organic frameworks as tuneable sorbents for advance air purification technologies in protective masks. Completed the down-selection of ceramic and polymer nanofiber-based filters. Continued reactive hybrid approaches for individual protection filtration. Developed and fabricated initial prototypes and evaluate performance.<br><br>*FY 2010 Plans:*<br>This effort re-aligned to Protection and Hazard Mitigation. | | | | | |
| 6) Protection<br>Novel Air Purification Technologies: Development of chemical and biological air-purification alternative technologies that minimize or eliminate the need for expendable media within acceptable size, weight and power constraints. | 3.795 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued to develop energetic, reactive, media-less, air purification technologies that reduce size, weight, and lifecycle costs of removing chemical and biological agents and Toxic Industrial Chemicals (TICs) from recirculated air in buildings, shelters, or platforms. Continued development of an acoustic fractionator that removes particulates down to the submicron level using standing sound waves. Completed investigation of a hybrid plasma filter that provides both vapor particulate removal and destruction capabilities. Continued development of a new air purification technology based on selective ionization and contaminant extraction. Continued development of a novel, low pressure drop, High Efficiency Particulate Arrestance (HEPA) filter, which provides increased dust capacity and extended filter life through the use of irregularly shaped high surface area submicron fibers. Completed demonstration of a highly efficient media-less particulate filter that uses charged sub-micron water droplets and down-select among technological approaches for further development.<br><br>*FY 2010 Plans:*<br>This effort re-aligned to Protection and Hazard Mitigation. | | | | | |
| 7) Protection<br><br>Collective Protection (COLPRO) System Integration: Development and systems analysis of novel system concepts for chemical and biological protection of occupants of buildings and platforms that integrates emerging technologies.<br><br>*FY 2009 Accomplishments:*<br>Continued project to investigate alternate system solutions and technologies for COLPRO. Technologies include micro fine detoxifying aerosol fogs to facilitate entry and mitigate cross contamination into the COLPRO system, internal self-detoxifying surfaces for walls and ductwork, expedient retrofit kits, self-detoxifying and expedient strippable coatings, rapid isolation and purge schemes, and novel and innovative air flow and re-circulation schemes. Completed the study | 3.535 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| of system alternatives and initiate efforts addressing specific technological gaps for COLPRO development.<br><br>*FY 2010 Plans:*<br>This effort re-aligned to Protection and Hazard Mitigation. | | | | | |
| 8) Protection & Hazard Mitigation<br>Innovative Systems Concepts and Analysis: Development and systems analysis of novel system concepts for chemical and biological protection of occupants of buildings and platforms that integrates emerging technologies.<br><br>*FY 2010 Plans:*<br>Investigate alternate system solutions and technologies for Collective Protection (COLPRO). Technologies include micro fine detoxifying aerosol fogs to facilitate entry and mitigate cross contamination into the COLPRO system, internal self-detoxifying surfaces for walls and ductwork, expedient retrofit kits, self-detoxifying and expedient strippable coatings, rapid isolation and purge schemes, and novel and innovative air flow and re-circulation schemes. | 0.000 | 1.131 | 0.000 | 0.000 | 0.000 |
| 9) Protection & Hazard Mitigation<br>Lightweight Integrated Fabric: Development of lightweight chemical and biological protective textiles that can be used as an integrated combat duty uniform.<br><br>*FY 2010 Plans:*<br>Support assessment of integrated fabric concurrent with the Individual Protection Advanced Technology Demonstration (IP Demo - see Budget Activity 3, Project TT3, Experiment and Technology Demonstrations), which will support the Lightweight CB Ensemble (LCBE), and incorporate lessons into further development of integrated fabric. Continue work on fabric residual life indicators and agent indicators that can be network enabled. Continue development of polymer membranes with | 0.000 | 6.614 | 1.546 | 0.000 | 1.546 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| permeability properties electrically controlled. Continue development of novel sorbents leap-ahead improvements over activated carbon technologies. Continue development work on ultra light and tactile barrier materials for gloves and boots. Continue development and scaling of nanofiber/textile production technologies. Continue fabrication and testing of prototype integrated fabrics to determine protection, mechanical properties, and heat transfer characteristics. Continue use of computational methods for assessment and refinement of prototypes. Continue ensemble design conceptual work based on lessons gathered in the human performance project. Continue support of fabrication of prototype ensembles for evaluation and demonstration.<br><br>*FY 2011 Base Plans:*<br>Incorporate lessons learned from the Individual Protection Advanced Technology Demonstration (see TT3 E&TD), which will support the Lightweight CB Ensemble (LCBE), and incorporate lessons into further development of integrated fabric. Complete work on network-enabled fabric agent indicators. Continue development work on ultra light and tactile barrier materials for gloves and boots and continue fabrication and testing of prototype integrated fabrics to determine protection, mechanical properties, and heat transfer characteristics. Continue development and scaling of nanofiber/textile production technologies for transition to UIPE/JSLIST program. Continue use of computational methods for assessment and refinement of prototypes. Continue development of ensemble design conceptual work based on lessons gathered in the human performance project for transition to UIPE/ JSLIST. | | | | | |
| 10) Protection & Hazard Mitigation<br>Low-Resistance, Low-Profile Filtration: Development and integration of novel filtration media into a lightweight, low-profile, and low-burden individual protective filter, which has enhanced performance against a broader range of challenges that includes toxic industrial chemicals. | 0.000 | 5.934 | 3.528 | 0.000 | 3.528 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Support assessment of integrated fabric concurrent with the Individual Protection Advanced Technology Demonstration, which will support the Uniform Integrated Protective Ensemble (UIPE), and incorporate lessons into further development of low resistance/profile filtration. Continue project to develop the next generation filter for individual protection from chemical and biological (CB) agents, Toxic Industrial Chemicals (TICs) and Non Traditional Agents (NTAs). Integrate metal-organic frameworks and other novel adsorbent into "breadboard" prototypes. Integrate nanofiber High Efficiency Particulate Air (HEPA) filters into "breadboard" prototypes. Continue reactive hybrid approaches for individual protection filtration. Develop and fabricate initial prototypes and evaluate performance. Initiate prototype work for collective protection filtration in support of advanced development programs such as the Joint Expeditionary Collective Protection (JECP) and support of collective protection in vehicular/platform systems in Major Defense Acquisition Programs (MDAP).<br><br>*FY 2011 Base Plans:*<br>Incorporate lessons learned from the Individual Protection Advanced Technology Demonstration, which will support the Uniform Integrated Protective Ensemble (UIPE), and incorporate lessons into further development of low resistance/profile filtration. Continue project to develop the next generation filter for individual protection from CB agents, TICs and NTAs. Integrate metal-organic frameworks and other novel adsorbent into "breadboard" prototypes. Integrate nanofiber HEPA filters into breadboard prototypes. Continue reactive hybrid approaches for individual protection filtration and evaluate performance. As a result of the IP Demo, refine prototype concept filters to advanced development programs such as the Joint Service General Purpose Mask (JSGPM), Joint Service Aircrew Mask (JSAM), UIPE programs, improved media for collective protection filters in Joint Expeditionary Collective Protection (JECP), and in support of collective protection in vehicular/platform systems in Major Defense Acquisition Programs (MDAP). | | | | | |
| 11) Protection & Hazard Mitigation | 0.000 | 1.979 | 0.711 | 0.000 | 0.711 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Human Performance Prediction and Assessment: Analysis and modeling of human performance in chemical and biological protective ensembles in order to determine design priorities and trade-offs.<br><br>*FY 2010 Plans:*<br>Support assessment of integrated fabric concurrent with the Individual Protection Advanced Technology Demonstration, which will support the Uniform Integrated Protective Ensemble (UIPE), and incorporate lessons into further development of human performance prediction and assessment. Continue refining human performance parameters for various Warfighter subgroups in the performance of their mission when CB protective systems are employed. Continue work to develop an overall comfort and performance model for CB protective equipment. Initiate anthropometric sizing study to support size tariff development.<br><br>*FY 2011 Base Plans:*<br>Incorporate lessons learned from the Individual Protection Advanced Technology Demonstration, which will support the Uniform Integrated Protective Ensemble (UIPE), and incorporate lessons into further development of human performance prediction and assessment. Complete human performance model for CB protective equipment. As a result of the IP Demo, transition model data and analysis to individual protection advanced development programs. Continue anthropometric sizing study to support size tariff development. | | | | | |
| 12) Protection & Hazard Mitigation | 0.000 | 1.976 | 2.590 | 0.000 | 2.590 |
| Low-Burden Air Purifying Respirator: Development and analysis of design alternatives for chemical and biological air-purifying respirators to provide enhanced protection with lower physiological burden and improved interface with mission equipment.<br><br>*FY 2010 Plans:*<br>Support assessment of integrated fabric concurrent with the Individual Protection Advanced Technology Demonstration, which will support the Uniform Integrated Protective Ensemble (UIPE), | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| and incorporate lessons learned into further development of a low-burden air purifying respirator. Continue to define the key development parameters associated with respiratory protective systems and incorporate data and lessons from the human performance project. Continue integration analysis with ground Warfighter helmet systems. Complete integration work on the dual-cavity respirator into concepts for the final design. Continue to refine and fabricate prototypes and evaluate performance.<br><br>*FY 2011 Base Plans:*<br>Incorporate lessons learned from the Individual Protection Advanced Technology Demonstration, which will support the Uniform Integrated Protective Ensemble (UIPE), and incorporate lessons into further development of a low-burden air purifying respirator. Complete the assessment of the key development parameters associated with respiratory protective systems and incorporate data and lessons from the human performance project. Incorporate lessons learned from the IP Demonstration into protective mask prototypes. Complete integration analysis with ground Warfighter helmet systems. Continue to integrate work on the dual-cavity respirator into concepts into the final design. | | | | | |
| 13) Protection & Hazard Mitigation | 0.000 | 2.259 | 1.937 | 0.000 | 1.937 |
| Logistically Sustainable Air Purification for Collective Protection: Development of chemical and biological air-purification alternative technologies that minimize or eliminate the need for expendable media within acceptable size, weight and power constraints.<br><br>*FY 2010 Plans:*<br>Complete development and analysis of prototypes of energetic, reactive, media-less, air purification technologies that reduce size, weight, and lifecycle costs of removing chemical and biological agents and toxic industrial chemicals (TICs) from both make-up and re-circulation air in buildings, shelters, or platforms. Complete development of an acoustic fractionator that removes particulates down to the submicron level using standing sound waves. Continue development of a new air purification technology based on selective ionization and contaminant extraction. Complete development of a | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| novel, low pressure drop, HEPA filter, which provides increased dust capacity and extended filter life through the use of irregularly shaped high surface area submicron fibers.<br><br>*FY 2011 Base Plans:*<br>Continue development of reactive membrane and regenerative post treatment media technologies for applications in building protection and vehicular/platform systems for Major Defense Acquisition Programs (MDAP). | | | | | |
| 14) Protection & Hazard Mitigation<br>General Purpose Formulations for Decontamination: Development and improvement of chemical and biological decontamination formulations that are compatible with the current family of decontamination systems.<br><br>*FY 2010 Plans:*<br>Continue solid oxidant and green surfactant efforts resulting from alternative process research that emphasize dual-use technologies. Initiate focused enzymatic decontamination approaches.<br><br>*FY 2011 Base Plans:*<br>Complete development, testing and transition of solid oxidant and green surfactant to support advanced development programs such as the Hazard Mitigation for Material and Equipment Restoration (HaMMER) Advanced Technology Demonstration (see Budget Activity 3, Project TT3, Experiment & Technology Demonstrations), also known as the Decontamination Family of Systems Demonstration. Continue focused enzymatic decontamination development. | 0.000 | 1.866 | 2.830 | 0.000 | 2.830 |
| 15) Protection & Hazard Mitigation<br>Decontamination System-of-Systems: Development and analysis of non-traditional decontamination technologies and approaches which gain significantly improved effectiveness by complementary application. | 0.000 | 2.553 | 4.348 | 0.000 | 4.348 |

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**B. Accomplishments/Planned Program ($ in Millions)**

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|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Complete development of self-detoxifying coatings, agent disclosure spray efforts, and strippable coating efforts and transition products in advanced development programs such as the Hazard Mitigation for Material and Equipment Restoration (HaMMER) Advanced Technology Demonstration. Continue investigation of microwave interaction with coating embedded particles and functionalities for directed energy decontamination. Complete work on functionalized photocatalytic materials. Initiate formulation development of a Decontamination Family of Systems that allow optimized formulation adjustment at point-of-use.<br><br>*FY 2011 Base Plans:*<br>Develop data to define performance envelop of system components and transition to HaMMER. Initiate a study on impact of application methods of decontaminants to complex surfaces. | | | | | |
| 16) Protection & Hazard Mitigation<br>Smart Hazard Mitigation: Development of decontamination technologies that sense, respond (decontaminate) and signal in the presence of chemical and biological contamination.<br><br>*FY 2010 Plans:*<br>Complete feasibility studies on the use of surface-modified nanoporous beads as encapsulation delivery devices for decontaminants. Continue development of molecular switches that respond and react to the presence of CB agents and signal results. Initiate development of rotaxane chemistry as artificial tunable G and V receptors that sense and react to chemical agents.<br><br>*FY 2011 Base Plans:*<br>Continue development of molecular switches that respond and react to the presence of CB agents and signal results. Continue development of rotaxane chemistry as artificial tunable G and V receptors that sense and react to chemical and biological agents. | 0.000 | 1.787 | 1.388 | 0.000 | 1.388 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 17) Protection and Hazard Mitigation | 0.000 | 3.143 | 0.000 | 0.000 | 0.000 |
| Novel Threat Agent Assessment and Methods: Focuses on Non-Traditional Agent hazard, permeation, and quantification of the hazard as it pertains to developing protective and hazard mitigation technologies.<br><br>*FY 2010 Plans:*<br>Initiate methodology development for assessment and quantification of percutaneous hazards from permeation of liquid NTAs. Initiate methodology development for assessment and quantification of decontamination contact hazard residuals of NTAs. Baseline methodologies for current filtration, barrier materials, and textile effectiveness against NTAs. Continue efforts to assess and predict NTA performance on military chemical warfare agent (CWA) adsorbents.<br><br>*FY 2011 Base Plans:*<br>All NTA efforts are re-aligned to Protection and Hazard Mitigation NTA capability area within this Budget Activity. | | | | | |
| 18) Protection and Haz Mitigation NTA | 0.000 | 0.000 | 2.280 | 0.000 | 2.280 |
| NTA Air Purification: Study and assessment of filter technologies.<br><br>*FY 2011 Base Plans:*<br>Complete assessment of military carbon against NTAs, including performance when exposed to battlefield contaminants such as petroleum, oil, lubricants, and sweat. Develop and test novel materials to improve performance against NTAs. Provide results for upgrades into developmental programs such as the Joint Service General Purpose Mask (JSGPM). | | | | | |
| 19) Protect & Haz Mit NTA | 0.000 | 0.000 | 2.996 | 0.000 | 2.996 |
| NTA Percutaneous Protection: Study and assessment of protective technologies. | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Develop technologies to improve overall protective clothing performance against NTAs. Develop and assess improved ensemble closures and evaluate current individual protective (IP) barrier materials. Develop component aerosol test methods for performance standards of IP ensembles. Modify and verify material swatch test methods for liquid and aerosol for performance standards of IP materials. Develop breathable aerosol barrier materials and self-detoxifying fabrics. Develop and evaluate improved barrier materials for protective gloves and boots. Complete assessment of expedient approaches and skin barrier treatments. Develop and test performance enhancements that improve material agent resistance and garment closure performance. | | | | | |
| 20) Protect & Haz Mit NTA<br>NTA Decontamination: Study and assessment of decontamination technologies.<br>*FY 2011 Base Plans:*<br>Assess performance of current and developmental decontamination technologies against NTAs. Develop decontamination technologies and formulations that are optimized against NTAs. Modify and verify test procedures for NTAs. Develop and test decontamination formulations and system-of-systems approaches that improve performance against NTAs and manage process residuals. | 0.000 | 0.000 | 3.124 | 0.000 | 3.124 |
| 21) Threat Agent Science<br>Physiological Response: Delivers the scientific understanding and relevant standards for hazards posed to humans from a chemical or biological agent exposure.<br>*FY 2009 Accomplishments:*<br>Completed development of technically demanding exposure and analytic methods for selected very low volatile chemical threat agents such as NTAs. Continued studies on human health risk assessment exposure standard for medical applications associated with contact hazards of | 5.210 | 14.469 | 0.085 | 0.000 | 0.085 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| low volatility Chemical Warfare Agents (CWAs). Completed development of toxicokinetic and toxicodynamic models initiated in FY08.<br><br>*FY 2010 Plans:*<br>Refine and standardize exposure and analytical methods for evaluation of percutaneous exposure to selected low volatility CWAs and high priority NTAs. Assess established contact and inhalation hazard methodologies for applicability to next-generation chemical warfare agents and refine as evaluation indicates. Set milestones and begin research on hazard assessment for more chemical agents. Complete development of exposure and analytic methods for selected very low volatile chemical threat agents. Complete studies and publish report on human health risk assessment exposure standard for medical applications associated with contact hazards of low volatility CWAs. Expand previous toxicokinetic and toxicodynamic efforts on a representative spore-forming Biological Weapons Agents (BWA) to include other BWAs, both spore-forming and non spore-forming. Assess the validity of expanding the viral agents model. Investigate human toxicity operational contact hazard assessment, and the effects of alternate toxicological pathways on the overall physiological impacts of high priority NTAs.<br><br>*FY 2011 Base Plans:*<br>Continue research efforts on BWA toxicokinetic and toxicodynamic modeling. All NTA-related efforts re-aligned to Threat Agent Science NTA within this Budget Activity. | | | | | |
| 22) Threat Agent Science<br>Agent Fate: Characterizes fate of chemical and biological material on operationally relevant surfaces; information obtained from the study of particular agents will be used in core programs to assist detection, information systems, and protection and hazard mitigation activities. | 4.990 | 8.847 | 0.079 | 0.000 | 0.079 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Completed data collection for evaporation studies on thickened CWAs and low volatility chemicals for relevant substrates and nanotechnology developments. Continued kinetic studies of the fate of thickened CWAs on operationally relevant surfaces. Integrated and completed characterization of new phenomena into models that will be transitioned to advanced development programs such as the JEM. Continued research to develop data sets of persistence and residual NTA concentration on operationally relevant surfaces (concrete, asphalt, painted surfaces, sand, soil, etc.) and expanded studies to include newly prioritized agents. Continued characterization of reactivity of the NTAs with surfaces as well as surface penetration and the fate of NTAs over time.<br><br>*FY 2010 Plans:*<br>Leverage prior agent fate studies to better bound substrate characteristics, and begin to relate to agent-substrate interactions for highly variable substrates, such as, concrete, sand/soil, and asphalt, and transfer data to predictive models. Characterize effects of substrate composition and structure on persistence and degradation of high priority CWAs and NTAs. Accelerate Agent Fate work on operationally relevant surfaces for highest priority NTAs. Relate CWA and NTA adsorption/absorption to chemical properties of both agent and substrate. Characterize vapor and liquid phase transport of high priority CWAs and NTAs through porous and non-porous operationally relevant substrates. Continue studies to determine effects of environmental factors (such as wind, humidity, substrate hydration and temperature) on transport through and off of substrates. Transfer data to predictive models. Refine Droplet Reaction and Evaporation of Agents Model (DREAM), which helps predict evaporation rates of agents from various surfaces, to address variation in program output. Transition DREAM modules to defense acquisition programs. Develop NTA hazard models and estimate hazard with extended skin-surface contact. Transition the data to JEM.<br><br>*FY 2011 Base Plans:*<br>Utilize empirical data to inform prediction of persistence and degradation of select CWAs and BWAs; transition data to JEM. Characterize interaction between biological agents and environmental | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

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|---|---|---|---|---|---|
| surfaces, including the impact of ambient conditions (e.g., temperature, relative humidity) and mechanical disturbances. All NTA-related efforts re-aligned to Threat Agent Science NTA within this Budget Activity. | | | | | |
| 23) Threat Agent Science | 4.482 | 3.861 | 0.000 | 0.000 | 0.000 |
| Accelerating Agent Sciences: Accelerates CB defense research and development by coupling computational methods and experimental approaches.<br><br>*FY 2009 Accomplishments:*<br>Continued CWA Quantum-Chemical Modeling (QCM) simulant design and selection methodology; simulant design and selection methodology efforts will be re-aligned to Agent Characterization and Simulant Development in FY10. Completed QCM dataset implementation to establish Quantitative Structure Activity Relationship (QSAR) between NTAs and surfaces/materials of operational interest. Utilized expertise and baseline against well-characterized substrates and move toward human toxicology QSAR toolsets. Integrated computational chemistry capabilities into experimental planning and data utilization work.<br><br>*FY 2010 Plans:*<br>Integrate research in computational techniques with existing computational toxicology, such as, shape signatures, and existing molecular dynamics capabilities to enhance agent fate, physiological response, simulant experiments and predictive modeling. Initiate work providing near term benefits, such as, computational toxicology. Complete CWA QCM development and maturation capability baseline for CWA interactions. Apply Quantum Chemical Modeling to develop and accelerate computationally obtained datasets and QSARS derived from the QCM data to highest priority NTA interactions and toxicology.<br><br>*FY 2011 Base Plans:*<br>All NTA-related efforts re-aligned to Threat Agent Science NTA within this Budget Activity. | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 24) Threat Agent Science | 4.652 | 6.026 | 0.095 | 0.000 | 0.095 |

Agent Characterization and Simulant Development: Characterizes chemical and biological agents based on structure, physiochemical properties, and molecular interactions. Simulants and selection processes are developed to support test and evaluation applications.

*FY 2009 Accomplishments:*

Continued research into NTA chemistry, characterizing synthetic pathways and NTA products, and developing NTA simulants. Incorporated newly prioritized agents as identified by the intelligence community and operational users. Completed simulant and methodology development for protective equipment testing in collaboration with the Test and Evaluation (T&E) community. Continued simulant correlation studies to define operational envelopes in which simulants may be used for development testing/operational testing (DT/OT). Incorporated computational chemistry research into simulant design, selection, and methodologies for use in DT/OT. Continued development of NTA simulants matching material interaction properties and simulants for novel applications of traditional agents. Characterized masked agents.

*FY 2010 Plans:*

Capitalize on previous research to characterize highest priority CWA and NTA chemistry based on structure, physiochemical properties, and molecular interactions. Leverage prior work to better understand BWA genomic variation as related to preparation methodologies and environmental stresses. Improve sampling methods and agent simulant correlation studies by leveraging established BWA standard characterization and preparation techniques. Continue development and transition CWA, BWA and NTA simulant selection process and test protocols to support T&E applications and work to define the operational envelopes of simulants through the acquisition life cycle. Expand the scope of simulant development to accelerate delivery of characteristics and simulants for highest priority NTAs. Address critical characterization work on highest priority NTAs.

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Continue BWA research to improve understanding of the relationship of genotype variations on organism virulence, infectivity, and persistence. Sustain efforts to support T&E applications by continued development of CWA and BWA simulants and refine simulant application by expanding agent-simulant correlation studies. All NTA-related efforts re-aligned to Threat Agent Science NTA within this Budget Activity. | | | | | |
| 25) Threat Agent Science NTA<br>Threat Agent Science NTA: Provides enabling science and technology which informs development and testing of NTA defense technology such as detection, decontamination, protection, hazard assessment, and more.<br>*FY 2011 Base Plans:*<br>Establish human NTA operational toxicity estimates and interim human health risk assessments. Characterize the effects of alternate toxicological pathways. Expand agent fate studies to additional agent-substrate interactions. Correlate agent adsorption/absorption coefficients to chemical properties. Expand research on NTA liquid and solid phase transport to include re-suspension of particulates. Apply computational tools to identify data requirements and accelerate QSAR application to NTA interactions with operational substrates and toxicology issues. Correlate human effects to contact with operationally-relevant surfaces. Further research on NTA chemistry. Continue development of NTA simulants and simulant correlation studies. | 0.000 | 0.000 | 17.200 | 0.000 | 17.200 |
| 26) Information Systems Technology<br>Sensor Data Fusion: Emphasis on developing scientific techniques for fusing disparate information from multiple sources for insertion into the Joint Effects Model (JEM), Joint Warning and Reporting Network (JWARN), and Joint Operational Effects Federation (JOEF). | 4.980 | 0.000 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

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|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Completed testing and validation and verification (V&V) of first-generation outdoor Source Term Estimation (STE), Hazard Refinement (HR) and Sensor Placement Tool (SPT) algorithms. Completed development, testing and V&V of building interior STE and HR algorithms. Initiated development of advanced STE, HR and SPT tools for use in complex environments (e.g., variable terrain, urban, water.) Completed biological background model development to reduce sensor false alarms and incorporate a first generation model into virtual environment software. Initiated development of a tool that continuously refines and updates the contamination footprint through rapid assimilation of limited and disparate information into meteorological, transport and dispersion, and virtual environment models.<br><br>*FY 2010 Plans:*<br>Sensor Data Fusion efforts re-aligned to Advanced Warning and Reporting. | | | | | |
| 27) Information Systems Technology<br><br>Battle Space Management: Emphasis on development of collaborative information management technologies for insertion into the Joint Warning and Reporting Network (JWARN) and Joint Operational Effects Federation (JOEF) acquisition programs.<br><br>*FY 2009 Accomplishments:*<br>Integrated Sensor Data Fusion (SDF) and source term location technologies into JEM and JOEF programs. Investigated and began development of next generation technologies and net-centric enterprise integration capabilities. Explored nano, bio, information technology and cognitive science solutions.<br><br>*FY 2010 Plans:*<br>Battle Space Management efforts re-aligned to Advanced Warning and Reporting. | 2.990 | 0.000 | 0.000 | 0.000 | 0.000 |

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|---|---|---|
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 28) Information Systems Technology | 0.000 | 6.020 | 3.844 | 0.000 | 3.844 |

Advanced Warning and Reporting: Emphasis on developing science and technologies for collaborative information management, fusion of disparate information from multiple sources, environmental databases and modeling, fusion of syndromic/diseases surveillance data, and synthetic environments for model performance evaluation and acquisition decisions.

*FY 2010 Plans:*

Utilize newly released field test data to conduct validation and verification (V&V) of outdoor Source Term Estimation (STE) algorithms. Initiate development of a networked chemical and biological (CB) detector false alarm reduction capability for an advanced development program (Joint Warning and Reporting Network (JWARN). Initiate development of rapid STE tool for JWARN. Expand virtual test environment model to include fielded sensors and enhanced geospatial information. Expand and improve data assimilation techniques for linking chemical, environmental and medical surveillance sensor data with computer based applications. Continue development of advanced STE, Hazard Refinement (HR) and Sensor Placement Tool (SPT) algorithms for use in complex environments (e.g., variable terrain, urban, water). Extend coupling between environmental parameters and advanced development programs. Continue development of a tool that continuously refines and updates the contamination footprint through rapid assimilation of limited and disparate information into meteorological, transport and dispersion, and virtual environment models.

*FY 2011 Base Plans:*

Refine advanced STE and HR algorithms for use in complex environments (e.g., variable terrain, urban, water), based on results of field trial-based V&V effort. Complete testing and V&V of first-generation networked CB detector false alarm reduction capability for an advanced development program (JWARN). Expand and improve data assimilation techniques for linking chemical, environmental, medical surveillance, and other disparate sensor data with computer based applications. Complete development of STE, HR, and SPT for use in complex environments. Continue to enhance coupling between environmental parameters and advanced development

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| programs. Finalize development of a tool that continuously refines and updates the contamination footprint through rapid assimilation of limited and disparate information into meteorological, transport and dispersion, and virtual environment models. Initiate development of route planning and evacuation/shelter-in-place decision aids. | | | | | |
| 29) Information Systems Technology | 2.257 | 4.942 | 3.030 | 0.000 | 3.030 |
| Hazard Prediction and Assessment: Improve battlespace awareness by accurately predicting hazardous material releases, atmospheric transport and dispersion, and resulting human effects. Develop predictive capability for the source term of releases of CB and industrial materials to include counterproliferation, CB weapons, accidents and ground effects from ballistic missiles.<br><br>*FY 2009 Accomplishments:*<br>Expanded and improved data assimilation techniques to develop a multi-scale, four-dimensional model. Continued development of advanced numerical weather prediction capabilities. Initiated optimization of methods to significantly improve performance of transport and dispersion hazard models for JEM. Developed advanced modeling capability for chemical, biological, and industrial source models (IFAC, ITRANS, and CBFAC).<br><br>*FY 2010 Plans:*<br>Initiate development of a missile intercept module for integration with JEM. Continue optimization of methods to significantly improve performance of transport and dispersion hazard models for JEM in both open air and urban environments using Second Order Closure Puff Atmospheric Transport and Dispersion (SCIPUFF AT&D) and Micro-Stationary Wind Fit with Turbulence (Micro-SWIFT). Continue advancing modeling techniques for chemical, biological, and industrial source models IFAC, ITRANS, and CBFAC. Continue experimental verification of models by way of small scale tests initiated in FY09. | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Continue to develop a missile intercept module for chemical, biological, and nuclear dispersion and integrate with advanced development programs. Continue to improve and optimize transport and dispersion models in open and urban environments. Implement source backtracking in advanced urban models. Implement methods for foreign regions as well as dynamic climatology. | | | | | |
| 30) Information Systems Technology | 11.316 | 0.000 | 0.000 | 0.000 | 0.000 |
| Chemical Biological Defense Program Decision Capability: Develop tools for decision making for consequence management, human knowledge management, and health/human effects modeling including casualty estimation.<br><br>*FY 2009 Accomplishments:*<br>Completed validation and verification and transition the Nuclear, Biological, and Chemical Casualty Resource Estimation Support Tool (NBC CREST) to the Joint Operational Effects Federation (JOEF). Completed the implementation of the respiratory tract model and development of the prototype PSD health effects model. Continued development of secondary infection models for disease spread based on small-world networks and an extension of the Susceptible-Exposed-Infectious-Removed (SEIR) epidemiological model to account for heterogeneous mixing among sub-populations in order to provide a well-founded model for casualty estimates in the JEM involving infectious/contagious diseases, both bioagent-induced and naturally occurring. Continued building the analytical framework and identifying gaps in capability to conduct rapid program analysis and conducted feasibility assessments for tools development and re-align efforts to the Systems Performance Modeling area in FY10. Continued development of representative prototype models for each of the capability areas and re-aligned efforts to the Systems Performance Modeling area in FY10. Initiated development of a web-based system for storage and access of CB Modeling and Simulation (M&S) and Information Technology (IT) development data and knowledge and re-aligned efforts to the Systems Performance Modeling | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| area in FY10. Closed out decision support data inscription technology to support change in advanced development program office priority. Continued distributed modeling research.<br><br>*FY 2010 Plans:*<br>CBDP Decision Capability efforts re-aligned to Simulation Analysis and Planning. | | | | | |
| 31) Information Systems Technology<br><br>Chemical and Biological Warfare Effects on Operations: Develop the science behind the modeling and simulation of operations at the strategic, operational and tactical level in a CBRN environment for mobile forces, tactical aircraft, naval operations and fixed sites.<br><br>*FY 2009 Accomplishments:*<br>Delivered methodology for CB effects on mobile and shipboard forces models to JOEF. Refined design and expanded prototype system for consequence management and incident management inclusions in consequence systems. Refined and expanded methodology for CBRN decision support tools.<br><br>*FY 2010 Plans:*<br>Chemical and Biological Warfare Effects on Operations efforts re-aligned to Simulation Analysis and Planning. | 3.986 | 0.000 | 0.000 | 0.000 | 0.000 |
| 32) Information Systems Technology<br><br>Simulation Analysis and Planning: Develop decision support tools and information management capabilities for planning and real-time analysis to determine and assess operational effects, risks, and impacts of CBRN incidents on decision making. Focus areas include consequence management, human knowledge management, health/human effects modeling including casualty estimation, and fusion of diseases surveillance data. | 0.000 | 6.300 | 7.395 | 0.000 | 7.395 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Refine and update secondary infection models and NBC Casualty Resource Estimation Support Tool (NBC CREST) human effects models to reflect revision of NATO's Allied Medical Publication 8 (AMedP-8). Initiate development of casualty estimation methodology for CBRN agents including Non-Traditional Agents. Develop methodologies to improve the calculation of medical countermeasures effects in casualty estimation models. Improve CBRN medical resource planning tools. Continue development of contagious and infectious disease models. Continue development of particle size distribution health effects based on basic and applied threat agent science research efforts. Continue development and improvement of methodologies to apply CB operational effects in tactical, operational and strategic level models for mobile forces, shipboard modeling, fixed sites and tactical aircraft. Continue development of Incident Management/Consequence Management (IM/CM) tools and capabilities. Initiate studies to identify and investigate existing syndromic/disease surveillance systems and early detection capabilities. Continue validation and verification (V&V) effort for medical modeling efforts aimed at transitioning to advanced development efforts. Continue refinement and expansion of decision support tools for advanced development efforts. Complete distributed modeling research.<br><br>*FY 2011 Base Plans:*<br>Complete development of refined versions of secondary infection models and human effects models to reflect revision of NATO's AMedP-8. Initiate development of additional casualty estimation modules for agents not in NATO's AMedP-8, including Non-Traditional Agents. Continue development of contagious/infectious disease models. Continue developing efforts aimed at integrating CB operational effects in tactical and operational level models for mobile forces, shipboard modeling, fixed sites and tactical aircraft. Further develop IM/CM tools and capabilities. Initiate development of capabilities that leverage and integrate existing early detection and disease surveillance data for inclusion into advanced development efforts. | | | | | |
| 33) Information Systems Technology | 0.000 | 3.073 | 3.502 | 0.000 | 3.502 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Systems Performance Modeling: Develop Chemical, Biological, Radiological and Nuclear (CBRN) data sharing capabilities and simulation tools.<br><br>*FY 2010 Plans:*<br>Develop data collection and exchange methodologies for implementation in the Chemical, Biological, Radiological and Nuclear (CBRN) Data Backbone. Design CB Warfare Effects Manual.<br><br>*FY 2011 Base Plans:*<br>Continue to investigate CBRN data backbone secure data management capabilities. Investigate and evaluate virtualization technology platforms to efficiently host data and applications to enable the CBRN data backbone. Explore feasibility of creating a comprehensive simulation tool for test and evaluation of CBRN defense systems. Enhance ability to evaluate decontaminants and decontamination systems by continuing to develop simulation capabilities for decontamination processes. | | | | | |
| 34) Detection<br><br>Chemical and Biological Point Detection Technology: Emphasis on the detection and identification of chemical and biological threats. Objectives include the development of nanoscale detector for sensing of chemical and biological agents, design for prototype whole pathogen genome sequencing system, and development of a portable point detector for chemical warfare (CW) detection in potable water.<br><br>*FY 2009 Accomplishments:*<br>Completed feasibility studies on assays for biological materials based on multiphoton, multi-wavelength processes. Completed development of novel use of laser technology to separate biological materials for enhanced detection of biological warfare agents in water. Completed development of novel laser sources and evaluation of discrimination capability and optical design aspects for BW aerosol detection with these sources. Completed feasibility studies on the use of novel nanowire-array sensors for enhanced sensitivity and selectivity in the detection of biological | 15.923 | 11.039 | 5.289 | 0.000 | 5.289 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| warfare materials. Continued development of breadboard microelectronic machine-sized (MEMS) sized solid state FTIR point sensor system. Continued feasibility study of nanoscale detection systems. Continued development of technology to sequence entire pathogen genomes. Initiated expansion of sample preparation concepts to address genomic sequencing of biological pathogens. Initiate new concepts based on nano-scale biological agent identification and sensing technologies. Began transition of Defense Advanced Research Projects Agency (DARPA) Micro Cryogenic Cooler (MCC) technology to enhance detection sensitivity for MEMS FTIR infrared sensor system. Continued studies to increase understanding of critical biological antigen variability. Initiated assessment of chemical fate in potable water. Initiated a scientific analysis on the technical impacts of the presence of agents on surfaces. Initiated feasibility of bio synthetic concept to re-engineer plants (Plant Sentinel) to behave as a NTA detector. | | | | | |
| *FY 2010 Plans:*<br>Continue concept development of nano-scale biological agent identification and sensing technologies. Continue development of technology to completely sequence entire pathogen genomes with automated sample preparation. Continue feasibility studies of nanoscale detection systems. Complete transition of MCC technology from DARPA and demonstrate integration into a MEMS FTIR sensor system as next generation chemical warfare agent detector. Continue studies to increase understanding of critical biological antigen variability. Continue a scientific analysis on the technical impacts of the presence of agents on surfaces and expand to include aerosol and operational scenarios due to the presense of NTAs. Continue assessment of chemical fate of chemicals in potable water. Continue feasibility development of plant sentinel concept. Initiate development of MEMS version of a gas chromatograph-mass spectrometer (GC-Mass Spec) technology in collaboration with DARPA. | | | | | |
| *FY 2011 Base Plans:*<br>Continue concept development of nano-scale biological agent identification and sensing technologies. Continue feasibility studies of nanoscale detection systems. Demonstrate MEMS FTIR sensor system. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Demonstrate technology to completely sequence entire pathogen genomes with automated sample preparation. Complete studies to increase understanding of critical biological antigen variability. All NTA-related efforts re-aligned to Detection NTA within this Budget Activity. | | | | | |
| 35) Detection | 13.346 | 15.669 | 9.100 | 0.000 | 9.100 |
| Chemical and Biological Stand-off Detection Technology: Emphasis on the detection and identification of chemical and biological threats to include NTAs in near real time at a distance from the detector. Future programs focus on the improvement of algorithms, excitation sources, and detector elements to increase range, reduce false positives, increase sensitivity, and reduce cost. | | | | | |
| *FY 2009 Accomplishments:* | | | | | |
| Initiated improved algorithm development for increased range capabilities and to reduce false positives. Completed the study on the detection modalities to detect sentinel species from biological warfare materials and processes. Initiated first generation active infrared standoff biological classification capabilities. Initiated design of first generation chemical standoff detection and identification capabilities. Continued models of technology to meet the needs to detect contamination on surfaces in a post decontamination application. Evaluated and assessed technology for scattering optical techniques, non-scattering optical standoff techniques, and off-gassing (trace vapor production) techniques for down-selection of breadboard design. | | | | | |
| *FY 2010 Plans:* | | | | | |
| Continue algorithm development to increase range capabilities and reduce false positives. Continue first generation active infrared standoff biological classification capabilities development. Continue design of first generation chemical standoff detection and identification capabilities. Complete models of technology to meet the needs to detect contamination on surfaces in a post decontamination application. Continue to evaluate and assess technology for scattering optical techniques, non-scattering optical standoff techniques, and off-gassing techniques for down-selection of breadboard design. | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Complete algorithm development to increase range capabilities and reduce false positives. Complete work on first generation active infrared (IR) standoff biological classification capabilities. Complete evaluation and assessment of technology for scattering optical techniques, non-scattering optical standoff techniques, and off-gassing for down-selection of breadboard design. All NTA-related efforts re-aligned to Detection NTA within this Budget Activity. | | | | | |
| 36) Detection NTA<br>Primary focus is to assess the potential of optical technologies to meet the needs to detect the presence of NTAs.<br><br>*FY 2011 Base Plans:*<br>Complete a scientific analysis on the technical impacts of the presence of agents on surfaces due to the presence of NTAs. Complete assessment of chemical fate of chemicals in potable water. Continue feasibility development of plant sentinel concept. Complete design of first generation chemical standoff detection and identification capabilities. Initiate development from technology models to meet the needs to detect contamination on surfaces in a post decontamination application. | 0.000 | 0.000 | 12.000 | 0.000 | 12.000 |
| Accomplishments/Planned Programs Subtotals | 102.599 | 110.955 | 88.897 | 0.000 | 88.897 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CB1: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | 23.871 | 35.475 | 31.041 | | 31.041 | 32.670 | 36.744 | 37.688 | 38.458 | Continuing | Continuing |
| • CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* | 19.567 | 25.297 | 15.410 | | 15.410 | 21.450 | 26.120 | 36.775 | 37.148 | Continuing | Continuing |
| | 25.761 | 13.307 | 11.875 | | 11.875 | 11.267 | 11.160 | 0.000 | 0.000 | Continuing | Continuing |

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**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TE3: *TEST & EVALUATION (ATD)* | | | | | | | | | | | |
| • TT3: *TECHBASE TECHNOLOGY TRANSITION* | 8.127 | 7.357 | 4.504 | | 4.504 | 8.117 | 8.169 | 8.390 | 8.528 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

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| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CI2: *CONGRESSIONAL INTEREST ITEMS (APPLIED RESEARCH)* | 42.714 | 16.630 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

The efforts this project include congressional interest programs for FY09 and FY10.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: Rapid Forensic Evaluation of Microbes in Biodefense<br>*FY 2009 Accomplishments:*<br>Continued research program to develop an ultra-sensitive single application detection method that can be used for a range of Bioterrorism agents. | 0.989 | 0.000 |
| Congressional Add: Chem/Bio IR Detection System<br>*FY 2009 Accomplishments:*<br>Continued research to investigate an electric-field focusing approach, combined with optically transparent filters, to be used for spore capture and identification.<br>*FY 2010 Plans:*<br>Develop an advanced chemical and biological detection system using a common platform to include detection of emerging novel agents and toxic industrial chemicals | 1.186 | 1.892 |
| Congressional Add: Zumwalt National Program for Countermeasures to Bio Chem Threats | 1.187 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued research to improve model development related to atmospheric sciences and environmental modeling. | | |
| Congressional Add: HyperAcute Vaccine Development<br>*FY 2009 Accomplishments:*<br>Continued research by testing vaccine efficacy in a mouse model for correlates of immunity and protection from live virus challenge.<br>*FY 2010 Plans:*<br>Continuation of research from FY09. | 2.373 | 3.585 |
| Congressional Add: Antibody-based Therapeutic against Smallpox<br>*FY 2009 Accomplishments:*<br>Continued testing with the goal of generating a combinational therapeutic of human mAbs to several neutralizing VACV proteins, that confer the highest degree of protection against vaccinia, smallpox, monkeypox, and other orthopoxvirus infections. | 0.791 | 0.000 |
| Congressional Add: Novel Viral Biowarfare Agent Identification and Treatment (NOVBAIT)<br>*FY 2009 Accomplishments:*<br>Continued research to find small molecules that inhibit the assembly of capsids by viruses of high biowarfare potential, thereby inhibiting their replication and neutralizing infection. | 3.955 | 0.000 |
| Congressional Add: Mixed Oxidants for Chemical and Biological Decontamination | 2.769 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued research begun in FY08. | | |
| Congressional Add: Bio Surety Development and Management Program -<br>*FY 2009 Accomplishments:*<br>Continued the research and analysis from FY08. | 1.186 | 0.000 |
| Congressional Add: Countermeasures to Chemical/Biological Control-Rapid Response -<br>*FY 2009 Accomplishments:*<br>Continued research from FY08. | 2.372 | 0.000 |
| Congressional Add: Multiple Applications for Light Activated, Reactive Materiels for Protection of Warfighter, First Responder, and Public Health -<br>*FY 2009 Accomplishments:*<br>Developed protective applications for first responders of all types. | 1.582 | 0.000 |
| Congressional Add: Chemical Biological Preparedness Center for Advanced Development of Mobile Rapid Response Prototype -<br>*FY 2009 Accomplishments:*<br>Developed a mobile, forward deployable, medical capacity that would respond to bio-terrorist incidents and other mass casualty incidents resulting from WMD, natural and technological disasters. | 3.955 | 0.000 |
| Congressional Add: Novel System for Developing Therapeutics against Botulism - | 3.955 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| *FY 2009 Accomplishments:*<br>Conducted research to discover new therapeutics against Botulism. | | |
| Congressional Add: Ultra-Rapid Next Generation Pathogen Identification -<br>*FY 2009 Accomplishments:*<br>Developed pathogen identification capabilities. | 1.978 | 0.000 |
| Congressional Add: Preventing Long-Term Brain and Lung Damage Caused by Battlefield Trauma Project -<br>*FY 2009 Accomplishments:*<br>Conducted research to determine new techniques to prevent brain and lung damage. | 2.868 | 0.000 |
| Congressional Add: Chemical Agent Fate Appropriate Response Tool -<br>*FY 2009 Accomplishments:*<br>Conducted research to create a systematic approach for to the development of a comprehensive operational agent fate model/tool that provides recommendations on the appropriate response to contamination events.<br>*FY 2010 Plans:*<br>Continue research from FY09. | 1.582 | 1.593 |
| Congressional Add: Multivalent Marburg/Ebola Vaccine -<br>*FY 2009 Accomplishments:*<br>Conducted research in the development of a multivalent Marburg/Ebola vaccine. | 3.461 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: Botulinum Neurotoxin Research -<br>*FY 2009 Accomplishments:*<br>Conducted research in the development of a new assay which is designed to detect Botulinum (A-G) in the environment and on exposed animals, humans, and culture cells.<br>*FY 2010 Plans:*<br>Continue research from FY09. | 1.582 | 1.992 |
| Congressional Add: Miniaturized Chemical Detector for Chemical Warfare Protection (ChemPen) -<br>*FY 2009 Accomplishments:*<br>Developed a ready for production MEMs FTIR absorption spectrometer to detect in seconds a wide range of nerve agents/TICs.<br>*FY 2010 Plans:*<br>Continuation of research from FY09. | 1.581 | 1.593 |
| Congressional Add: Continued Expansion of Prototypes for Destruction of Airborne Pathogen -<br>*FY 2009 Accomplishments:*<br>Continued development of methodologies for the destruction of aerosolized agents. | 0.791 | 0.000 |
| Congressional Add: Mismatch Repair Derived Antibody to Treat Staph Derived Bioweapon -<br>*FY 2009 Accomplishments:*<br>Continued research begun in FY07 to develop fully human anti-Staphylococcus enterotoxin B (SEB) monoclonal antibodies (mAbs) that can neutralize >1000 times the human LD50 of the toxin. | 1.582 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: Nano Porous Hollow Fiber Regenerative Chemical Filter -<br>*FY 2009 Accomplishments:*<br>Conducted research in the application of nanotechnology to chemical filter design. | 0.989 | 0.000 |
| Congressional Add: Chemical and Biological Resistant Clothing<br>*FY 2010 Plans:*<br>Develop a material capable of simultaneously being lightweight, robust, breathable, and resistant to chemical and biological agents. | 0.000 | 1.593 |
| Congressional Add: Botulinum Toxin Treatment Therapy<br>*FY 2010 Plans:*<br>Develop new therapies for botulinum toxin poisoning and other bioterrorism threats. | 0.000 | 0.797 |
| Congressional Add: Contaminated Human Remains Pouch<br>*FY 2010 Plans:*<br>Conduct development activities for a contaminated human remains transportable container. | 0.000 | 1.593 |
| Congressional Add: PaintShield for Protecting People from Microbial Threats<br>*FY 2010 Plans:*<br>Develop a paint coating technology, a cost-effective, interior paint platform that will render microbiological threats harmless upon contact. | 0.000 | 1.992 |
| Congressional Adds Subtotals | 42.714 | 16.630 |

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**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CI1: *CONGRESSIONAL INTEREST ITEMS (BASIC RESEARCH)* | 8.090 | 20.036 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • CI3: *CONGRESSIONAL INTEREST ITEMS (ATD)* | 46.971 | 18.622 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

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| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TB2: *MEDICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 50.485 | 53.930 | 43.858 | 0.000 | 43.858 | 50.866 | 51.077 | 51.051 | 51.959 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This project (TB2) funds applied research of vaccines, therapeutic drugs, and diagnostic capabilities to provide effective medical defense against validated biological threat agents including bacteria, toxins, and viruses. Innovative biotechnology approaches will be incorporated to advance medical systems designed to rapidly identify, diagnose, prevent, and treat disease due to exposure to biological threat agents will be advanced. Categories of this project include core science efforts in biological defense capability areas, such as Pretreatments, Diagnostics, and Therapeutics. Medical Science and Technology (S&T) efforts in this Budget Activity refine promising medical initiatives identified in Budget Activity 1, resulting in the development of countermeasures to protect against and treat the effects of exposure to chemical, biological, and radiological (CBR) agents.

This project also includes efforts such as the Transformational Medical Technologies Initiative (TMTI). The Transformational Medical Technologies Initiative (TMTI) was launched to respond to the threat of emerging or intentionally bioengineered biological threats. TMTI's mission is to protect the Warfighter from genetically engineered biological threats by providing a rapid response capability from identification of pathogens to the delivery of medical countermeasures. This mission is accomplished through two main efforts: 1) developing broad spectrum (multi-agent) therapeutics against biological warfare (BW) agents (e.g, one drug that treats multiple agents); and 2) developing platform technologies to assist in the rapid development of medical countermeasures (MCMs) in response to BW agents (e.g, developing new and innovative ways to mass produce drugs in the event of a biological incident).

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) SBIR | 0.000 | 0.733 | 0.000 | 0.000 | 0.000 |
| *FY 2010 Plans:*<br>Small Business Innovative Research. | | | | | |
| 2) Diagnostics | 6.594 | 7.197 | 6.994 | 0.000 | 6.994 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Diagnostic Technologies: Development and verification of rapid, sensitive, and specific tests for the identification of Biological Warfare Agents (BWAs) and their expressed toxins in biological fluids of Warfighters for the diagnosis of exposure/infection. Discovery of biomarkers of response to exposure. Evaluation of next generation diagnostic technologies including portable instrument platforms, highly parallel and informative testing formats, and nanotechnology applications.<br><br>*FY 2009 Accomplishments:*<br>Continued to apply decision matrix to developmental testing on next generation diagnostic devices with emphasis on technologies capable of integrating sample processing, nucleic acid and immunodiagnostic testing. Based on results, assessed/expanded study using animal models exposed to biothreat agents in order to identify the optimal matrices/tissues for biological pathogen identification and test windows of diagnostic opportunity using Service developed assays. Promoted use of recombinant DNA reagent production and incorporate onto existing systems. Developed improved test assays utilizing new technologies and approaches that enhance diagnosis of early exposure/ infection. Completed a study of laboratory based research targeting the diagnostic implications of toxins in the body.<br><br>*FY 2010 Plans:*<br>Implement restructured intra- and inter-agency strategy for Next Generation Diagnostic System (NGDS) candidate technology assessment and maturation. Continue development of panel of potential pre-symptomatic indicators of exposure/infection. Develop affinity reagent production and characterization pipeline and apply materials and data coordination with technology maturation efforts. Develop affinity-based amplification prototype assays for application on PCR-based fluorometric system. Apply nano-diagnostic technology to demonstrate BWA viability and analytic application. Develop target enrichment methods for rapid diagnostic de novo sequencing of BWA directly from clinical matrices. Develop micro-RNA library and study diagnostic utility. | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Develop high-throughput technologies for identification, evaluation, and validation of agent-specific genetic and immunological assay targets using sequencers and microarrays. Complete development and assess performance of affinity-based protein expression amplification methods. Continue to discover and develop pre-symptomatic diagnostic signatures for additional agents and investigate diagnostic utility as early indicators of exposure/infection in animal models. Evaluate nano diagnostic technologies for ease-of-use, sensitivity, specificity and cost. Continue development and application of rapid sequencing technology and target enrichment for deployable field environment. Investigate advancement of technologies and procedures for broad multiplex detection of agent gene expression, proteomic and antibiotic resistance profiles. Develop a geographically representative strain collection and assay(s) capable of detecting an emerging threat agent of high genetic variability. | | | | | |
| 3) Pretreatments | 3.872 | 0.000 | 0.000 | 0.000 | 0.000 |
| Multi-agent DNA Vaccines for Bio-Warfare Agents (Former DTO CB65): Molecular (i.e., naked DNA) vaccine platforms will be developed so that a single vaccine formulation provides protection against multiple bacterial and viral biothreat agents.<br><br>*FY 2009 Accomplishments:*<br>Optimized DNA multiagent vaccines that include anthrax and plague components in animal models. Characterized the underlying protective response and evaluate for possible interference between vaccine components and the immune response. Optimized alternative genetic vaccine delivery strategies and unique immune stimulation formulations for the development of vaccines against intracellular bacterial pathogens. Finalized efficacy testing of native and genetically modified vaccine candidates. Completed testing of native and genetically modified vaccine candidates, particularly single formulation DNA vaccine constructs expressing multiple biothreat antigens. Tested spore-based vaccines in animal models. Completed DTO CB65 in FY09. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>This effort re-aligned to Vaccine Platforms and Research Tools. | | | | | |
| 4) Pretreatments<br>Multiagent Vaccine Platforms: Construct multi-agent vaccine platforms and formulations capable of expressing multiple protein antigens from multiple pathogens, and evaluate in animal models.<br>*FY 2009 Accomplishments:*<br>Further assessed candidate multi-agent vaccines in animal models, and considered the inclusion of alternative agents. Explored novel platforms and vaccine formulations. Evaluated effectiveness in animal models.<br>*FY 2010 Plans:*<br>Effort re-aligned to Vaccine Platforms and Research Tools. | 1.364 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5) Pretreatments<br>Vaccine Research Support: Identify the elements of a vaccine formulation that are necessary for an effective host immune response that confers protection against biothreat agents.<br>*FY 2009 Accomplishments:*<br>Further characterized immune correlates of protection elicited by alphavirus (WEE/VEE/EEE) and filovirus vaccines in animal models. Optimized alphavirus and filovirus antibody-based assays and evaluated their ability to predict protection. Explored additional intracellular pathogen antigens using animal model systems including the use of alternative vaccine delivery platforms for protection. Further evaluated the protective efficacy of BoNT components in small animal models. Extended the characterization of non-protective antigen vaccine candidates to additional small animal models. Pursued the use of immune stimulating protein fragments (peptides) or immune cell targeting peptides to enhance vaccine efficacy in animal models. | 6.463 | 0.000 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Efforts re-aligned to Viral Vaccines and Bacterial/Toxin Vaccines. | | | | | |
| 6) Pretreatments<br>Bacterial/Toxins Vaccines: Generate novel or improved vaccines against bacterial and toxin biothreat agents, and demonstrate preliminary efficacy in small animal models. Identify correlates of protective immunity in animals models.<br><br>*FY 2010 Plans:*<br>Test the efficacy of Burkholderia vaccine candidates against aerosol challenge in small animal models. Begin to determine the therapeutic regimen needed in conjunction with a vaccine to eliminate residual Burkholderia organisms and begin evaluation of the immune response elicited by the vaccine. Use comparative animal studies to test the efficacy of disease inactivated, but metabolically active vaccine candidates against Brucella species. Begin to compare the ability of the disease inactivated, but metabolically active vaccine candidates to protect mice against aerosol challenge with distinct strains of Brucella following oral immunization. Continue to test the immune stimulation and effectiveness of novel anthrax vaccines (e.g., multi-component genetically altered vaccines composed of spore antigens, etc.) to combat emerging and genetically engineered strains. Initiate studies aimed at generating a second-generation vaccine that protects against aerosolized Type A Francisella tularensis.<br><br>*FY 2011 Base Plans:*<br>Continue aerosol efficacy studies in mice for Brucella and Burkholderia vaccine candidates. Work to improve the efficacy of the most promising vaccine candidates against Burkholderia and Brucella by initiating studies that vary the route of immunization, dose and vaccination schedule. Begin investigating whether the efficacy of the Brucella and Burkholderia vaccine candidates can be approved by co-administering the vaccines with nonspecific stimulators of the immune response (i.e., adjuvants). Test the ability of antibiotics to remove residual Burkholderia from vaccinated animals to | 0.000 | 2.948 | 5.254 | 0.000 | 5.254 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| prevent reactivation of disease. Identify measures of immunity elicited by vaccine candidates against Brucella and Burkholderia. Test the efficacy of novel next-generation, multi-valent anthrax vaccines in small animal models against aerosol challenge. Determine the immune stimulation capability of novel subunit vaccines comprised of proteins involved in a common virulence pathway shared by most gram negative bacteria, including Yersinia pestis. Investigate the potential of outer membrane proteins isolated from Type A Francisella tularensis to serve as vaccine candidates against aerosol challenge with the pathogen in small animal models. | | | | | |
| 7) Pretreatments<br>Viral Vaccines: Design vaccines against the Filoviruses (Ebola and Marburg strains) and Alphaviruses (VEE, EEE, WEE) using distinct vaccine platforms, and demonstrate preliminary efficacy in animal models. Identify correlates of protective immunity in animal models.<br>*FY 2010 Plans:*<br>Identify correlates of immunity for alphavirus (VEE, EEE, WEE) vaccine candidates. Define immune correlates of protection for mature Marburg and Ebola virus vaccine candidates. Develop vaccine candidates for emerging filovirus strains (e.g. Ebola Uganda strain).<br>*FY 2011 Base Plans:*<br>Further define immune correlates of protection for alphavirus (i.e., EEE and WEE) vaccine candidates. Continue to characterize the immune response to Ebola and Marburg viruses in order to identify correlates of protection in animal models, and establish assays to measure these immune correlates. Assess the immune stimulation and effectiveness of vaccine candidates against a new strain of the Ebola virus, Ebola Bundibugyo, in animal challenge models. | 0.000 | 2.948 | 0.525 | 0.000 | 0.525 |
| 8) Pretreatments<br>Vaccine Platforms and Research Tools: Design novel multi-agent vaccine platforms capable of expressing multiple antigens, investigate the ability of non-specific stimulators of immunity to enhance | 0.000 | 4.279 | 4.729 | 0.000 | 4.729 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| the effectiveness of newly generated vaccines, characterize alternative vaccine delivery (needle-free) methods and novel vaccine stabilization methodologies, and conduct studies to further advance a laboratory based, human artificial immune system to render it capable of predicting the human immune response to biodefense vaccines under development.<br><br>*FY 2010 Plans:*<br>Research multiagent vaccines, immune interference, immune stimulation formulations, vaccine delivery/stabilization, and efforts to predict the human immune response to vaccine candidates. Develop and test new platform technologies that support the expression of multiple antigens. Explore new multi-agent vaccine formulations for immune stimulation in animal models. Further examine devices for efficient administration of DNA vaccines. Begin evaluating alternate, needle-free immunization strategies (i.e., intranasal, oral, and transdermal administration) with current vaccine candidates (non-DNA) against biological threats. Conduct studies to advance the laboratory based artificial human immune system to optimize antibody production. If available, obtain samples from individuals in the Former Soviet Union that have either been vaccinated against or infected with endemic pathogens considered to be threat organisms in order to evaluate the human immunologic response to these agents and/or vaccines. Evaluate new immune stimulating formulations for their ability to enhance vaccine effectiveness in animal models by examining the antibody and cell-based immune responses.<br><br>*FY 2011 Base Plans:*<br>Continue to construct new multi-agent vaccine formulations utilizing platform technologies that support the expression of multiple antigens, and test these multi-agent vaccines for immune stimulation in small animal models. Compare an intra-dermal versus intra-muscular electric field device for delivery of DNA vaccines against bio-threat agents in small animals. Continue studies to advance the laboratory based, surrogate human immune system termed the Modular Immune In vitro Construct (MIMIC), which provides a three-dimensional peripheral tissue model intended to reliably reproduce the human immune response. Complete optimization of the production of high affinity antibodies by | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| the MIMIC in response to biodefense vaccines, and develop a sensitive fluorescent-based assay to assess the functionality of the antibodies generated. Adapt the MIMIC to function as an infectious disease model for alphaviruses and filoviruses. Use these MIMIC in infectious disease models to begin to define human correlates of protective immunity against alphaviruses and filoviruses. Initiate studies to develop methodologies that render different types of vaccine platforms (i.e., viral vector, inactivated virus, virus like particles, and attenuated bacteria, etc.) stable in variable and extreme temperatures. | | | | | |
| 9) Therapeutics<br>Therapy for Ebola and Marburg Virus Infections: Identify, optimize and evaluate lead candidate therapeutics for efficacy against Filovirus infections, specifically Ebola and Marburg Viruses.<br>*FY 2009 Accomplishments:*<br>Completed proof-of-concept studies for lead candidate technologies. | 0.811 | 0.000 | 0.000 | 0.000 | 0.000 |
| 10) Therapeutics<br>Viral Therapeutics: Identify, optimize and evaluate lead candidate therapeutics for efficacy against viral pathogens.<br>*FY 2009 Accomplishments:*<br>Determined the ability of heavy metal nanoparticle-based therapeutics to inhibit viral infection in a laboratory model system. Conducted proof-of-concept studies aimed at identifying therapeutic candidates for poorly characterized threats. Continued supporting therapeutics effective against well characterized threat agents towards advanced development. Screened multiple compound libraries for small molecule inhibitors of designated viral pathogens. | 0.430 | 2.067 | 1.600 | 0.000 | 1.600 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Initiate drug discovery for a second novel orthopox drug with a mechanism distinct from ST-246, a low-molecular-weight compound that is active against multiple orthopoxviruses. Expand drug discovery efforts for alphaviruses (VEE, EEE, and WEE). Establish clinical protocols to obtain human clinical samples from filovirus outbreaks in the Democratic Republic of the Congo. Test and evaluate lead candidate therapeutic compounds in relevant animal challenge models. Continue testing of heavy metal nanoparticle-based therapeutics for the ability to prevent viral infection in animal models. Identify lead compounds from small molecule library screening and optimize their action through medicinal chemistry. Test and evaluate small protein fragments to determine if their ability to prevent a virus from binding to cells represents a viable therapeutic interdiction point for designated viral pathogens.<br><br>*FY 2011 Base Plans:*<br>Identify FDA-approved drug combinations with efficacy against alphavirus infection. Identify and develop small molecule inhibitors to specific host factors required for alphavirus pathogenesis. Conduct structure-based screening of chemical libraries to identify inhibitors of alphavirus proteins. Utilize medicinal chemistry to optimize antiviral activity of lead compounds. Identify therapeutic inhibitors of orthopoxvirus infection by targeting required host and viral tyrosine phosphatases. | | | | | |
| 11) Therapeutics<br>Bacterial Therapeutics: Identify, optimize and evaluate lead therapeutic candidates effective against designated bacterial threat agents.<br><br>*FY 2009 Accomplishments:*<br>Completed initial evaluation of a single domain antibody that is smaller than conventional antibodies against plague, and extend the application to other related bacteria if successful. Screened small molecules that can prevent plague bacteria from injecting virulence factors into cells in the laboratory, and extend application of assay to other related bacteria. Balanced efforts to evaluate potential single | 5.418 | 4.110 | 4.100 | 0.000 | 4.100 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| agent bacterial therapeutics with those having broad-spectrum activity. Identified and screened inhibitors of bacterial phosphatases for protective effects in cellular and animal models.<br><br>*FY 2010 Plans:*<br>Complete evaluation of bacterial phosphatase inhibitors in a mouse model of plague infection. Test and evaluate lead candidate small molecules to determine their antimicrobial activity. Screen commercially available antimicrobial in advanced clinical development for their activity in the laboratory against bacterial threat agents.<br><br>*FY 2011 Base Plans:*<br>Continue the identification of commercially available antimicrobials in advanced clinical development with laboratory assayed activity against bacterial threat agents. Assess compounds identified in high content imaging assays for their antimicrobial activity in relevant animal challenge models. | | | | | |
| 12) Therapeutics<br>Toxin Therapeutics: Identify, optimize and evaluate therapeutic candidates that are effective against biological toxin agents.<br><br>*FY 2009 Accomplishments:*<br>Evaluated next generation monoclonal antibodies for laboratory and animal effectiveness against Botulinum Neurotoxin (BoNT). Characterized lead compounds for potency and specificity in laboratory models and animal models. Initiated development of inactive versions of BoNT substrates as therapeutics with the potential to restore nerve activity following neuroparalysis. Developed a cell-based high-throughput screening system for BoNT therapeutics derived from mouse cells and embryonic stem cells. Evaluated immune-modifying compounds for pre- and post-exposure therapy for Staphylococcal Enterotoxin B (SEB) intoxication in laboratory and animal models. | 10.528 | 9.065 | 9.171 | 0.000 | 9.171 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Screen compound libraries utilizing a high-throughput screening system for BoNT therapeutics derived from mouse cells and embryonic stem cells. Test and evaluate lead candidate inhibitors in relevant laboratory and animal model systems of BoNT intoxication. Perform experimental analysis to clarify the contribution of protein modification of BoNT to its structure and biochemical activity as it relates to drug development. Conduct high-throughput screening of drug libraries to identify inhibitors of ricin toxicity.<br><br>*FY 2011 Base Plans:*<br>Develop transgenic mice expressing genetically-encoded reporters of BoNT activity in neurons for use in high-throughput screening of BoNT therapeutics. Validate neurite outgrowth analysis for the identification of BoNT inhibitors. Identify host proteins responsible for BoNT light chain stabilization. Conduct co-crystallization studies of BoNT-inhibitor complexes. Perform experiments to determine toxicity and pharmacokinetics of selected ricin inhibitors. Identify host proteins involved in ricin dislocation as potential host-directed drug targets. Determine efficacy of identified ricin inhibitors in mice. | | | | | |
| 13) Transformational Medical Technologies Initiative<br><br>Multiagent (Broad Spectrum) Medical Countermeasures (MCM): Builds upon basic research performed by existing performers and supports the efforts of new performers who are in the mid-drug discovery phase of drug development. Applied research efforts also include the investigation of existing drugs to explore their efficacy against BW agents. Assesses toxicity and efficacy in accordance with the product's intended use. Initiation of experiments to identify markers, correlates of protection, assays, and endpoints for further non-clinical and clinical studies. Develop a scalable and reproducible manufacturing process amenable to Food and Drug Administration (FDA) good manufacturing processes. | 15.005 | 4.186 | 8.037 | 0.000 | 8.037 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued efforts to evaluate novel drugs to treat against Hemorrhagic Fever Viruses (HFVs) and Intracellular Bacteria Pathogen (IBP) infections. Completed validation studies of antisense RNA therapeutic candidate drugs against HFV pathogens to prepare for Investigational New Drug (IND) studies. Continued to evaluate novel drugs for anti-bacterial effects. Continued to evaluate and develop genetic methods for identifying broad spectrum host pathway therapeutic target. Evaluated promising therapeutics in combination with lead therapeutic candidates. Continued to expand the evaluation of drug compounds targeting key pathogen and/or host molecules. Conducted a validation of the computer model and a bioinformatics structure for the examination of protein interactions.<br><br>*FY 2010 Plans:*<br>Continue efforts to evaluate novel drugs to treat HFV and ICB pathogen infections. Mature promising compounds in combination with lead therapeutic candidates.<br><br>*FY 2011 Base Plans:*<br>Continue to support new MCM discovery efforts entering the product pipeline. Continue to evaluate and mature navel drugs as post-exposure prophylaxis and treatment for HFVs and IBP infections. Identify and initiate the development of intervention strategies targeting host pathogen response, inclusive of enhancing the immune system and addressing symptoms to reduce the severity of disease. | | | | | |
| 14) Transformational Medical Technologies Initiative<br>Development of Platform Technologies: Mature the components necessary to develop an integrated capability from pathogen identification and characterization to countermeasure delivery. Off-the-shelf technologies will be identified, evaluated, and where applicable, refined to demonstrate the ability to provide drug development capabilities. Drug evaluation needs will continue to advance the maturity of animal models specific for each BW agent therapeutic. | 0.000 | 16.397 | 3.448 | 0.000 | 3.448 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | **R-1 ITEM NOMENCLATURE**<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | **PROJECT**<br>TB2: *MEDICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Identified enabling and critical technologies, formulated appropriate technology plans and acquisition strategies, and determined their performance objectives. Initiated development of an information network to serve as the backbone for a rapid drug discovery and development capability. Supported development of platform technologies to higher levels of maturity. Genetic sequencing studies model the types and quantity of data needed for the identification of unknown pathogen ID, including a genomic survey for countermeasure targets and genetically engineering. Evaluated the information network to serve as the backbone for a rapid drug discovery and development capability. Pursued informatics to support analytical activities, event response, and science discovery. Initiated work on advanced manufacturing to enhance the rapid production of therapeutics.<br><br>*FY 2011 Base Plans:*<br>Continue the development of host and pathogen based platforms to higher levels of maturity. Continue to explore pathogen identification and characterization capabilities, including genetic sequencing, integrate existing capabilities. Continue to assess future sequence and analysis needs to characterize advanced threats. Continue to integrate leading edge technologies with existing technologies to enhance pathogen characterization, target identification, countermeasure discovery and countermeasure evaluation platform areas. | | | | | |
| Accomplishments/Planned Programs Subtotals | 50.485 | 53.930 | 43.858 | 0.000 | 43.858 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)* | 15.086 | 16.782 | 14.352 | | 14.352 | 15.499 | 14.845 | 14.402 | 14.672 | Continuing | Continuing |
| | 180.425 | 203.723 | 115.233 | | 115.233 | 125.666 | 109.737 | 115.049 | 117.289 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>TB2: *MEDICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TB3: *MEDICAL BIOLOGICAL DEFENSE (ATD)* | | | | | | | | | | | |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* | 35.008 | 40.418 | 33.648 | 0.000 | 33.648 | 36.327 | 36.500 | 37.475 | 38.150 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This project (TC2) funds applied research for the investigation of new medical countermeasures to include prophylaxes, pretreatments, antidotes, skin decontaminants and therapeutic drugs against identified and emerging chemical warfare threat agents to include a class of agents called Non Traditional Agents (NTAs). Starting in FY11, all NTA-dedicated research will be re-aligned into specific capability areas within this project in order to ensure a focused effort on this high priority area. Capability areas include: Pretreatments; pretreatments for NTAs; diagnostics; diagnostics for NTAs; therapeutics; and therapeutics for NTAs. Pretreatments includes researching prophylaxes to protect against chemical agents and NTAs. Diagnostics focuses on researching diagnostic tools that help identify exposure to chemical agents and NTAs. Therapeutics focuses on researching post-exposure countermeasures to protect against chemical agents and NTAs. Research and development efforts in this project focus on formulation and scale-up of candidate compounds.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.507 | 0.000 | 0.000 | 0.000 |
| 2) Diagnostics<br>Diagnostic Technologies: Focuses on developing state-of-the-art laboratory/fieldable methods that detect exposure to chemical warfare agents (CWA) (e.g., nerve agents and vesicants) in clinical samples. Identifies biomolecular targets that can be leveraged as analytical methodologies, as well as, laboratory and animal studies characterizing time-course and longevity of a particular analyte/ biomarker. | 1.013 | 1.207 | 0.865 | 0.000 | 0.865 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Completed alternative sample collection/extraction technologies, such as, solvent free extraction as part of a rapid screening method to verify exposure to CWAs. Evaluated the combined sample extraction and analysis procedure for pre- and post-CWA exposure to assess the feasibility of detecting chemical warfare analytes in hair samples from animals. Incorporated promising antibody diagnostics and molecular technologies for hand-held CWA diagnostic platforms developed under the Small Business Innovative Research (SBIR) program into the core program for further development.<br><br>*FY 2010 Plans:*<br>Continue development of definitive diagnostic biomarkers for early detection of CWA exposure using several different analytical approaches. Develop pre-symptomatic diagnostic technologies for eventual incorporation into handheld devices in order to detect CWA exposures.<br><br>*FY 2011 Base Plans:*<br>Continue to determine whether existing CWA biomarkers are appropriate for early detection and validation of CWA exposure in clinical samples. Determine if biomarkers that appear after exposure to sulfur mustard can be used to identify an appropriate treatment option prior to the onset of symptoms. Continue investigation of a novel surface plasmon resonance based sensor array and a phage library display to develop binding molecules as biomarkers of nerve agent exposure. All NTA-related efforts are re-aligned to Chemical Diagnostics NTA within this Budget Activity. | | | | | |
| 3) Chem Diagnostics NTA<br>*FY 2011 Base Plans:*<br>Continue studies to identify biomarkers to create an enhanced capability to pre-symptomatically diagnose NTA exposure. Continue method development for identification and validation of NTAs in clinical samples. | 0.000 | 0.000 | 0.400 | 0.000 | 0.400 |
| 4) Pretreatments | 10.685 | 9.883 | 5.980 | 0.000 | 5.980 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Nerve Agent, Bioscavengers: Develops pretreatments that provide protection against all organophosphorous nerve agents. Bioscavengers should have the ability to rapidly bind and detoxify nerve agents, and have broad binding specificity and high catalytic efficiency for the destruction of agents.<br><br>*FY 2009 Accomplishments:*<br>Refined gene-splicing methods and expression systems for large scale production and purification of genetically altered and catalytic bioscavengers. Continued investigating catalytic bioscavengers in mice that have various genes turned off. Optimized dose and route of administration of short amino acid based drugs as potential catalytic bioscavengers. Assessed efficacy of novel catalytic bioscavengers. Evaluated catalytic bioscavengers with increased destruction efficiency. Tested new, more efficient delivery formulations in animal models.<br><br>*FY 2010 Plans:*<br>Develop formulations for improved and reduced immune system stimulation of catalytic/stoichiometric bioscavengers, with a particular focus on providing protection against Non-Traditional Agents (NTAs). Investigate improved drug-delivery systems for 1st generation catalytic/stoichiometric bioscavengers. Conduct supportive studies toward licensure of catalytic stoichiometric bioscavengers.<br><br>*FY 2011 Base Plans:*<br>Further refine methods and expression systems for screening, production and purification of designed catalytic bioscavengers. Initiate development of animal expression systems for delivery of newly designed improved catalytic bioscavengers. Initiate efficacy studies of small molecule approaches towards AChE protection. All NTA-related efforts are re-aligned to Chemical Pretreatments NTA within this Budget Activity. | | | | | |
| 5) Chem Pretreatments NTA | 0.000 | 0.000 | 1.500 | 0.000 | 1.500 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Continue efforts to investigate ways to decrease the development time to deliver a bioscavenger (stoichiometric/catalytic) to protect the Warfighter. Continue studies to determine efficacy of bioscavenger for NTA exposure. | | | | | |
| 6) Therapeutics<br>Respiratory and Systemic: Supports investigation of the systemic host response to chemical warfare agent (CWA) injury via all routes of exposure, with emphasis on the respiratory system and chronic effects of exposure. This involves the development of effective practical field and clinic management strategies and physical and pharmacological interventions to treat the injury processes. This work is designed to support eventual Food and Drug Administration (FDA) licensure of new compounds or new indications for licensed products for use in the treatment of chemical warfare casualties.<br>*FY 2009 Accomplishments:*<br>Continued research on broad-based therapeutics effective against multiple agents and routes of exposures.<br>*FY 2010 Plans:*<br>Evaluate safety, efficacy, dosing and relevant effects on the body, and the body's effects on the drug, of candidate countermeasures against lung injury. Investigate down-selected potential candidate countermeasures based on molecular biology approaches to CWA lung injury. Continue to study long-term health effects due to CWA exposure.<br>*FY 2011 Base Plans:*<br>Continue to evaluate safety, efficacy, dosing and relevant effects on the body, and the body's effects on the drug, of candidate countermeasures against lung injury. Continue to investigate down-selected potential candidate countermeasures based on molecular biology approaches to CWA lung injury. Continue to study long-term health effects due to CWA exposure. | 3.130 | 2.994 | 2.788 | 0.000 | 2.788 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 7) Therapeutics | 1.525 | 1.263 | 1.275 | 0.000 | 1.275 |

Cutaneous and Ocular: Focuses on therapeutic strategies to effectively minimize injuries to dermal and ocular tissues resulting from exposure to chemical warfare agents (CWAs). Involves the development of effective practical field and clinic management strategies and physical and pharmacological interventions to treat the injury processes. This work is designed to support eventual FDA licensure of new non-licensed compounds or new indications for licensed products for use in the treatment of chemical warfare casualties.

*FY 2009 Accomplishments:*

Evaluated safety, efficacy, dosing and relevant effects on the body, and the body's effects on the drug, of candidate countermeasures against sulphur mustard injury. Evaluated cell-based therapeutic technologies. Tested the protective effects of an FDA approved antibiotic against acute sulfur mustard injury. Evaluated the efficacy of drug modifiers of stem cells for blister injury. Assessed effectiveness of anti-inflammatory drugs in the laboratory against sulphur mustard damage to the eye.

*FY 2010 Plans:*

Continue to determine the efficacy of bioengineering and molecular biology approaches to treat sulfur mustard ocular injury. Continue testing of cell-based approaches to facilitate blister agent wound healing. Continue development of a decontaminant for penetrating wounds containing CWAs. Maintain effort to determine the chronic consequences of blister agent exposure. Begin novel efforts to increase drug delivery of candidate countermeasures. Enhance current anti-inflammatory approaches to treating blister agent injury. Evaluate the commonality in mechanisms of blister-induced injury across tissues and routes of exposure.

*FY 2011 Base Plans:*

Continue development of novel drug delivery approaches for candidate countermeasures. Continue to determine the effectiveness of multiple anti-inflammatory approaches in vitro against blister agent

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| exposure. Continue investigation of potential therapeutic approaches to mitigate the chronic effects of blister agent exposure. | | | | | |
| 8) Therapeutics<br>Neurologic: Focuses on therapeutic strategies to effectively minimize neurologic injuries resulting from exposure to CWAs. This effort involves the development of neuroprotectants, anticonvulsants, and improved neurotransmitter restorers. Supports eventual FDA licensure of new compounds or new indications for licensed products for use in the treatment of chemical warfare casualties.<br>*FY 2009 Accomplishments:*<br>Identified and developed broad-spectrum improved reactivators based on the mechanism of action of reactivation. Initiated testing of centrally acting neurotransmitter degrading enzyme restorers for efficacy using laboratory and animal models. Down-selected novel and FDA approved anticonvulsants, neuroprotectants, anti-epileptics, and receptor competitors and neutralizing agents for neuroprotective activity against nerve agents. Defined and optimized the utility of therapeutic agent-binding proteins.<br>*FY 2010 Plans:*<br>Identify and develop drug-delivery systems to improve the restoration of nerve transmitters following exposure to chemical agents. Utilize structure-activity relationships to identify anticholinergic drugs with reduced side effects and novel neuroprotectants and anti-epileptics to protect against nerve agents.<br>*FY 2011 Base Plans:*<br>Continue to investigate the mechanism of reactivation of nerve-agent inhibited acetylcholinesterase in order to identify or design compounds that allow for a longer time frame between exposure and the administration of the therapeutic without decreasing its effectiveness. Continue to explore approaches | 8.054 | 8.652 | 7.840 | 0.000 | 7.840 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| for neuroprotection against nerve agent exposure. Develop therapeutic strategies to effectively minimize neurologic injuries resulting from exposure to CWAs by testing in silico and in vitro. | | | | | |
| 9) Therapeutics<br>Medical Toxicology (Non Traditional Agents (NTAs) and Other Agents): Investigates common mechanisms of agent injury. Determines the toxic effects of agents by probable routes of field exposure, as well as standard experimental routes. Physiological parameters and pathological assessment will be used to establish the general mode and mechanism(s) of toxicity.<br>*FY 2009 Accomplishments:*<br>Quantified the nature, scope, and time course of exposure/effects using biochemical, toxicological, physiological, and modeling methods as required for therapeutic and clinical strategy design.<br>*FY 2010 Plans:*<br>Investigate and study receptor effects of common and agent-specific mechanisms of NTA injury for therapeutic intervention.<br>*FY 2011 Base Plans:*<br>All NTA-related efforts are re-aligned to Chemical Therapeutics NTA within this Budget Activity. | 1.783 | 2.756 | 0.000 | 0.000 | 0.000 |
| 10) Therapeutics<br>Therapeutics for Non Traditional Agents (NTAs): Develops, assesses, evaluates, and validates therapeutics for treatment resulting from exposure to NTAs.<br>*FY 2009 Accomplishments:*<br>Evaluated pre-existing and new commercially-available compounds for respiratory and neurological injury in small animal models and began transition to large animal models (e.g. non-human primate). | 8.818 | 13.156 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Initiated testing of novel compounds as therapies in small animal models. Defined and optimized the utility of therapeutic agent-binding proteins against NTAs.<br><br>*FY 2010 Plans:*<br>Further development and validation of animal models for testing clinical efficacy of therapeutics against NTAs. Identify binding characteristics of NTAs, as well as mitigate NTA toxicity by researching and developing novel therapeutics.<br><br>*FY 2011 Base Plans:*<br>All NTA-related efforts are re-aligned to Chemical Therapeutics NTA within this Budget Activity. | | | | | |
| 11) Chem Therapeutics NTA<br>Develops, assesses, evaluates, and validates therapeutics for treatment resulting from exposure to NTAs.<br><br>*FY 2011 Base Plans:*<br>Continue binding studies to support the design and synthesis of an improved reactivator. Continue evaluation of improved products to treat NTA exposure. Continue investigation of pathophysiological effects to identify debilitating syndromes caused by exposure to NTAs. Continue development of animal models for various routes of exposure to NTA. These models will be utilized to evaluate toxic effects of NTAs, behavioral changes, efficacy, and FDA animal rule approvals. | 0.000 | 0.000 | 13.000 | 0.000 | 13.000 |
| Accomplishments/Planned Programs Subtotals | 35.008 | 40.418 | 33.648 | 0.000 | 33.648 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TC1: *MEDICAL CHEMICAL DEFENSE (BASIC RESEARCH)* | 13.308 | 5.496 | 3.144 | | 3.144 | 2.889 | 2.954 | 2.928 | 2.977 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TC3: *MEDICAL CHEMICAL DEFENSE (ATD)* | 21.641 | 28.971 | 29.134 | | 29.134 | 30.401 | 30.546 | 31.356 | 31.877 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>TR2: *MEDICAL RADIOLOGICAL DEFENSE (APPLIED RESEARCH)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TR2: *MEDICAL RADIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 0.525 | 2.897 | 2.884 | 0.000 | 2.884 | 1.904 | 2.855 | 1.913 | 1.903 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This project (TR2) funds applied research to develop medical countermeasures to protect the Warfighter against radiological exposure. Specifically, innovative technical approaches will be used to develop products to mitigate health consequences resulting from Acute Radiation Exposure (ARS) and Delayed Effects of Acute Radiation Exposure (DEARE). The research and development of medical countermeasures for radiation exposure will ultimately enhance the survivability of Warfighters and will serve to significantly minimize the development of acute radiation syndromes and subsequent health problems. Results of efforts funded under this project are collaboratively shared with other government agencies, while the Department of Defense maintains an emphasis on the development of pretreatments to protect military personnel who could be involved in responding to a radiological incident.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.042 | 0.000 | 0.000 | 0.000 |
| 2) Radiological Medical Countermeasures<br>Radiation Medical Countermeasures: Develop medical countermeasures to protect the Warfighter against radiological/nuclear exposure, to include developing both pretreatments (prophylaxis) and post-irradiation therapeutics against radiological/nuclear exposure. DoD is the only governmental agency currently developing medical prophylaxis to protect Warfighters and/or other responders in the event of a radiological incident. | 0.525 | 2.855 | 2.884 | 0.000 | 2.884 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>TR2: *MEDICAL RADIOLOGICAL DEFENSE (APPLIED RESEARCH)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Down-select at least one promising drug candidate that has the ability to provide protection from the harmful effects of radiation exposure. Determine the pre-clinical efficacy of combined agents that confer protection or supportive medical care against the harmful effects of radiation exposure with minimal toxic side effects. Explore current Good Laboratory Practice (cGLP) test capability for selected candidate drugs against acute radiation syndrome (ARS) based on Food and Drug Administration's (FDA) animal testing requirements.<br><br>*FY 2010 Plans:*<br>Evaluate mature and promising drug candidates for respiratory and gastrointestinal damage and repair, demonstrating efficacy, safety, and animal (rodents) survival exposed to lethal radiation for a future non-human primate (NHP) efficacy study. Identify common biochemical/physiological mechanisms for hematological, respiratory and gastrointestinal damage and repair, as well as, biology of cellular damage.<br><br>*FY 2011 Base Plans:*<br>Continue to evaluate novel and FDA-approved drugs for efficacy against radiation exposure maintaining a focus on potential mechanisms of action. These studies will help identify biochemical/ physiological mechanisms that could be exploited for expanding the scope of potential therapeutic approaches. Continue to focus approaches on the GI and lung injury related to radiation exposure. Continue evaluation and identification of unique, novel and promising biomarkers useful for biodosimetry and potential pathways for therapeutic approaches. | | | | | |
| Accomplishments/Planned Programs Subtotals | 0.525 | 2.897 | 2.884 | 0.000 | 2.884 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 2: *Applied Research* | R-1 ITEM NOMENCLATURE<br>PE 0602384BP: *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | PROJECT<br>TR2: *MEDICAL RADIOLOGICAL DEFENSE (APPLIED RESEARCH)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TR1: *MEDICAL RADIOLOGICAL DEFENSE (BASIC RESEARCH)* | 0.000 | 0.975 | 0.971 | | 0.971 | 0.966 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • TR3: *MEDICAL RADIOLOGICAL DEFENSE (ATD)* | 4.859 | 2.403 | 0.957 | | 0.957 | 0.966 | 1.922 | 2.901 | 2.927 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | | | | | | | | | | DATE: February 2010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | | | | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | | | | | | | |
| **COST ($ in Millions)** | **FY 2009 Actual** | **FY 2010 Estimate** | **FY 2011 Base Estimate** | **FY 2011 OCO Estimate** | **FY 2011 Total Estimate** | **FY 2012 Estimate** | **FY 2013 Estimate** | **FY 2014 Estimate** | **FY 2015 Estimate** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 307.351 | 299.680 | 177.113 | 0.000 | 177.113 | 197.867 | 187.654 | 194.471 | 197.769 | Continuing | Continuing |
| CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* | 19.567 | 25.297 | 15.410 | 0.000 | 15.410 | 21.450 | 26.120 | 36.775 | 37.148 | Continuing | Continuing |
| CI3: *CONGRESSIONAL INTEREST ITEMS (ATD)* | 46.971 | 18.622 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| TB3: *MEDICAL BIOLOGICAL DEFENSE (ATD)* | 180.425 | 203.723 | 115.233 | 0.000 | 115.233 | 125.666 | 109.737 | 115.049 | 117.289 | Continuing | Continuing |
| TC3: *MEDICAL CHEMICAL DEFENSE (ATD)* | 21.641 | 28.971 | 29.134 | 0.000 | 29.134 | 30.401 | 30.546 | 31.356 | 31.877 | Continuing | Continuing |
| TE3: *TEST & EVALUATION (ATD)* | 25.761 | 13.307 | 11.875 | 0.000 | 11.875 | 11.267 | 11.160 | 0.000 | 0.000 | Continuing | Continuing |
| TR3: *MEDICAL RADIOLOGICAL DEFENSE (ATD)* | 4.859 | 2.403 | 0.957 | 0.000 | 0.957 | 0.966 | 1.922 | 2.901 | 2.927 | Continuing | Continuing |
| TT3: *TECHBASE TECHNOLOGY TRANSITION* | 8.127 | 7.357 | 4.504 | 0.000 | 4.504 | 8.117 | 8.169 | 8.390 | 8.528 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This program element (PE) demonstrates technologies that enhance the ability of U.S. forces to deter, defend against, and survive Chemical, Biological, and Radiological (CBR) warfare. This program element (PE) funds advanced technology development for Joint Service and Service-specific requirements in both medical and physical sciences CBR defense areas. The medical program aims to produce drugs, vaccines and medical devices as countermeasures for CBR threat agents. Specific areas of medical investigation include: prophylaxis, pretreatment, antidotes and therapeutics, personnel and patient decontamination, and medical management of casualties. In the physical sciences area, the focus is on demonstrations of CB defense technologies, including biological detection, chemical detection, and decontamination. The work in this PE is consistent with the Joint Service CB Defense Research, Development, and Acquisition (RDA) Plan. This PE also provides for the conduct of advanced technology development in the areas of real-time sensing, accelerated biological warfare operational awareness, and the restoration of operations following a biological warfare or chemical warfare attack. This program is dedicated to conducting proof-of-principle field demonstrations, test of system-specific technologies to meet specific military needs. Work conducted under this PE transitions to and provides risk reduction for System Integration/ Demonstration (PE 0603884BP/PE 0604384BP) activities.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* |

**B. Program Change Summary ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 324.769 | 282.235 | 0.000 | 0.000 | 0.000 |
| Current President's Budget | 307.351 | 299.680 | 177.113 | 0.000 | 177.113 |
| Total Adjustments | -17.418 | 17.445 | 177.113 | 0.000 | 177.113 |
| • Congressional General Reductions | | -1.255 | | | |
| • Congressional Directed Reductions | | 0.000 | | | |
| • Congressional Rescissions | 0.000 | 0.000 | | | |
| • Congressional Adds | | 18.700 | | | |
| • Congressional Directed Transfers | | 0.000 | | | |
| • Reprogrammings | -9.223 | 0.000 | | | |
| • SBIR/STTR Transfer | -3.650 | 0.000 | | | |
| • Other Adjustments | -4.545 | 0.000 | 177.113 | 0.000 | 177.113 |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2009 | FY 2010 |
|---|---|---|
| **Project:** CI3: *CONGRESSIONAL INTEREST ITEMS (ATD)* | | |
| Congressional Add: *Carbon Nanotube Chemical Detector -* | 0.791 | 0.000 |
| Congressional Add: *Surface Enhanced Infrared Detection of Threats -* | 0.987 | 0.000 |
| Congressional Add: *Total Perimeter Surveillance (TPS) -* | 0.989 | 1.593 |
| Congressional Add: *Photo Catalytic Oxidation (PCO) Demonstration for Water Reuse -* | 1.373 | 0.000 |
| Congressional Add: *Mobile Rapid Response Prototype -* | 1.082 | 2.390 |
| Congressional Add: *NIDS Automated Bio Agent Identifier -* | 1.000 | 2.390 |
| Congressional Add: *Portable Rapid Bacterial Warfare Detection Unit -* | 3.156 | 0.000 |
| Congressional Add: *UCLA High Speed and High Volume Laboratory Network for Infectious Diseases -* | 4.862 | 0.000 |
| Congressional Add: *Antioxidant Micronutrient Therapeutic Countermeasures for Chemical Agents -* | 0.792 | 0.000 |
| Congressional Add: *Plant Vaccine Development -* | 1.582 | 1.593 |
| Congressional Add: *Multi-Purpose Biodefense Immunoarray -* | 0.792 | 0.000 |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: *Improved CBR Filters -* | 1.582 | 0.000 |
| Congressional Add: *Acinetobacter Baumannii Research -* | 1.978 | 0.000 |
| Congressional Add: *Bio Agent Early Warning Detector -* | 1.978 | 0.000 |
| Congressional Add: *Biological Agent Identifiers -* | 1.582 | 0.000 |
| Congressional Add: *Eye-Safe Long Range Stand-off System for Detection of Chemical and Biological Weapons -* | 1.483 | 0.000 |
| Congressional Add: *Mobile Continuous Air Monitor (MCAM) -* | 1.582 | 0.000 |
| Congressional Add: *Rapid Response Institute -* | 3.164 | 0.000 |
| Congressional Add: *Liquid Crystal Sensor Technology Research and Development for Force Protection -* | 2.373 | 0.000 |
| Congressional Add: *Biodefense Vaccine Development and Engineering of Antiviral Peptides -* | 1.583 | 0.000 |
| Congressional Add: *Center for Advanced Emergency Response -* | 4.350 | 0.000 |
| Congressional Add: *ViriChip Rapid Virus Detection Systems -* | 1.582 | 0.000 |
| Congressional Add: *Protective Self-Decontaminating Surfaces -* | 1.582 | 0.000 |
| Congressional Add: *Contaminated Human Remains Pouch -* | 1.582 | 0.000 |
| Congressional Add: *Recombinant BChE Formulation Program -* | 1.582 | 0.000 |
| Congressional Add: *Joint Material Decon System -* | 1.582 | 0.000 |
| Congressional Add: *Multi-Target Shipping Container Interrogation System Mobile Continuous Air Monitor* | 0.000 | 1.593 |
| Congressional Add: *Hand-Held Apparatus for Mobile Mapping and Expedited Reporting* | 0.000 | 2.788 |
| Congressional Add: *Regenerative Chemical Biological Filtration Systems* | 0.000 | 2.689 |
| Congressional Add: *Unified Management Infrastructure System* | 0.000 | 0.797 |
| Congressional Add: *Water Purification System for Natural Disasters* | 0.000 | 0.797 |
| Congressional Add: *CBDP Advanced Development* | 0.000 | 1.992 |
| Congressional Add Subtotals for Project: CI3 | 46.971 | 18.622 |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add Totals for all Projects | 46.971 | 18.622 |

**Change Summary Explanation**

Funding: N/A - Adjustments less than 10% of total program.

Schedule: N/A

Technical: N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* | 19.567 | 25.297 | 15.410 | 0.000 | 15.410 | 21.450 | 26.120 | 36.775 | 37.148 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This project (CB3) demonstrates technology advancements for joint service application in the areas of detection, information systems technology, protection/hazard mitigation, and technology transition efforts. These activities will speed maturing of advanced technologies to reduce risk in system-oriented integration/demonstration efforts. This project also includes efforts dedicated to developing capabilities to protect against Non-Traditional Agents (NTAs). Starting in FY11, all NTA-dedicated research will be re-aligned into specific capability areas within this project in order to ensure a focused effort on this high priority area. Detection focuses on advanced development of technologies from applied research for standoff and point detection and identification of chemical and biological agents. Information systems advanced technology focuses on areas of advanced warning and reporting, hazard prediction and assessment, simulation analysis and planning, and systems performance modeling. Protection and Hazard Mitigation focuses on advanced development of technologies that protect and reduce the chemical/biological threat or hazard to the Warfighter, weapons platforms, and structures. This project also funds advanced development of chemical and biological defense science and technology initiatives and transitions them to advanced development programs in Budget Activities 4 and 5, through prototypes that are evaluated in Advanced Technology Demonstration (ATDs) and Joint Warfighter Experimentation (JWE).

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.345 | 0.000 | 0.000 | 0.000 |
| 2) Decontamination<br>Alternative Processes: Demonstration of non-traditional decontamination technologies and approaches which gain significantly improved effectiveness by complementary application. | 1.838 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued efforts to investigate reactive materials and nanotechnology for decontamination processes.<br><br>*FY 2010 Plans:*<br>Efforts re-aligned to Protection and Hazard Mitigation. | | | | | |
| 3) Protection<br>Respiratory/Ocular Protection: Demonstration of design alternatives for chemical and biological air-purifying respirators to provide enhanced protection with lower physiological burden and improved interface with mission equipment.<br><br>*FY 2009 Accomplishments:*<br>Continued integration of the protective mask designs with developmental helmet systems to provide seamless compatibility of CB protection with ballistic protection, and integration of communication and optical systems. Continued to develop initial high fidelity prototypes for early assessment of human and operational compatibility during the Uniform Integrated Protective Ensemble (UIPE) Demonstration.<br><br>*FY 2010 Plans:*<br>Efforts re-aligned to Protection and Hazard Mitigation. | 1.263 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4) Protection<br>Integrated Ensemble Development: Demonstration of lightweight chemical and biological protective textiles that can be used as an integrated combat duty uniform.<br><br>*FY 2009 Accomplishments:*<br>Continued integration of the protective mask designs with developmental helmet systems to provide seamless compatibility of chemical and biological protection with ballistic protection, and integration | 1.481 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| of communication and optical systems. Continued to develop initial high fidelity prototypes for early assessment of human and operational compatibility during the Uniform Integrated Protective Ensemble (UIPE) Demonstration.<br><br>*FY 2010 Plans:*<br>Efforts re-aligned to Protection and Hazard Mitigation. | | | | | |
| 5) Protection & Hazard Mitigation<br>Lightweight Integrated Fabric: Demonstration of lightweight chemical and biological protective textiles that can be used as an integrated combat duty uniform.<br><br>*FY 2010 Plans:*<br>Develop systems integration of a complete chemical and biological (CB) ensemble that incorporates emerging designs and prototype concepts. Refine concepts for an integrated ensemble that will transition to advanced development programs such as the Uniform Integrated Protective Ensemble (UIPE) and the Individual Protection Advanced Technology Demonstration (IP Demo - see Project TT3, Experimental & Technology Demonstration and Project TT4). Continue limited field trials in a relevant environment.<br><br>*FY 2011 Base Plans:*<br>Incorporate lessons from IP Demo and develop final data packages for transition to UIPE and/or Joint Service Lightweight Integrated Suit Technology (JSLIST) programs. | 0.000 | 0.628 | 0.753 | 0.000 | 0.753 |
| 6) Protection & Hazard Mitigation<br>Low-Resistance, Low-Profile Filtration: Demonstration of novel filtration media into a lightweight, low-profile, and low-burden individual protective filter, which has enhanced performance against a broader range of challenges that includes toxic industrial chemicals. | 0.000 | 0.635 | 0.878 | 0.000 | 0.878 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Initiate brassboard prototype development efforts for the next generation filter for individual protection from CB agents, Toxic Industrial Chemicals (TICs) and Non Traditional Agents (NTAs), in efforts parallel to the IP Demo for collective protection filtration in support of advanced development programs such as the Joint Expeditionary Collective Protection (JECP) and support of collective protection in vehicular/platform systems in Major Defense Acquisition Programs (MDAP).<br><br>*FY 2011 Base Plans:*<br>Incorporate lessons from the IP Demo and develop final data packages for transition to advanced development programs such as the UIPE, Joint Service General Purpose Mask (JSGPM), and Joint Service Aircrew Mask (JSAM) (see BA5, Project IP5). Continue prototype development in support of Joint Expeditionary Collective Protection (JECP) and support of collective protection in vehicular/platform systems in Major Defense Acquisition Programs (MDAP). | | | | | |
| 7) Protection & Hazard Mitigation<br>Low-Burden Air Purifying Respirator: Demonstration of design alternatives for chemical and biological air-purifying respirators to provide enhanced protection with lower physiological burden and improved interface with mission equipment.<br><br>*FY 2010 Plans:*<br>Continue integration of the protective mask designs with developmental helmet systems to provide seamless compatibility of CB protection with ballistic protection, and integration of communication and optical systems in parallel excursions to the IP Demo. | 0.000 | 0.518 | 0.000 | 0.000 | 0.000 |
| 8) Protection & Hazard Mitigation | 0.000 | 0.425 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Logistically Sustainable Air Purification for Collective Protection: Demonstration of chemical and biological air-purification alternative technologies that minimize or eliminate the need for expendable media within acceptable size, weight and power constraints.<br><br>*FY 2010 Plans:*<br>Initiate breadboard prototypes development of down-selected media-less technologies. | | | | | |
| 9) Protection & Hazard Mitigation<br><br>General Purpose Formulations for Decontamination: Demonstration of improved chemical and biological decontamination formulation that is compatible with the current family of decontamination systems.<br><br>*FY 2010 Plans:*<br>Complete coupon tests, material compatibility and small item effectiveness evaluations for solid oxidants and green solvent/surfactant systems. Transition to Decontamination Family of Systems program (see BA5, Project DE5). | 0.000 | 0.704 | 0.000 | 0.000 | 0.000 |
| 10) Protection & Hazard Mitigation<br><br>Decontamination System-of-Systems: Demonstration of non-traditional decontamination technologies and approaches which gain significantly improved effectiveness by complementary application.<br><br>*FY 2010 Plans:*<br>Complete data package for self-decontaminating surfaces. Transition to the Hazard Mitigation for Materials and Equipment Restoration (HaMMER) Advanced Technology Demonstration (see Project TT3, E&TD). | 0.000 | 0.196 | 0.377 | 0.000 | 0.377 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Complete additional data packages and technical assessments of technologies to transition to the Joint Program Manager for Decontamination (JPM-Decon) to be incorporated into the Decontamination Family of Systems (DFoS) Program of Record. | | | | | |
| 11) Protection & Hazard Mitigation<br>Innovative Systems Concepts and Analysis<br>*FY 2011 Base Plans:*<br>Focus efforts on most promising approaches and initiate component development to support prototyping and demonstrations. Technologies may include micro fine detoxifying aerosol fogs to facilitate entry and mitigate cross contamination into collective protection systems, internal self-detoxifying surfaces for walls and ductwork, expedient retrofit kits, self-detoxifying and expedient strippable coatings, rapid isolation and purge schemes, and novel and innovative air flow and re-circulation schemes. | 0.000 | 0.000 | 0.624 | 0.000 | 0.624 |
| 12) Information Systems Technology<br>Sensor Data Fusion: Develop scientific techniques for fusing disparate information from multiple sources for insertion into the Joint Effects Model (JEM), Joint Warning and Reporting Network (JWARN), and Joint Operational Effects Federation (JOEF), and other identified acquisition programs.<br>*FY 2009 Accomplishments:*<br>Transitioned first generation outdoor Source Term Estimation (STE)/Hazard Refinement (HR) and second-generation Sensor Placement Tool (SPT) software to the Joint Effects Model (JEM), JWARN and JOEF. Transitioned first-generation building interior STE and HR software to JEM and JOEF.<br>*FY 2010 Plans:*<br>Sensor Data Fusion efforts re-aligned to Advanced Warning and Reporting. | 0.592 | 0.000 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 13) Information Systems Technology<br>Battle Space Management: Develop collaborative information management technologies for insertion into the Joint Warning and Reporting Network (JWARN) and Joint Operational Effects Federation (JOEF) acquisition programs.<br>*FY 2009 Accomplishments:*<br>Transitioned to JWARN the capability to exchange and multi-level fusion of actionable information with real world Command and Control (C2) systems in Department of Defense, Coalition and Homeland Security/Homeland Defense (HLS/HLD) domains.<br>*FY 2010 Plans:*<br>Battle Space Management efforts re-aligned to Advanced Warning and Reporting. | 0.549 | 0.000 | 0.000 | 0.000 | 0.000 |
| 14) Information Systems Technology<br>Advanced Warning and Reporting: Emphasis on developing science and technologies for collaborative information management, fusion of disparate information from multiple sources, environmental databases and modeling, fusion of syndromic/diseases surveillance data, and synthetic environments for model performance evaluation and acquisition decisions.<br>*FY 2010 Plans:*<br>Transition enhanced version of first-generation building interior Source Term Estimation (STE) and Hazard Refinement (HR) software to the Joint Effects Model (JEM).<br>*FY 2011 Base Plans:*<br>Transition next-generation outdoor STE, HR, and Sensor Placement Tool (SPT) to advanced development programs (JEM - see BA5 Project IS5). Transition first-generation false alarm reduction capability and first generation rapid STE algorithms to advanced development program (JWARN). | 0.000 | 0.114 | 1.054 | 0.000 | 1.054 |
| 15) Information Systems Technology | 1.042 | 1.848 | 1.961 | 0.000 | 1.961 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Hazard Prediction and Assessment: Improve battlespace awareness by accurately predicting hazardous material releases, atmospheric transport and dispersion, and resulting human effects. Develop predictive capability for the source term of releases of chemical, biological, and industrial materials to include counterproliferation, chemical and biological weapons, accidents and ground effects from ballistic missiles.<br><br>*FY 2009 Accomplishments:*<br>Transitioned GEDIS 2.3 to JEM. Validated and verified building interior dispersion model. Completed improved TIC/TIM prototype integration into JEM. Transitioned multi-scale four-dimensional data assimilation model to operational centers. Delivered complete variable resolution database containing highly refined estimates of climatological and typical atmospheric conditions for any given location and time to JEM. Tested and evaluated the use of the existing Weather Research and Forecast/Urban Canopy Model (WRF/UCM) forecasts to drive JEM transport and dispersion prediction. Transitioned fully extended SWIFT mass consistency wind model to JEM.<br><br>*FY 2010 Plans:*<br>Continue further refinements of the GEDIS data requirements tool with additional types of data such as climatology and population. Complete urban dispersion modeling for transition into JEM. Develop and implement the configuration management prototype for transition of project results to advanced development programs.<br><br>*FY 2011 Base Plans:*<br>Continue further refinements of the GEDIS data requirements tool. Complete optimization of methods to significantly improve performance of transport and dispersion hazard models for JEM. Continue development and implementation of a configuration management prototype for transition of project results to advanced development programs. Continue advanced development of JEM algorithms to portray and predict Non-Traditional Agent (NTA) hazards in operational environments. | | | | | |
| 16) Information Systems Technology | 0.588 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Chemical Biological Defense Program Decision Capability: Develop tools for decision making for consequence management, human knowledge management, and health/human effects modeling including casualty estimation.<br><br>*FY 2009 Accomplishments:*<br>Verified and incorporated models for casualty estimates for infectious/contagious diseases into JEM. Validated models for predicting effects due to infectious/contagious diseases for Joint Effects Model (JEM) with real-world and simulation data. Completed transition of NATO's AMedP-8 chemical and biological models from NBC CREST to JOEF.<br><br>*FY 2010 Plans:*<br>CBDP Decision Capability efforts re-aligned to Simulation Analysis and Planning. | | | | | |
| 17) Information Systems Technology<br>Chemical and Biological Warfare Effects on Operations: Develop the science behind the modeling and simulation of operations at the strategic, operational and tactical level in a CBRN environment for mobile forces, tactical aircraft, naval operations and fixed sites.<br><br>*FY 2009 Accomplishments:*<br>Delivered chemical, biological, radiological, and nuclear (CBRN) operational effects methodologies for tactical and theater levels to JOEF. Delivered building interior modeling for JOEF. Completed transition of Agent Fate model to the Joint Effects Model (JEM). Transitioned mobile forces and shipboard models for CB effects on military operations to JOEF. Began validation of decision support tools for CBRN for eventual transition to JOEF.<br><br>*FY 2010 Plans:*<br>Chemical and Biological Warfare Effects on Operations re-aligned to Simulation Analysis and Planning. | 0.821 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 18) Information Systems Technology<br>Simulation Analysis and Planning: Develop decision support tools and information management capabilities for planning and real-time analysis to determine and assess operational effects, risks, and impacts of CBRN incidents on decision making. Focus areas include consequence management, human knowledge management, health/human effects modeling including casualty estimation, and fusion of diseases surveillance data.<br>*FY 2010 Plans:*<br>Verify respiratory tract models for prediction of human response as a function of particle size to improve casualty estimation for CBRN hazards and incorporate these models into the Joint Effect Model (JEM) for currently available agent data. Transition infection/contagious disease model to JEM. Transition sensor placement tool to acquisition programs. Transition CB effects on mobile forces analysis study and prototype for tactical and operational military operations. Transition improved Incident Management/Consequence Management (IM/CM) tools and capabilities to advanced development programs.<br>*FY 2011 Base Plans:*<br>Transition decision support tools for CBRN to the Joint Warning and Reporting Network (JWARN). Transition refined secondary infection and contagious/infectious disease models to the Joint Effects Model (JEM). Transition updated and expanded human effects models. Transition IM/CM tools and capabilities in consequence systems. Transition a fully optimized sensor placement tool. | 0.000 | 1.114 | 0.427 | 0.000 | 0.427 |
| 19) Information Systems Technology<br>Systems Performance Modeling: Develop Chemical, Biological, Radiological and Nuclear (CBRN) data sharing capabilities. | 0.000 | 0.493 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Complete prototyping a data collection and exchange capability. Complete developing processes and policies for collection and insertion of data into CBRN data backbone efforts. | | | | | |
| 20) Detection<br>Detection Capabilities for Non-Traditional Agents: Develop detection technologies for Non-Traditional Agents.<br>*FY 2009 Accomplishments:*<br>Assessed and demonstrated antibodies assays in handheld format for small chemical molecules.<br>*FY 2010 Plans:*<br>Continue to develop supporting technologies and protocols to meet the Initial Operating Capabilities of the Next Generation Test Facility at the Edgewood Chemical and Biological Center.<br>*FY 2011 Base Plans:*<br>All NTA-related efforts re-aligned to the Detection NTA capability area located in this Budget Activity. | 2.000 | 1.964 | 0.000 | 0.000 | 0.000 |
| 21) Detection<br>Chemical and Biological Stand-off Technology: Focuses on the detection and identification of chemical and biological threats in near real time at a distance from the detector. Future programs focus on the improvement of algorithms, excitation sources, and detector elements to increase range, reduce false positives, increase sensitivity, and reduce cost.<br>*FY 2009 Accomplishments:*<br>Completed the fabrication and demonstration technology to meet Joint Biological Standoff Detection System (JBSDS) Increment 2 technology based upon the new information in the infrared | 6.611 | 11.673 | 0.496 | 0.000 | 0.496 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| electromagnetic spectrum to enhance selectivity for interference rejection. Initiated new effort to develop the next generation of standoff chemical technology to meet change in the threat environment.<br><br>*FY 2010 Plans:*<br>Conduct a Technology Readiness Assessment and transition active IR and depolarization technologies as a candidate for JBSDS Increment 2. Initiate field trials to validate chemical signature for chemical standoff detection and identification capabilities. Initiate an analysis of alternatives to support efforts in meeting new requirements for the next generation of standoff chemical technology. Initiate efforts in the development of new test methodology for assessing next generation chemical standoff technology to include ground truth systems for field assessments.<br><br>*FY 2011 Base Plans:*<br>Complete field trial validation of chemical signatures for chemical standoff detection and identification capabilities. Continue development of test methodology for next generation chemical standoff technology. Initiate the process of validating ground truth systems for field assessments. | | | | | |
| 22) Detection NTA<br>Detection NTA: Focuses on technologies to provide NTA detection capabilities.<br><br>*FY 2011 Base Plans:*<br>Complete the supporting efforts necessary to provide the Initial Operating Capabilities for test facilities. The effort will focus on detection and analytical methodologies to determine sensitivities/thresholds necessary to establish exposure standards needed to create standard operating procedures for the facility. | 0.000 | 0.000 | 4.200 | 0.000 | 4.200 |
| 23) Technology Transition | 2.782 | 4.640 | 4.640 | 0.000 | 4.640 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Technology Transition - Conduct competitive assessments of promising mature technology from outside the Chemical and Biological Defense Program (CBDP) and assist in transition of promising technology efforts.<br><br>*FY 2009 Accomplishments:*<br>Initiated and completed transition of a miniature, lightweight chemical and biological sensor to JPM-BioDetection from DHS. Initiated transition of the Integrated CB Agent Hazard Mitigation program from the Defense Advanced Research Projects Agency (DARPA) to the United States Army Corps of Engineers through component testing in a laboratory environment. Continued competitive assessment of all mature technology from outside of the CBDP for rapid technology insertion into the capability areas.<br><br>*FY 2010 Plans:*<br>Continue transition of the Integrated CB Agent Hazard Mitigation with systems and neutralization efficiency testing in a laboratory environment. Continue competitive assessment of all mature technology from outside of the CBDP for rapid technology insertion into the capability areas.<br><br>*FY 2011 Base Plans:*<br>Complete transition of the Integrated CB Agent Hazard Mitigation with systems and neutralization efficiency testing in an operational environment. Complete assessment and down-select to two or three best technologies that provides the highest enhancements to capabilities. | | | | | |
| Accomplishments/Planned Programs Subtotals | 19.567 | 25.297 | 15.410 | 0.000 | 15.410 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CA4: *CONTAMINATION AVOIDANCE (ACD&P)* | 7.703 | 40.186 | 63.347 | | 63.347 | 9.093 | 10.754 | 4.742 | 3.978 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
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**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 102.599 | 110.955 | 88.897 | | 88.897 | 100.243 | 97.979 | 90.686 | 91.554 | Continuing | Continuing |
| • DE4: *DECONTAMINATION SYSTEMS (ACD&P)* | 4.822 | 1.792 | 7.051 | | 7.051 | 5.748 | 1.386 | 0.000 | 0.000 | Continuing | Continuing |
| • IS4: *INFORMATION SYSTEMS (ACD&P)* | 0.000 | 0.000 | 11.221 | | 11.221 | 3.404 | 4.565 | 4.676 | 4.741 | Continuing | Continuing |
| • TE3: *TEST & EVALUATION (ATD)* | 25.761 | 13.307 | 11.875 | | 11.875 | 11.267 | 11.160 | 0.000 | 0.000 | Continuing | Continuing |
| • TE4: *TEST & EVALUATION (ACD&P)* | 6.261 | 28.773 | 19.304 | | 19.304 | 11.851 | 28.035 | 20.266 | 21.139 | Continuing | Continuing |
| • TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)* | 17.065 | 26.649 | 26.466 | | 26.466 | 18.564 | 18.838 | 19.294 | 19.563 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
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| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CI3: *CONGRESSIONAL INTEREST ITEMS (ATD)* | 46.971 | 18.622 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

The efforts listed in this project include congressional interest programs for FY09 and FY10.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: Carbon Nanotube Chemical Detector -<br>*FY 2009 Accomplishments:*<br>Addressed improvements in sensitivity and selectivity through chemometric/principal component analyses and the development of artificial neural network (ANN) real-time optimum signature selection. | 0.791 | 0.000 |
| Congressional Add: Surface Enhanced Infrared Detection of Threats -<br>*FY 2009 Accomplishments:*<br>Continued to develop a handheld biological and chemical agent detection device based on surface enhanced infrared detection methods. | 0.987 | 0.000 |
| Congressional Add: Total Perimeter Surveillance (TPS) -<br>*FY 2009 Accomplishments:*<br>Demonstrated a prototype of the system. | 0.989 | 1.593 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| *FY 2010 Plans:*<br>Continuation of FY09 research. | | |
| Congressional Add: Photo Catalytic Oxidation (PCO) Demonstration for Water Reuse -<br>*FY 2009 Accomplishments:*<br>Continued research to determine the water purification unit's performance in the removal of high threat CBRN agents and TICs. | 1.373 | 0.000 |
| Congressional Add: Mobile Rapid Response Prototype -<br>*FY 2009 Accomplishments:*<br>Continued the partnership of Hackensack University Medical Center with the Defense Threat Reduction Agency (DTRA), the Chemical Biological & Radiological Technology Alliance.<br>*FY 2010 Plans:*<br>Continuation of FY09 research. | 1.082 | 2.390 |
| Congressional Add: NIDS Automated Bio Agent Identifier -<br>*FY 2009 Accomplishments:*<br>Continued research begun in FY08.<br>*FY 2010 Plans:*<br>Conduct research for the development of multiplex handheld immunoassay tickets that are both human visually and machine read. | 1.000 | 2.390 |
| Congressional Add: Portable Rapid Bacterial Warfare Detection Unit - | 3.156 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| *FY 2009 Accomplishments:*<br>Developed a field deployable system based on IR spectroscopy. | | |
| Congressional Add: UCLA High Speed and High Volume Laboratory Network for Infectious Diseases -<br>*FY 2009 Accomplishments:*<br>Expanded capability to include other biothreat agents, including bacterial and/or viruses (dual-use). | 4.862 | 0.000 |
| Congressional Add: Antioxidant Micronutrient Therapeutic Countermeasures for Chemical Agents -<br>*FY 2009 Accomplishments:*<br>Tested the hypothesis that a mixture of antioxidants before and after exposure to sulfur mustard may increase percent survival and survival time by decreasing oxidative damage and inflammation. | 0.792 | 0.000 |
| Congressional Add: Plant Vaccine Development -<br>*FY 2009 Accomplishments:*<br>Produced vaccine lots under cGMP and evaluated safety and toxicity and confirmed protective efficacy of identified dual agent vaccines. Developed technology transfer and implementation programs.<br>*FY 2010 Plans:*<br>Continuation of FY09 Research. | 1.582 | 1.593 |
| Congressional Add: Multi-Purpose Biodefense Immunoarray -<br>*FY 2009 Accomplishments:*<br>Continued research from FY08. | 0.792 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: Improved CBR Filters -<br>*FY 2009 Accomplishments:*<br>Initiated engineering phase with the goal of developing final design configurations that can be easily incorporated into new and existing filtration systems. | 1.582 | 0.000 |
| Congressional Add: Acinetobacter Baumannii Research -<br>*FY 2009 Accomplishments:*<br>Continued the preclinical development of these agents by developing improved syntheses techniques. | 1.978 | 0.000 |
| Congressional Add: Bio Agent Early Warning Detector -<br>*FY 2009 Accomplishments:*<br>Conducted advanced development of a standoff bio agent detection system. | 1.978 | 0.000 |
| Congressional Add: Biological Agent Identifiers -<br>*FY 2009 Accomplishments:*<br>Continued industry research into biological agent identifiers without wet reagents. | 1.582 | 0.000 |
| Congressional Add: Eye-Safe Long Range Stand-off System for Detection of Chemical and Biological Weapons -<br>*FY 2009 Accomplishments:*<br>Continued research for eye-safe, laser based standoff Chem/Bio detection systems. | 1.483 | 0.000 |
| | 1.582 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: Mobile Continuous Air Monitor (MCAM) -<br>*FY 2009 Accomplishments:*<br>Continued research for a portable continuous monitor for biodetection. | | |
| Congressional Add: Rapid Response Institute -<br>*FY 2009 Accomplishments:*<br>Addressed technology related to quickly responding to chemical or biological situation. | 3.164 | 0.000 |
| Congressional Add: Liquid Crystal Sensor Technology Research and Development for Force Protection -<br>*FY 2009 Accomplishments:*<br>Continued development of a passively operated sensor that rapidly detects toxins in the immediate environment. | 2.373 | 0.000 |
| Congressional Add: Biodefense Vaccine Development and Engineering of Antiviral Peptides -<br>*FY 2009 Accomplishments:*<br>Performed vaccine development pertaining to antiviral countermeasures. | 1.583 | 0.000 |
| Congressional Add: Center for Advanced Emergency Response -<br>*FY 2009 Accomplishments:*<br>Continued development of emergency medical response training program for consequence management of chemical or biological events. | 4.350 | 0.000 |
| Congressional Add: ViriChip Rapid Virus Detection Systems - | 1.582 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| *FY 2009 Accomplishments:*<br>Researched on the use of nanoscience technology for a virus detection system. | | |
| Congressional Add: Protective Self-Decontaminating Surfaces -<br>*FY 2009 Accomplishments:*<br>Provided immediate on-site protection with multi-threat applicability to instantly neutralize chemical agents and kill a number of microbial entities. | 1.582 | 0.000 |
| Congressional Add: Contaminated Human Remains Pouch -<br>*FY 2009 Accomplishments:*<br>Conducted prototype development activities to test a contaminated human remains transportable container. | 1.582 | 0.000 |
| Congressional Add: Recombinant BChE Formulation Program -<br>*FY 2009 Accomplishments:*<br>Conducted medical countermeasure technology development. | 1.582 | 0.000 |
| Congressional Add: Joint Material Decon System -<br>*FY 2009 Accomplishments:*<br>Addressed Reactive Overlay and Removable CBRN Coatings. | 1.582 | 0.000 |
| Congressional Add: Multi-Target Shipping Container Interrogation System Mobile Continuous Air Monitor | 0.000 | 1.593 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| *FY 2010 Plans:*<br>Develop air monitoring system for shipping containers. | | |
| Congressional Add: Hand-Held Apparatus for Mobile Mapping and Expedited Reporting<br>*FY 2010 Plans:*<br>Develop a tool that enables a rapid, accurate, efficient, low-cost, collection, analysis and dissemination of digital data from multiple sensor suites and rapid reporting for improved situational awareness. | 0.000 | 2.788 |
| Congressional Add: Regenerative Chemical Biological Filtration Systems<br>*FY 2010 Plans:*<br>Continuation of research funded in FY08 for a regenerative filtration system to reduce costs and provide protection against all chemical warfare agents for military personnel, critical equipment, and strategic facilities. | 0.000 | 2.689 |
| Congressional Add: Unified Management Infrastructure System<br>*FY 2010 Plans:*<br>Develop a secure communication platform to meet military needs in a chemical biological environment, protecting soldiers and first responders on the battlefield using secure mobile communication systems by simultaneously providing what is currently unprecedented: real-time, accurate monitoring of the military's communication devices. | 0.000 | 0.797 |
| Congressional Add: Water Purification System for Natural Disasters<br>*FY 2010 Plans:*<br>Develop a water purification system. | 0.000 | 0.797 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: CBDP Advanced Development<br>*FY 2010 Plans:*<br>Advanced Development | 0.000 | 1.992 |
| Congressional Adds Subtotals | 46.971 | 18.622 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CI1: *CONGRESSIONAL INTEREST ITEMS (BASIC RESEARCH)* | 8.090 | 20.036 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • CI2: *CONGRESSIONAL INTEREST ITEMS (APPLIED RESEARCH)* | 42.714 | 16.630 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

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| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TB3: *MEDICAL BIOLOGICAL DEFENSE (ATD)* | 180.425 | 203.723 | 115.233 | 0.000 | 115.233 | 125.666 | 109.737 | 115.049 | 117.289 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This project (TB3) funds preclinical development of vaccines, therapeutic drugs, and diagnostic capabilities to provide safe and effective medical defense against validated biological threat agents including bacteria, toxins, and viruses. Innovative biotechnology approaches to advance medical systems designed to rapidly identify, diagnose, prevent, and treat disease due to exposure to biological threat agents will be evaluated. Entry of candidate vaccines, therapeutics, and diagnostic technologies into advanced development is facilitated by the development of technical data packages that support the Food and Drug Administration (FDA) Investigational New Drug (IND) licensure processes, DoD acquisition regulations, and the oversight of Phase 1 clinical trials in accordance with FDA guidelines. Categories of this project include biological defense capability areas such as Pretreatments, Diagnostics, and Therapeutics. Pretreatment efforts conduct research and development (R&D) of promising vaccines, medications, and technologies provided prior to potential exposure to biological agents. The goal is to reduce or to entirely prevent adverse effects of exposure. Diagnostic efforts are aimed at screening procedures and analytical methods to verify exposure and determine the effects of exposure to biological warfare (BW) agents. Therapeutic efforts provide medical solutions to sustain and protect the Warfighter in biological environments. Specifically, therapeutic efforts are aimed at developing medical countermeasures to treat exposure to biological threats such as bacterial (plague, anthrax, glanders), viral (smallpox, encephalitic alphaviruses), and toxin (ricin, botulinum neurotoxin, staphyloccal enterotoxin) agents.

This project also includes efforts such as the Transformational Medical Technologies Initiative (TMTI). The Transformational Medical Technologies Initiative (TMTI) was launched to respond to the threat of emerging or intentionally bioengineered biological threats. TMTI's mission is to protect the Warfighter from genetically engineered biological threats by providing a rapid response capability from identification of pathogens to the delivery of medical countermeasures. This mission is accomplished through two main efforts: 1) developing broad spectrum (multi-agent) therapeutics against BW agents (e.g, one drug that treats multiple agents); and 2) developing platform technologies to assist in the rapid development of medical countermeasures (MCMs) in response to BW agents (e.g, developing new and innovative ways to mass produce drugs in the event of a biological incident).

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) SBIR | 0.000 | 2.637 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Small Business Innovative Research. | | | | | |
| 2) Diagnostics<br>Diagnostic Technologies: Development and verification of rapid, sensitive and specific tests for the identification of Biological Warfare Agents (BWAs) and their expressed toxins in biological fluids of Warfighters for the diagnosis of exposure/infection. Discovery of biomarkers of response to exposure. Evaluation of next generation diagnostic technologies including portable instrument platforms, highly parallel and informative testing formats, and nanotechnology applications.<br><br>*FY 2009 Accomplishments:*<br>Transitioned two candidates for a next generation diagnostic device to the advanced developer. Continued to utilize the decision matrix to identify and evaluate new technologies more effective for diagnosing exposure to bio-threat agents. Validated real time PCR assays identifying genes responsible for antibiotic resistance in bio-threat agents. Performed advanced assessment on the use of biosynthetic (recombinant) reagents on existing systems and improved test assays utilizing new technologies and approaches that enhance diagnosis of early exposure to BWAs.<br><br>*FY 2010 Plans:*<br>Continue development of two additional candidates for a next generation diagnostic device. Develop an automated, prototype polymerase chain reaction system on microarray cartridge using light emitting chemical-based (or other sensitive signal-amplified) technology. Continue to refine and transition strain test panels for viral specificity (inclusivity and exclusivity) characterization. Characterize assay specificity to ensure assays consistently identify the intended target but not related targets. Use highly parallel and informative microarray screening techniques with thoroughly characterized affinity reagents for the discovery of novel biomarkers of host response as targets for assay development. Develop and verify assays as per standardized processes. Transition pilot production protocols for biosynthetic (recombinant) antigen production for bacterial BWAs. Maintain an animal tissue bank | 9.021 | 11.307 | 9.845 | 0.000 | 9.845 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| for validation of assay performance and as correlate reference materials from animal BWA exposure studies. Develop and verify single domain biosynthetic (recombinant) antibodies to bacterial and viral BWA targets. Investigate methods of stabilization of BWA biomarkers in clinical samples to extend transport and limit cold chain requirements.<br><br>*FY 2011 Base Plans:*<br>Use decision-based matrix and technology evaluation centers to transition two Technology Readiness Reviews on candidate diagnostic platforms to advanced development programs. Develop atlas/ database of phenotypic and genotypic characteristics of relevant BWA bacterial strains. Demonstrate the utility of high informatic content screen-characterized affinity reagents in the discovery of novel biomarkers as targets for assay development. Develop standard methods/protocols for rapid sequencing directly from clinical matrices. Apply bioinformatic and computational methods to verify the utility of host response signatures for pre-symptomatic diagnostic assays. Transition candidate transport media/preservatives and protocols for clinical sample processing. Evaluate developed global-virus and global-microbial microarrays for promising multiplexing and identification of BWAs. Develop and verify production scale-up protocols for single domain biosynthetic (recombinant) antibodies to bacterial and viral BWA targets. | | | | | |
| 3) Pretreatments<br><br>Vaccine Research Support: Assess the effectiveness of candidate vaccines in animal models and perform preliminary evaluations of safety and duration of protective immunity.<br><br>*FY 2009 Accomplishments:*<br>Further characterized safety, toxicity, and immunity duration studies in animals for filovirus vaccines. Optimized dose, route, and regimen for maximum effectiveness. Assessed alphavirus and filovirus vaccines for issues of vaccine interference. Conducted stability and toxicity studies for lead alphavirus vaccine candidates. Completed stability and toxicity studies for toxin vaccines, prepared production lots, and begin Investigational New Drug (IND) application preparation for Food and Drug | 8.128 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TB3: *MEDICAL BIOLOGICAL DEFENSE (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Administration (FDA) evaluation. Analyzed effectiveness, duration of immunity, and dosing regimens of second-generation vaccine against bacterial pathogens (including anthrax, plague, and tularensis).<br><br>*FY 2010 Plans:*<br>Vaccine Research Support efforts re-aligned to Bacterial/Toxin and Viral Vaccines. | | | | | |
| 4) Pretreatments<br>Multiagent Vaccine Platforms: Evaluates the safety and effectiveness of vaccine platforms for immunization against multiple biothreat agents.<br><br>*FY 2009 Accomplishments:*<br>Evaluated safety and effectiveness of multi-agent vaccines (e.g., anthrax/plague/melioidosis); completed studies to determine interference between vaccine components and the immune response; conducted immunity duration studies. Down-selected multiagent vaccine platforms, determine dosage, and route of administration.<br><br>*FY 2010 Plans:*<br>Multi-agent Vaccine efforts will be re-aligned to Vaccine Platforms and Research Tools. | 3.500 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5) Pretreatments<br>Bacterial/Toxin Vaccines: Evaluates the best single agent bacterial and toxin vaccines for effectiveness against aerosol challenge in large animal models.<br><br>*FY 2010 Plans:*<br>Plan, prepare and conduct Phase I clinical trial with the Ricin vaccine.<br><br>*FY 2011 Base Plans:*<br>Complete the Phase I clinical trial with the Ricin Vaccine. | 0.000 | 0.984 | 0.937 | 0.000 | 0.937 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 6) Pretreatments | 0.000 | 16.372 | 10.304 | 0.000 | 10.304 |

Viral Vaccines: Evaluates the best vaccine candidates for Alphaviruses and Filoviruses for effectiveness and duration of protective immune response against aerosol challenge in large animal models. Animal models will be developed to support FDA licensure of mature vaccine candidates.

*FY 2010 Plans:*

Initiate studies to develop/validate animal models for VEE, EEE, and WEE vaccines, as well as for filovirus vaccines, to fulfill future FDA animal rule requirements necessary for vaccine licensure. Test chemically inactivated and deoxyribonucleic acid (DNA) vaccine candidates against VEE, EEE, and WEE for effectiveness against aerosol delivered doses in animals. Conduct dose, schedule, and aerosol challenge studies in animals with Ebola vaccine candidates. Transition two Marburg virus vaccine candidates to advanced development programs, and determine protection duration studies on these two candidates. Conduct studies to further evaluate the effectiveness of combining the individual filoviruses (i.e., Ebola Sudan, Ebola Zaire, Ebola Uganda, and Marburg Angola) vaccines into one multi-agent vaccine. Conduct studies to further evaluate the effectiveness of combining the individual alphavirus (i.e., VEE, EEE, and WEE) vaccines into one multi-agent vaccine.

*FY 2011 Base Plans:*

Complete duration studies with the vaccine components against Marburg that transitioned to the advanced development program in FY10. Complete aerosol efficacy studies for the Ebola Zaire and Ebola Sudan vaccine components in non-human primates. Transition the Ebola vaccine components to the advanced development program to combine with the Marburg vaccine component. Determine duration of protection elicited by the Ebola vaccine components. Optimize the dose and immunization schedule to ensure effectiveness of the individual components of the filovirus vaccine when co-administered as a mixture. Complete aerosol efficacy studies of DNA-based vaccines and chemically inactivated/attenuated vaccines against the alphaviruses. Optimize dosing regimens to ensure effectiveness when co-administering the alphavirus vaccine components. Continue the development of animals models for alphaviruses (EEE and WEE), and filoviruses (Ebola Sudan, Ebola Zaire,

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Ebola Bundibugyo, and Marburg), to fulfill future FDA animal rule requirements necessary for vaccine licensure. For Alphaviruses, determine the median lethal dose of VEE, EEE, and WEE in a distinct type of non-human primate, and test the alphavirus vaccines for immune stimulation capability and efficacy against challenge in this new animal model. For filoviruses, determine the median lethal dose of Ebola Bundibugyo in a distinct type of non-human primate, and begin natural history studies for Ebola Bundibugyo, Ebola Sudan, Ebola Zaire, and Marburg. | | | | | |
| 7) Pretreatments | 0.000 | 1.722 | 4.371 | 0.000 | 4.371 |
| Vaccine Platforms and Research Tools: Conducts studies to determine potential immune interference between lead vaccine candidates, the effect of alternative vaccine delivery methods and thermo-stabilization technologies on the efficacy of lead vaccine candidates. Identifies correlates of protection in humans, and predicts the success of lead vaccine candidates in humans. | | | | | |
| *FY 2010 Plans:*<br>Research multiagent vaccines, immune interference, immune stimulating formulations, vaccine delivery/stabilization to predict the human immune response to vaccine candidates. Initiate studies to examine potential immune interference between vaccines (e.g., filovirus interference with alphavirus vaccines; anthrax interference with plague vaccine, etc.) developed by the Department of Defense (DoD). Evaluate mature Marburg vaccine candidates ready for transition to the advanced developer using the laboratory based human artificial immune system (i.e., MIMIC) technology. | | | | | |
| *FY 2011 Base Plans:*<br>Examine the efficacy of a mature filovirus vaccine in animals previously vaccinated with a mature alphavirus vaccine that was constructed using the same platform technology, to reveal potential immune interference in order to determine whether multiple vaccines using the same platform technologies can be used together. Analyze blood samples collected from individuals in the Former Soviet Union (i.e., vaccinated laboratory workers and/or individuals infected with bio-defense agents endemic to the region) in laboratory assays to determine the antibody and cell-based immune | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| responses elicited by vaccines and/or pathogens of interest, and compare those results to animal studies. Evaluate the safety and immune stimulating capability of mature Filovirus and Alphavirus vaccine candidates in humans by using the MIMIC technology, to support these candidates moving forward into phase I clinical studies by the advanced development program. Conduct pre-formulation studies to produce a thermo-stable, spray-dried formulation of the virus-like particle based Marburg vaccine candidate. | | | | | |
| 8) Therapeutics<br>Therapy for Ebola and Marburg Virus Infections: Identifies, optimizes and evaluates potential therapeutic candidates effective against Filovirus infection including Ebola and Marburg Viruses.<br>*FY 2009 Accomplishments:*<br>Completed FDA required studies to support the preclinical development and characterization of other leading therapeutic technologies against the Ebola virus and Marburg virus. | 5.302 | 0.000 | 0.000 | 0.000 | 0.000 |
| 9) Therapeutics<br>Viral Therapeutics: Identifies, optimizes and evaluates potential therapeutic candidates effective against designated viral threat agents.<br>*FY 2009 Accomplishments:*<br>Continued studies to support FDA submissions, milestone approval, and product transition to advanced development programs. Performed FDA required non-human primate studies necessary to complete the development of two oral therapeutics for orthopox viral infection.<br>*FY 2010 Plans:*<br>Conduct non-human primate studies to determine if anti-inflammatory and anti-thrombotic host factors can be used therapeutically to produce a restorative effect on the blood vessel walls and increase survival from filovirus infection. Conduct remaining FDA required non-human primate studies | 5.567 | 9.493 | 9.519 | 0.000 | 9.519 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| necessary to complete the development of oral therapeutics for orthopox viral infection. Evaluate the efficacy of administering post-exposure therapeutic vaccine in conjunction with therapies that stop blood clotting in animals infected with filovirus. Continue animal studies to support FDA submissions, milestone approval, and product transition to advanced development.<br><br>*FY 2011 Base Plans:*<br>Conduct remaining non-human primate studies required for licensure of ST-246, a low-molecular-weight compound that is active against multiple orthopoxviruses. Conduct toxicology studies and analyze efficacy of optimized lead compounds against alphavirus infection in murine and non-human primate challenge models. Characterize the clinical manifestations and virologic/immunologic parameters of human monkeypox. Determine the effectiveness of pan-alphavirus capsid assembly inhibitors in animal models. | | | | | |
| 10) Therapeutics<br>Bacterial Therapeutics: Identifies, optimizes, and evaluates potential therapeutic compounds effective against bacterial threat agents.<br><br>*FY 2009 Accomplishments:*<br>Tested and evaluated FDA approved antibiotics for efficacy against aerosol exposure to bacterial threat agents in non-human primate models of plague. Initiated advanced safety and effectiveness studies for a new single domain antibody that is smaller than conventional antibodies against plague.<br><br>*FY 2010 Plans:*<br>Test and evaluate the effectiveness of commercially available antibiotics against animals exposed to aerosol versions of plague and tularemia. Determine antibiotic susceptibility profiles for Yersinia pestis and Francisella tularensis in the laboratory. | 2.447 | 2.656 | 2.700 | 0.000 | 2.700 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Determine the effectiveness of commercially available antibiotics against Francisella tularensis in relevant animal infection models. | | | | | |
| 11) Therapeutics<br>Toxin Therapeutics: Identifies, optimizes and evaluates potential therapeutic candidates effective against biological toxin threat agents.<br><br>*FY 2009 Accomplishments:*<br>Continued optimization and structural activity relationship studies for BoNT small molecule therapeutics to achieve improved pharmacological properties. Tested intraneuronal delivery of small molecules using prototype therapeutic delivery system. Evaluated immune modifying compounds for pre and post-exposure therapy for Staphylococcal Enterotoxin B (SEB) intoxication.<br><br>*FY 2010 Plans:*<br>Initiate work to develop antitoxin preparation for Ricin and Staphylococcal Enterotoxin B (SEB). Define the therapeutic parameters for Ricin and SEB therapeutic. Test candidate BoNT small molecule therapeutics in animal challenge models. Perform advanced animal testing on small molecules that are protective against a lethal challenge of SEB in relevant animal models.<br><br>*FY 2011 Base Plans:*<br>Test and evaluate FDA approved immunomodulating drugs against exposure to SEB. Develop and determine the therapeutic window of opportunity for novel inhibitors of SEB pathogenesis. Determine initial safety profile and conduct genotoxicity studies for BoNT inhibitors with the goal of improving physiochemical properties and mitigating product liabilities through the use of medicinal chemistry. Conduct pre- and post-challenge of efficacy studies of optimized BoNT inhibitors in mice. Evaluate efficacy of BoNT lead inhibitors using a targeted delivery system in mice. | 1.683 | 1.475 | 1.500 | 0.000 | 1.500 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 12) Transformational Medical Technologies Initiative | 144.777 | 124.132 | 63.135 | 0.000 | 63.135 |

Multiagent (Broad Spectrum) Medical Countermeasures: Focuses on the initiation and completion of multiple preclinical studies for each new drug, to include safety, toxicity, efficacy, and scalability work. The ability to formulate good manufacturing pilot lots and further mature promising drug candidates will be the focus of activities in this capability area. The preclinical drug discovery process culminates in the submission of an Investigational New Drug (IND) application to the Food and Drug Administration (FDA), which conducts reviews and approves new drug candidates. Estimated attrition from preclinical phase to Phase I clinical studies is approximately 50%, thus not all drugs will survive the transition between preclinical development and Phase I studies.

*FY 2009 Accomplishments:*

Continued to identify potential IND candidate drugs for development. Completed pre-clinical research necessary to submit up to ten additional applications for an IND with the FDA. Accelerated drug discovery efforts, incorporating new technology to expand the number of potential drug compounds suitable for advanced development. Implemented use of the previously validated transgenic and other animal model systems to replicate human disease and disease response pathways. Began implementation of test platforms for drug discovery, development, and manufacturing technologies. Continued investigating the use of existing of FDA-approved drugs to enhance effectiveness of current BW agent countermeasures.

*FY 2010 Plans:*

Continue to identify potential IND candidate drugs for development. Complete pre-clinical research necessary to submit up to seven additional applications for an IND with the FDA. Upon submission of an IND to the FDA for further evaluation, DoD Milestone A decisions will take place. Downselect contract performers who have had their IND applications accepted by the FDA. Initiate planning for Phase 1 clinical trials and other studies necessary to support advanced development efforts toward an New Drug Application (NDA) with the FDA. Continue investigating use of existing of FDA-approved drugs to enhance effectiveness of current BW agent countermeasures.

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Complete pre-clinical research required to submit IND applications to the FDA for additional products or additional product indications. As MCMs effective as post-exposure prophylaxis and treatment against IBP are matured, an initial DoD Milestone A decision will take place for the IBP Group of MCMs. Initiate planning for Phase 1 clinical trials and additional studies for INDs as required by the FDA prior to safety evaluation in humans. Continue the development of animal models for future advanced development of MCMs currently in the S&T phase of development, Animal models were previously product licensure under the FDA Animal Rule. This includes exploratory research, identification of supported in the Technologies Portfolio; investment strategy changed for FY11 and beyond to mitigate risk associated with seeking in vivo potency and efficacy critical to the likely product development path, determining dose-response, and the optimal route of administration and timing/ schedule of administration of product in relevant animal efficacy models. | | | | | |
| 13) Transformational Medical Technologies Initiative | 0.000 | 32.945 | 12.922 | 0.000 | 12.922 |
| Development of Platform Technologies: Focuses on advanced technology and development activities for Platform Technologies to include the maturation of components that will begin the process of integrating a countermeasure response pipeline. In addition, animal models will be authenticated against challenge material and ready to support clinical trials. Off-the-shelf technologies will be identified, evaluated, and refined to demonstrate the ability to provide drug development capabilities. Advanced manufacturing platforms will continue to mature and the technology application will focus on the type of specific therapeutics under development.<br><br>*FY 2010 Plans:*<br>Conduct initial studies to determine dose-response, optimal route of administration and timing/ schedule of administration of product in relevant animal efficacy models. Based on completed studies, initiate development of the bioinformatics platform, which will integrate the various TMTI platforms by electronically structuring all TMTI data for rapid access and analysis. Continue development of rapid | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| drug discovery and development platform technologies. Accelerate effort to develop and scale-up new rapid manufacturing platform technologies for biological drugs. Development efforts will bring these technologies into compliance with FDA current good manufacturing practices (cGMP) and quality requirements. Generate Technology Development Strategies that will assist in the development of a roadmap to support efforts that transition to engineering, manufacturing, and development efforts in Budget Activities 4 and 5. Begin integration of stand-alone platforms into capabilities that can be demonstrated as a system. Validate test platforms for drug discovery, development and manufacturing technologies that allow the incorporation of medical countermeasure technologies into the TMTI rapid response capability. Support computer models to advance/enhance drug design. High throughput screening assays and technologies and novel platforms for target identification will also be investigated.<br><br>*FY 2011 Base Plans:*<br>Continue integration of standalone platforms into capabilities that can be demonstrated as a system. Continue the development of rapid drug discovery and development platform technologies. Integrate the entire system using a robust bioinformatics capability, and validate the integrated bioinformatics platform. Continue to mature and accelerate manufacturing platform technologies for biological drugs to comply with regulatory guidelines. Support compliance and quality measures that are mandatory for future FDA submissions. Continue to integrate pathogen characterization, target identification, countermeasure discovery and countermeasure evaluation platform areas into a rapid response capability supported by a centralized bioinformatics capability that ties together geographically separated performers from government agencies, industry and academia. | | | | | |
| Accomplishments/Planned Programs Subtotals | 180.425 | 203.723 | 115.233 | 0.000 | 115.233 |

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**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* | 7.910 | 102.437 | 136.975 | | 136.975 | 130.718 | 131.347 | 115.985 | 113.566 | Continuing | Continuing |
| • MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* | 87.676 | 57.558 | 141.680 | | 141.680 | 161.732 | 159.144 | 141.481 | 111.671 | Continuing | Continuing |
| • TB2: *MEDICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 50.485 | 53.930 | 43.858 | | 43.858 | 50.866 | 51.077 | 51.051 | 51.959 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
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| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TC3: *MEDICAL CHEMICAL DEFENSE (ATD)* | 21.641 | 28.971 | 29.134 | 0.000 | 29.134 | 30.401 | 30.546 | 31.356 | 31.877 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This project (TC3) supports the advanced development of medical countermeasures to include prophylaxes, pretreatments, antidotes, skin decontaminants and therapeutic drugs against identified and emerging chemical warfare threat agents. Analytical stability studies, safety and efficacy screening, and preclinical toxicology studies are performed prior to full-scale development of promising pretreatment or treatment drug compounds. Entry of candidate pretreatment/prophylaxes, therapeutics, and diagnostic technologies into advanced development (i.e., efforts funded in Budget Activities 4 and 5) is facilitated by the development of technical data packages that support the Food and Drug Administration (FDA) Investigational New Drug (IND) application and licensure processes, as well as Department of Defense (DoD) acquisition regulations. Categories for this project include Pretreatments, Diagnostics, and Therapeutics to address Chemical Warfare Agent (CWA) and Non-Traditional Agents (NTAs) exposure. Starting in FY11, all NTA-dedicated research will be re-aligned into specific capability areas within this project in order to ensure a focused effort on this high priority area.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.373 | 0.000 | 0.000 | 0.000 |
| 2) Diagnostics<br>Diagnostic Technologies: Focuses on state-of-the-art laboratory/fieldable methods that detect exposure to chemical warfare agents (CWA) (e.g., nerve agents and vesicants) in clinical samples. It also targets the identification of biomolecular targets that can be leveraged as analytical methodologies, as well as, laboratory and animal studies characterizing time-course and longevity of a particular analyte/ biomarker. | 0.701 | 1.436 | 0.226 | 0.000 | 0.226 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Concluded validation of the optimized sulfur mustard blood protein assay. Initiated validation of the urine byproduct assay. Concluded metabolic profile study and conduct data analysis. Completed validation of procedure to assess the presence of chemical warfare analytes from hair samples.<br><br>*FY 2010 Plans:*<br>Further development of improved reactivation and solvent-free extraction methodologies for definitive CWA byproduct identification. Determine windows of opportunity for biomarker identification and subsequent therapeutic intervention for CWA in laboratory and animal models.<br><br>*FY 2011 Base Plans:*<br>Optimize the methodology for solvent free extraction of CWA mixtures. Complete blood and urine assay development for CWA exposure. Complete validation of fluoride regeneration method in plasma/blood/RBCs with solid phase extraction for nerve agents. All NTA-specific efforts re-aligned to the Chemical Diagnostics NTA capability area within this Budget Activity. | | | | | |
| 3) Chem Diagnostics NTA<br>*FY 2011 Base Plans:*<br>Continue evaluation of mature technologies that can quickly diagnose NTA exposure before symptoms appear and determine the type of agent. | 0.000 | 0.000 | 0.400 | 0.000 | 0.400 |
| 4) Pretreatments<br>Nerve Agent, Bioscavengers: Develop pretreatments that provide protection against all organophosphorous nerve agents. Bioscavengers should have the ability to rapidly bind and detoxify nerve agents, and have broad binding specificity and high catalytic efficiency for the destruction of agents. One molecule of catalytic bioscavenger should be capable of detoxifying numerous molecules | 6.636 | 7.811 | 7.861 | 0.000 | 7.861 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| nerve agents resulting in the capability for a small quantity of catalytic bioscavenger to protect against a large dose of nerve agent.<br><br>*FY 2009 Accomplishments:*<br>Optimized animal expression systems for binding protein delivery. Completed structural studies of potential catalytic bioscavengers. Utilized Physiological Based Pharmacokinetic (PBPK) models that predict efficacy of bioscavengers in animals for novel catalytic bioscavengers. Evaluated catalytic bioscavengers for safety, efficacy, stability, and immune system stimulation.<br><br>*FY 2010 Plans:*<br>Develop formulations for improved pharmacokinetic and reduced immune system stimulation for catalytic bioscavengers. Investigate improved drug-delivery systems for 1st generation catalytic bioscavengers. Conduct supportive studies toward licensure of catalytic bioscavengers.<br><br>*FY 2011 Base Plans:*<br>Apply PBPK models to improved catalytic bioscavengers. Continue to test improved catalytic bioscavenger delivery methods and retention systems in animal models. Continue to develop binding proteins in animal models for safety and efficacy, using animal testing to down-select candidates for further development. | | | | | |
| 5) Therapeutics<br><br>Cutaneous and Ocular: Focuses on minimizing injuries to dermal and ocular tissues resulting from exposure to chemical warfare agents (CWA). This work is designed to support eventual Food and Drug Administration (FDA) licensure of new compounds or new indications for licensed products for use in the treatment of chemical warfare casualties. | 3.933 | 3.465 | 3.689 | 0.000 | 3.689 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TC3: *MEDICAL CHEMICAL DEFENSE (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Initiated animal studies to determine long term effects of down-selected wound healing products and blister agents, in coordination with the advanced developer.<br><br>*FY 2010 Plans:*<br>Evaluate commercial off-the-shelf irrigation systems for treatment of CWA exposure in the laboratory and animals. Continue animal studies to examine long-term effects of wound healing products. Down-select newly identified therapeutics with potential for treating mustard agent-induced ocular injury. Begin efficacy testing in compliance with FDA regulations for ocular administration.<br><br>*FY 2011 Base Plans:*<br>Continue to evaluate the effectiveness of various cell-based approaches to facilitate blister agent wound healing in skin and eye. Begin advanced studies focused on down-selecting wound healing products found to be most effective for transition. Continue to assess in animals whether bioengineering and molecular biology approaches may be used to treat blister agent skin and eye injury. Initiate the development of an approach to decontaminate CWAs in penetrating wounds. | | | | | |
| 6) Therapeutics<br><br>Neurologic: Focuses on therapeutic strategies to effectively minimize neurologic injuries resulting from exposure to CWAs. This effort involves the development of neuroprotectants, anticonvulsants, and improved neurotransmitter restorers. Supports eventual FDA licensure of new compounds or new indications for licensed products for use in the treatment of chemical warfare casualties.<br><br>*FY 2009 Accomplishments:*<br>Accelerated efforts to evaluate novel and FDA approved anticonvulsants, neuroprotectants, anti-epileptics, and receptor competitors and neutralizing agents for neuroprotective activity against nerve agents in animal models according to FDA guidelines. | 6.421 | 13.240 | 13.137 | 0.000 | 13.137 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TC3: *MEDICAL CHEMICAL DEFENSE (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Test broad-spectrum reactivators in one or more animal models, with a focus on requirements to support FDA submissions under the animal rule. Initiate safety/side effect/dosing and the body's effects on the drug evaluation of new compounds. Continue to evaluate novel and FDA-approved anticonvulsants, neuroprotectants, anti-epileptics, and receptor competitors and neutralizing agents for neuroprotective activity against nerve agents in animal models.<br><br>*FY 2011 Base Plans:*<br>Continue to evaluate, in animals, novel compounds and FDA-approved drugs not yet evaluated for efficacy against nerve agents. These potential compounds include anticholinergics, neuroprotectants, anticonvulsants, and improved reactivators. Continue efficacy testing on candidates that are designed to support eventual FDA licensure. Continue development of animals models related to nerve exposure with emphasis on FDA animal rule approval. | | | | | |
| 7) Therapeutics<br>Medical Toxicology (Non-Traditional Agents (NTAs) and Other agents): Investigates common mechanisms of agent injury. Determines the toxic effects of agents by probable routes of field exposure as well as standard experimental routes. Physiological parameters and pathological assessment will be used to establish the general mode and mechanism(s) of toxicity.<br><br>*FY 2009 Accomplishments:*<br>Developed, validated, and completed practical clinical strategies to aid in management of NTA casualties. | 2.950 | 0.000 | 0.000 | 0.000 | 0.000 |
| 8) Therapeutics<br>CWA Operational Exposure Hazard Assessment Research: Supports FDA licensure of new compounds or new indications for licensed products for use in the treatment of chemical warfare casualties. | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TC3: *MEDICAL CHEMICAL DEFENSE (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Completed data analysis and delivered dataset to define the operational effects from chemical agent contact and inhalation exposure. | | | | | |
| 9) Therapeutics<br>Respiratory and Systemic: Supports investigation of the systemic host response to CWA injury via all routes of exposure, with emphasis on the respiratory system and chronic effects of exposure. Develops effective practical field and clinic management strategies, and physical and pharmacological interventions to treat the injury processes. Designed to support eventual FDA licensure of new compounds or new indications for licensed products for use in the treatment of chemical warfare casualties.<br>*FY 2010 Plans:*<br>Identify and test potential therapeutics with a focus on FDA approved drugs that are currently used for other indications for treatment of CWA-induced lung damage. Investigate approaches to enhance inhalational delivery of selected candidate therapeutics. Evaluate commercially available aerosol bronchodilators as supportive therapy following acute inhalational exposure to CWAs.<br>*FY 2011 Base Plans:*<br>Continue to evaluate previously identified lead candidate countermeasures for future transition to advanced development. Investigate novel delivery systems for potential inhalational therapeutics against CWA. Continue to investigate efficacy of commercially available aerosol bronchodilators as supportive therapy following pulmonary exposure to CWAs. | 0.000 | 1.308 | 1.367 | 0.000 | 1.367 |
| 10) Therapeutics | 0.000 | 1.338 | 2.454 | 0.000 | 2.454 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TC3: *MEDICAL CHEMICAL DEFENSE (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Non Traditional Agents (NTAs): Determines the toxic effects of agents by probable routes of field exposure and refines standard experimental routes. Physiological parameters and pathological assessment will be used to establish the general mode and mechanisms of toxicity.<br><br>*FY 2010 Plans:*<br>Develop and evaluate novel and FDA licensed products as post-exposure therapeutics against NTA poisoning in advanced animal models.<br><br>*FY 2011 Base Plans:*<br>Complete characterization of a novel therapeutic for manufacturability and pharmacology. Establish formulation for safety testing and stability. | | | | | |
| Accomplishments/Planned Programs Subtotals | 21.641 | 28.971 | 29.134 | 0.000 | 29.134 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* | 19.365 | 9.438 | 0.000 | | 0.000 | 2.973 | 3.661 | 5.035 | 14.670 | Continuing | Continuing |
| • MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* | 14.203 | 14.027 | 51.856 | | 51.856 | 47.835 | 28.771 | 12.122 | 8.171 | Continuing | Continuing |
| • TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* | 35.008 | 40.418 | 33.648 | | 33.648 | 36.327 | 36.500 | 37.475 | 38.150 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TC3: *MEDICAL CHEMICAL DEFENSE (ATD)* |

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TE3: *TEST & EVALUATION (ATD)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TE3: *TEST & EVALUATION (ATD)* | 25.761 | 13.307 | 11.875 | 0.000 | 11.875 | 11.267 | 11.160 | 0.000 | 0.000 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This project (TE3) supports the development of test and evaluation methodologies and protocols as new science and technology efforts are discovered and transitioned to advanced development programs. It includes methodology development for chemical and biological defense test and evaluation capabilities, with an emphasis on Non Traditional Agents (NTAs). These methodologies support development testing and operational testing with regard to advanced development programs that have unique chemical and biological defense requirements. These new methodologies and testing capabilities include the development of protocol and standards for use of chemical and biological simulants. Starting in FY11, all NTA-dedicated research will be re-aligned into specific capability areas within this project.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.176 | 0.000 | 0.000 | 0.000 |
| 2) Test and Evaluation (T&E) NTA<br>Develops test and evaluation technologies and processes in support of NTA activities.<br>*FY 2011 Base Plans:*<br>Conduct facility design efforts by conducting large particle dissemination development and proof of principle tests with several agents. Complete testing regarding the safety of unprotected personnel using the chamber after decontamination. | 0.000 | 0.000 | 2.000 | 0.000 | 2.000 |
| 3) Test and Evaluation (T&E) | 6.643 | 5.896 | 2.784 | 0.000 | 2.784 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TE3: *TEST & EVALUATION (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Test and Evaluation, Detection: Develop, test, and evaluate technologies and processes in support of detection capability testing.<br><br>*FY 2009 Accomplishments:*<br>Continued development of methodologies and capabilities for test and evaluation of technologies currently in early stages of technology development. Initiated and completed Quality Assurance (QA) implementation and checkpoints for scaled-up antigen production runs and post-production conformance tests. Continued NTA chamber design effort by conducting liquid dissemination development and proof of principle tests with a few agents and addressed questions regarding the safety of unprotected personnel using the chamber post decontamination.<br><br>*FY 2010 Plans:*<br>Continue development of methodologies and capabilities for test and evaluation of technologies currently in early stages of tech-base development. Continue NTA chamber design effort by conducting dry dissemination development and proof of principle tests with several agents and address the questions regarding the safety of unprotected personnel using the chamber post decontamination.<br><br>*FY 2011 Base Plans:*<br>Complete development of methodologies and capabilities for test and evaluation of technologies currently in early stages of technology development. | | | | | |
| 4) Test and Evaluation (T&E)<br>Test and Evaluation, Threat Agent Science: Develop test and evaluation technologies and processes in support of Threat Agent Science activities, with a particular emphasis on Non-Traditional Agents. | 3.891 | 1.531 | 1.391 | 0.000 | 1.391 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TE3: *TEST & EVALUATION (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued development of simulants for specified NTAs to be used in test and evaluation efforts. Completed standard protocol evaluation. Continued development of masking/encapsulation simulants for CB agents. Completed TIC/battlefield contaminants methodologies study.<br><br>*FY 2010 Plans:*<br>Continue development of NTA Simulants. Provide a data base to define the specific characteristic(s) of CWA and BWA threats that must be simulated in order to test the range of types of CBD systems and technologies. Identify and develop simulant or suite of simulants to be used to facilitate field tests of multiple CWA and BWA detectors and/or a multi-purpose BWA/CWA detector. Develop the relationship between aerosolized biological simulants and aerosolized live biological agents for bio standoff detection and discrimination, including identifying the impact of interferents and varying environmental conditions on this relationship.<br><br>*FY 2011 Base Plans:*<br>Develop methodology and establish the relationship of simulants used in field trials to agents for each CWA detection technology; includes determination of quantity of simulants required to mimic the detector response to agent as well as how interferents and environmental factors impact both simulant and agent. Identify and develop simulants that enable decontamination processes to be monitored to determine its/their progression and efficiency. Develop methodologies that disperse or deposit currently available simulants as if they were agents, which could include adding thickeners or surfactants. | | | | | |
| 5) Test and Evaluation (T&E)<br>Test and Evaluation, Information System Technology: Develop test and evaluation technologies and processes in support of Information System Technology activities. | 3.825 | 5.508 | 5.600 | 0.000 | 5.600 |
| | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TE3: *TEST & EVALUATION (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued development on decontamination efficacy prediction model. Transitioned first module of decontamination model. Integrated state-of-the-art transport and dispersion models and visualization software into collective protection systems performance model. Integrated relevant analytical tools into individual protective equipment performance model. Initiated verification and validation processes on emerging test and evaluation models. Began development of contamination avoidance systems performance model.<br><br>*FY 2010 Plans:*<br>Develop second module of decontamination model. Continue development and integration relevant to construction of systems performance models for collective protection, contamination avoidance, and individual protection. Build requirements for systems performance model integration and program-wide exploitation. Conduct requirements analysis for inclusion of data from test and evaluation community into CBRN Data Backbone.<br><br>*FY 2011 Base Plans:*<br>Conclude development and integration relevant to construction of collective protection, individual protection, and decontamination models for test and evaluation and transition those models. Continue to build requirements for system performance model integration and program-wide exploitation. Collect and federate test data into CBRN Data Backbone prototype. Create processes for entry and authorization of test data in CBRN Data Backbone. Initiate individual protection equipment (IPE) model development to predict system exposure relative to toxicological exposure. | | | | | |
| 6) Test and Evaluation (T&E)<br>Test and Evaluation, Protection and Hazard Mitigation: Develop test and evaluation technologies and processes in support of Protect and Hazard Mitigation activities. | 9.992 | 0.196 | 0.100 | 0.000 | 0.100 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TE3: *TEST & EVALUATION (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Completed development of collective protection shelter systems test and evaluation standards, Toxic Industrial Chemicals (TIC), and battlefield contaminant standards for Individual Protection Equipment (IPE) and Collective Protection (COLPRO). Completed standard procedures for IPE Assessment. Completed real-time sampling/detector system swatch test methodology for use in Chemical and Biological Agent Resistance Test System (CBARTS) test methodology standards and guidance for air purification technologies, IPE field operations effects standard, and IPE air flow mapping.<br><br>*FY 2010 Plans:*<br>Initiate methodology/source data effort to simulate IP durability test in laboratory and relationship to field durability.<br><br>*FY 2011 Base Plans:*<br>Continue development of methodology/source data effort to simulate IP durability in laboratory and relationship to field durability. | | | | | |
| 7) Test and Evaluation (T&E)<br>Test and Evaluation, Decontamination: Develop test and evaluation technologies and processes in support of decontamination activities.<br><br>*FY 2009 Accomplishments:*<br>Initiated and completed test and evaluation methodologies and protocols for assessing reactivity of alternative reactive material technologies and processes. Initiated and completed processes for relevant environment and relevant equipment testing for live agents and calculations for small item contact test that incorporates toxicological considerations. | 1.410 | 0.000 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 25.761 | 13.307 | 11.875 | 0.000 | 11.875 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TE3: *TEST & EVALUATION (ATD)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TE4: *TEST & EVALUATION (ACD&P)* | 6.261 | 28.773 | 19.304 | | 19.304 | 11.851 | 28.035 | 20.266 | 21.139 | Continuing | Continuing |
| • TE5: *TEST & EVALUATION (SDD)* | 37.444 | 36.593 | 15.901 | | 15.901 | 12.243 | 4.238 | 14.614 | 15.300 | Continuing | Continuing |
| • TE7: *TEST & EVALUATION (OP SYS DEV)* | 7.037 | 4.870 | 4.813 | | 4.813 | 4.779 | 4.750 | 5.660 | 5.615 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TR3: *MEDICAL RADIOLOGICAL DEFENSE (ATD)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TR3: *MEDICAL RADIOLOGICAL DEFENSE (ATD)* | 4.859 | 2.403 | 0.957 | 0.000 | 0.957 | 0.966 | 1.922 | 2.901 | 2.927 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This project (TR3) funds advanced technology development of medical countermeasures against radiological exposure. Specifically, innovative technical approaches will be used to develop, refine, and transition promising products to advanced development efforts to mitigate health consequences resulting from Acute Radiation Exposure (ARS) and Delayed Effects of Acute Radiation Exposure (DEARE). Promising products and pertinent science and technology data will be used to support Investigational New Drug (IND) applications and Food and Drug Administration (FDA) licensure processes, with an emphasis on the development of pretreatments to protect military responders in the event of a radiological incident. Research efforts and data are collaboratively shared with other government agencies so that more mature and promising product candidates will be quickly transitioned to advanced development efforts.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) Radiological Medical Countermeasures | 4.859 | 2.371 | 0.957 | 0.000 | 0.957 |
| Radiation Medical Countermeasures: Develops medical countermeasures to protect the Warfighter against radiological/nuclear exposure. The Department of Defense is the only governmental agency currently developing medical prophylaxis to protect Warfighters or other responders in the event of a radiological incident. | | | | | |
| *FY 2009 Accomplishments:*<br>Continued to evaluate at least two promising drug candidates to assess animal survival rate when exposed to lethal radiation. Evaluated efficacy of three to four therapeutic candidates and regimens that mitigate and/or treat post-radiation exposure, with emphasis on broad spectrum activity, ease of administration, and safety in non-human primates (NHPs). Continued to evaluate the preclinical efficacy and safety studies in NHPs, an assessment of drug mechanism of action, | | | | | |

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| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TR3: *MEDICAL RADIOLOGICAL DEFENSE (ATD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| and the determination of drug formulation according to the FDA animal rule. Evaluated promising radioprotectants and post-irradiation therapeutic agents.<br><br>*FY 2010 Plans:*<br>Evaluate mature and promising agents for respiratory and gastrointestinal damage and repair. Demonstrate efficacy and safety in NHPs. Begin down-selection and prepare transition of one mature radioprotectant to the advanced developer, using pertinent science and technology data to support an Investigational New Drug (IND) application for eventual FDA license.<br><br>*FY 2011 Base Plans:*<br>Continue to investigate relatively mature candidates for advanced development as medical countermeasures to prevent and treat exposure to radiation. Continue to evaluate diagnostic biodosimetry biomarkers that could be used to potentially screen mass casualties. Continue to explore the development of a biodosimetry hand-held diagnostic device that is minimally invasive, accurate, rapid, high-throughput, and suitable for medical triage. Continue development of animals models for radiation exposures useful to support FDA licensure. | | | | | |
| 2) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.032 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 4.859 | 2.403 | 0.957 | 0.000 | 0.957 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • MR4: *MEDICAL RADIOLOGICAL DEFENSE (ACD&P)* | 4.294 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| | 3.002 | 8.276 | 1.143 | | 1.143 | 4.817 | 2.265 | 0.000 | 0.000 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TR3: *MEDICAL RADIOLOGICAL DEFENSE (ATD)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • MR5: *MEDICAL RADIOLOGICAL DEFENSE (SDD)* | | | | | | | | | | | |
| • TR2: *MEDICAL RADIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 0.525 | 2.897 | 2.884 | | 2.884 | 1.904 | 2.855 | 1.913 | 1.903 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TT3: *TECHBASE TECHNOLOGY TRANSITION* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TT3: *TECHBASE TECHNOLOGY TRANSITION* | 8.127 | 7.357 | 4.504 | 0.000 | 4.504 | 8.117 | 8.169 | 8.390 | 8.528 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This project (TT3) supports technology transition, technology experimentation and demonstration efforts, and technology readiness assessments in support of unique chemical and biological Advanced Technology Demonstrations (ATDs) and Joint Concept Technology Demonstrations (JCTDs). Within this project are two primary capability areas: 1) Experiment and Technology Demonstrations; and, 2) Technology Readiness Assessment. The Experiment and Technology Demonstrations capability area focuses on integration, testing, and assessing candidate ATDs and JCTDs and includes three thrust areas (two of which are new sub-thrust areas that consolidate legacy systems and are annotated as such below): Advanced Remediation Technologies (ART), Early Warning Military Application in Reconnaissance Systems (EW-MARS), and Comprehensive Innovative Protection (CIP). The ART addresses Chemical, Biological, and Radiological (CBR) remediation and decontamination processes and demonstrates technologies and methods to restore assets such as mobile equipment, fixed sites, critical infrastructures, personal, and equipment to operational status as a result of having reduced or eliminated CBR contamination. The EW-MARS (new thrust area) achieves enhanced command and control decision making capabilities as a result of a combined and orchestrated family of chemical and biological defense systems deployed on various platforms in remote locations. The CIP (new thrust area) transitions mature technologies to improve individual and collective protection capabilities. The Technology Readiness Assessment capability area focuses on completing manufacturing readiness assessments, technology readiness evaluations, and assessing maturity levels before transitioning ATDs and JCTDs to advanced development efforts located in Budget Activity 4 (Project TT4).

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.101 | 0.000 | 0.000 | 0.000 |
| 2) Experiment & Technology Demonstrations | 5.623 | 4.869 | 2.175 | 0.000 | 2.175 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TT3: *TECHBASE TECHNOLOGY TRANSITION* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>ART Thrust Area<br>Continued biological decontamination technology and decision support system evaluations for IBRD. Conducted biological technology demonstrations for IBRD. Continued testing of candidate technologies for Auto Decon and HaMMER ATDs and for CBRN capability insertion into advanced development programs.<br><br>EW Thrust Area<br>Analyzed the capability of current- and near-term early warning technologies that may either be capable of or are required to sense CB attacks in preparation for the Early Warning/Military Applications in Reconnaissance/Surveillance ATDs.<br><br>CIP Thrust Area<br>Performed Design, Test and Evaluation for the IP Demo ATD.<br><br>*FY 2010 Plans:*<br>EW Thrust Area<br>Conduct technology testing for EW/MARS Rapid Area Sensitive Site Reconnaissance (RASR) ATD. RASR will assess the capability to rapidly survey large areas (whole rooms, courtyards, fields) and assess and identify contamination with Chemical Warfare Agents (CWAs), Toxic Industrial Chemicals (TICs) or Non-Traditional Agents (NTAs). Conduct a technical assessment to determine if a designated WMD payload was or was not onboard a missile delivery system for the EW/MARS Post Intercept WMD Identification (PIWID) ATD.<br><br>CIP Thrust Area<br>Analyze the thermal burden for Warfighter protective gear in a CBRN environment as part of the CIP Low Burden Individual Protection Demonstration (IP Demo). Assessment of integrated fabric, low resistance/profile filtration, human performance prediction and assessment and low-burden air | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| purifying respirator concurrent with the Protection and Hazard Mitigation capability area (see BA2, Project CB2, Protection and Hazard Mitigation), which will support the Uniform Integrated Protective Ensemble (UIPE), and incorporate lessons into further development of integrated fabric.<br><br>*FY 2011 Base Plans:*<br>ART Thrust Area<br>Perform technical assessments for the ART Hazard Mitigation, Material, and Equipment Restoration (HaMMER) ATD. Incorporate results into HaMMER from testing and transition of solid oxidant and green surfactant and the Decontamination of Family Systems from the Protection and Hazard Mitigation capability area (see BA2, Project CB2, Protection and Hazard Mitigation).<br><br>EW Thrust Area.<br>Conduct Surety testing, technical demonstrations, and down selects for the RASR ATD.<br><br>CIP Thrust Area<br>Develop lessons learned from the IP Demo and inform the Protection and Hazard Mitigation capability area for future development (see BA2, Project CB2, Protection and Hazard Mitigation). | | | | | |
| 3) Technology Readiness Assessment<br>*FY 2009 Accomplishments:*<br>Conducted Technology Readiness Evaluations in support of remediation and restoration technology demonstrations to identify technologies in support of the ART IBRD ATD and EW MARS-JFP ATD.<br><br>*FY 2010 Plans:*<br>Continue Technology Readiness Evaluations in support of the EW MARS-JFP ATD. For the EW RASR ATD, assess the capability to rapidly survey large areas (whole rooms, courtyards, fields) and assess and identify contamination with Chemical Warfare Agents (CWAs), Toxic Industrial Chemicals (TICs) or Non-Traditional Agents (NTAs). Build and integrate key technology components integrated | 2.504 | 2.387 | 2.329 | 0.000 | 2.329 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 3: *Advanced Technology Development (ATD)* | R-1 ITEM NOMENCLATURE<br>PE 0603384BP: *CHEMICAL/BIOLOGICAL DEFENSE (ATD)* | PROJECT<br>TT3: *TECHBASE TECHNOLOGY TRANSITION* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| to demonstrate system level Force Protection capabilities in a Forward Operating Base scenario. Investigate the efficacy of rapid biological threat detection coupled with automatic, rapid delivery of supplies, therapeutics, and physiological monitoring equipment via unmanned systems for the CIP JMDSE ATD.<br><br>*FY 2011 Base Plans:*<br>Continue Technology Readiness Evaluations in support of the EW MARS-JFP ATD. Initiate Technology Readiness Evaluation for the CIP thrust area in preparation for a new ATD. Assess emerging innovations associated with orchestrating the response and capabilities of both individual and collective protection measures within the framework of smart networks and smart materials. | | | | | |
| Accomplishments/Planned Programs Subtotals | 8.127 | 7.357 | 4.504 | 0.000 | 4.504 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 102.599 | 110.955 | 88.897 | | 88.897 | 100.243 | 97.979 | 90.686 | 91.554 | Continuing | Continuing |
| • TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)* | 17.065 | 26.649 | 26.466 | | 26.466 | 18.564 | 18.838 | 19.294 | 19.563 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | | | | | | | | | | DATE: February 2010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | | | | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | | | | | | | |
| **COST ($ in Millions)** | **FY 2009 Actual** | **FY 2010 Estimate** | **FY 2011 Base Estimate** | **FY 2011 OCO Estimate** | **FY 2011 Total Estimate** | **FY 2012 Estimate** | **FY 2013 Estimate** | **FY 2014 Estimate** | **FY 2015 Estimate** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 69.793 | 209.275 | 277.062 | 0.000 | 277.062 | 182.351 | 198.586 | 169.998 | 177.657 | Continuing | Continuing |
| CA4: *CONTAMINATION AVOIDANCE (ACD&P)* | 7.703 | 40.186 | 63.347 | 0.000 | 63.347 | 9.093 | 10.754 | 4.742 | 3.978 | Continuing | Continuing |
| CM4: *HOMELAND DEFENSE (ACD&P)* | 0.000 | 0.000 | 9.526 | 0.000 | 9.526 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| CP4: *COUNTERPROLIFERATION SUPPORT (ACD&P)* | 2.373 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| DE4: *DECONTAMINATION SYSTEMS (ACD&P)* | 4.822 | 1.792 | 7.051 | 0.000 | 7.051 | 5.748 | 1.386 | 0.000 | 0.000 | Continuing | Continuing |
| IP4: *INDIVIDUAL PROTECTION (ACD&P)* | 0.000 | 0.000 | 3.172 | 0.000 | 3.172 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| IS4: *INFORMATION SYSTEMS (ACD&P)* | 0.000 | 0.000 | 11.221 | 0.000 | 11.221 | 3.404 | 4.565 | 4.676 | 4.741 | Continuing | Continuing |
| MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* | 7.910 | 102.437 | 136.975 | 0.000 | 136.975 | 130.718 | 131.347 | 115.985 | 113.566 | Continuing | Continuing |
| MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* | 19.365 | 9.438 | 0.000 | 0.000 | 0.000 | 2.973 | 3.661 | 5.035 | 14.670 | Continuing | Continuing |
| MR4: *MEDICAL RADIOLOGICAL DEFENSE (ACD&P)* | 4.294 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| TE4: *TEST & EVALUATION (ACD&P)* | 6.261 | 28.773 | 19.304 | 0.000 | 19.304 | 11.851 | 28.035 | 20.266 | 21.139 | Continuing | Continuing |
| TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)* | 17.065 | 26.649 | 26.466 | 0.000 | 26.466 | 18.564 | 18.838 | 19.294 | 19.563 | Continuing | Continuing |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* |

**A. Mission Description and Budget Item Justification**

Operational forces have an immediate need to survive, safely operate, and sustain operations in a Chemical and Biological (CB) agent threat environment across the continuum of global, contingency, special operations/low intensity conflict, counternarcotics, and other high risk missions. This program element supports the Advanced Component Development and Prototypes (ACD&P) of CB defensive equipment, both medical and non-medical. DoD missions for civil support operations have recently expanded and have resulted in providing focus to develop technologies to support CB counterterrorism initiatives. Projects within BA4 have been structured to consolidate Joint and Service-unique tasks within four commodity areas: contamination avoidance, force protection (individual and collective), decontamination, and medical countermeasures. ACD&P is conducted for an array of chemical/biological/toxin detection and warning systems providing early warning, collector concentrators, generic detection, improved reagents, and decontamination systems using solutions that will remove and/or detoxify contaminated material without damaging combat equipment, personnel or the environment. In the medical chemical/biological defense area, ACD&P is conducted for improved medical equipment, vaccines, and drugs essential to counteracting lethal and human performance degrading effects of chemical and biological agent threats. Specific items include improvements to nerve agent antidotes, anticonvulsants, biological agent diagnostics, and vaccines to protect against various Biological Warfare (BW) agents. This project funds development of a Transformational Rapid Drug Discovery and Development Capability (TRDDDC). Transformational Medical Technology Initiatives (TMTI) efforts in this area will include the continual build out of both a genomic sequencing and a bio-chemical informatics capability for the DoD. ACD&P also supports the Product Director Test Equipment, Strategy and Support (PD TESS) providing for the development of updated test capabilities to evaluate Chemical, Biological, Radiological and Nuclear Defense systems. Also included is the Techbase Technology Transition effort which validates high-risk/high-payoff technologies that could significantly improve warfighter capabilities. This project also funds development of candidate therapeutic medical countermeasures to mitigate the consequences of exposure to ionizing radiation due to nuclear or radiological attacks.

This Program Element focuses on efforts associated with advanced technology development used to demonstrate general military utility to include ACD&P in the areas of Non-Traditional Agents (NTA) and chemical/biological defense equipment and is correctly placed in BA4.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* |

**B. Program Change Summary ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 62.721 | 205.952 | 0.000 | 0.000 | 0.000 |
| Current President's Budget | 69.793 | 209.275 | 277.062 | 0.000 | 277.062 |
| Total Adjustments | 7.072 | 3.323 | 277.062 | 0.000 | 277.062 |
| • Congressional General Reductions | | -0.877 | | | |
| • Congressional Directed Reductions | | 0.000 | | | |
| • Congressional Rescissions | 0.000 | 0.000 | | | |
| • Congressional Adds | | 4.200 | | | |
| • Congressional Directed Transfers | | 0.000 | | | |
| • Reprogrammings | 7.796 | 0.000 | | | |
| • SBIR/STTR Transfer | -0.724 | 0.000 | | | |
| • Other Adjustments | 0.000 | 0.000 | 277.062 | 0.000 | 277.062 |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2009 | FY 2010 |
|---|---|---|
| **Project:** CA4: *CONTAMINATION AVOIDANCE (ACD&P)* | | |
| Congressional Add: *1) JBSDS Increment 2* | 1.187 | 0.000 |
| Congressional Add: *2) JBTDS* | 0.000 | 0.797 |
| Congressional Add Subtotals for Project: CA4 | 1.187 | 0.797 |
| **Project:** CP4: *COUNTERPROLIFERATION SUPPORT (ACD&P)* | | |
| Congressional Add: *1) JMDS* | 2.373 | 0.000 |
| Congressional Add Subtotals for Project: CP4 | 2.373 | 0.000 |
| **Project:** DE4: *DECONTAMINATION SYSTEMS (ACD&P)* | | |
| Congressional Add: *1) JMDS* | 1.582 | 0.000 |
| Congressional Add: *2) JPID* | 1.582 | 0.000 |
| Congressional Add: *3) JPID* | 0.000 | 1.792 |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add Subtotals for Project: DE4 | 3.164 | 1.792 |
| **Project:** MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* | | |
| Congressional Add: *1) Vacuum Sampling Pathogen Collection and Concentration* | 3.164 | 0.000 |
| Congressional Add: *2) Broad Spectrum Therapeutic Countermeasure* | 0.000 | 1.593 |
| Congressional Add: *3) CRP* | 1.582 | 0.000 |
| Congressional Add: *4) TT Bio* | 0.791 | 0.000 |
| Congressional Add: *5) TT Bio* | 1.582 | 0.000 |
| Congressional Add: *6) TT Bio* | 0.791 | 0.000 |
| Congressional Add Subtotals for Project: MB4 | 7.910 | 1.593 |
| Congressional Add Totals for all Projects | 14.634 | 4.182 |

**Change Summary Explanation**

Funding: FY09 - SBIR taxes (-$724K Various), Reprogrammings and realignments between projects (-$791 thousand CM4; +$2.4 million CP4; -$3.75 thousand DE4; +$2.373 million MB4; +$11.304 million MC4; -$3.740 million MR4).

FY11 - Realignment to support Decontamination Family of Systems (+$7.1 million DE4). Inflation rate adjustment (-$300 thousand CA4; -$45 thousand CM4; -$33 thousand DE4; -$15 thousand IP4; -$53 thousand IS4; -$656 thousand MB4; -$92 thousand TE4; -$126 thousand TT4). Realignment of BA5 funding (SDD) to BA4 (ACD&P) due to change in acquisition milestone requirements (+$57.833 million CA4; +$9.593 million CM4; +$3.194 million IP4; +$11.3 million IS4). Realignment of CBDP to support test infrastructure (+$7.7 million TE4).

Schedule: N/A

Technical: N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
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| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CA4: *CONTAMINATION AVOIDANCE (ACD&P)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CA4: *CONTAMINATION AVOIDANCE (ACD&P)* | 7.703 | 40.186 | 63.347 | 0.000 | 63.347 | 9.093 | 10.754 | 4.742 | 3.978 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 28 | 56 | | 56 | 0 | 0 | 0 | 0 | | |

**A. Mission Description and Budget Item Justification**

This Advanced Component Development and Prototypes (ACD&P) funding supports Component Advanced Development and System Integration (CAD/SI) of reconnaissance, detection, identification, and hazard prediction equipment, hardware, and software. Individual projects are: (1) Joint Biological Standoff Detector System (JBSDS), (2) Joint Biological Tactical Detection System (JBTDS), (3) Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD), (4) Major Defense Acquisition Program (MDAP) Support, (5) Next Generation Chemical Standoff Detection (NGCSD), and (6) Chemical Biological Radiological Nuclear Dismounted Reconnaissance Systems (CBRN DRS), formerly JNBCRS Increment 2 .

The JBSDS is employing an incremental acquisition strategy. JBSDS Increment 1 is the first standoff early warning biological detection (BD) system for the Joint Services. The system will be capable of providing near real time detection of biological attacks/incidents and standoff early detection/warning (Detect to Warn) of biological Warfare (BW) agents at fixed sites or in static mode on vehicles. It will be capable of providing standoff detection, ranging, tracking, discrimination (man-made vs. natural occurring aerosols) of BW aerosol clouds for advanced warning, reporting, and protection. The JBSDS will augment and integrate with existing BD systems to provide a BD network capable of near real time detection and warning theater-wide to limit the effects of biological agent hazards against U.S. forces at the tactical and operational levels of war. The JBSDS can be employed in support of various areas (e.g., fixed sites, Air Ports of Debarkation/Sea Ports of Debarkation (APODs/SPODs), amphibious landing sites, etc.), or on platforms (ships, aircraft or ground vehicles).

The JBSDS Increment 2 builds on the capabilities demonstrated during the development of JBSDS Increment 1. The JBSDS Increment 2 system will focus on providing 24-hour operations, improving the false alarm rate and detection sensitivity, while decreasing size, weight and power. The JBSDS Increment 2 will also integrate with the global information network to provide near real time detection and warning theater-wide to limit the effect of biological agent hazards against U.S. forces at the tactical and operational levels of war. JBSDS Increment 3 will build on Increment 2 and focus on the development of a system that will operate on-the-move on mobile platforms as determined by the Warfighter. During the Tech Development phase, JBSDS will hold competitive prototyping and key sub-system development, conduct test and evaluation of prototypes, improve agent-simulant modeling, prepare Milestone B documentation and preliminary designs.

The Joint Biological Tactical Detection System (JBTDS) Increment 1 will develop, integrate, test and produce a lightweight, low cost biological surveillance system that will detect, collect and identify biological warfare agent aerosols. JBTDS will provide warning through the Joint Warning And Reporting Network (JWARN) and

an archive sample for follow-on analyses. JBTDS will provide near real time local audio and visual alarm. JBTDS components will be one man portable and battery operable. JBTDS will be used organically at Brigade and below and at Forward Operating Bases (FOB) to provide notification of a hazard and enhanced battle space awareness to protect and preserve the force. When networked, JBTDS will augment existing biological detection systems to provide a theater-wide seamless array capable of biological detection, identification and warning.

The JSLSCAD effort initiated the component improvements and the Technology Readiness Assessment (TRA) for the System of Systems (SoS) approach to address the CB early warning mission within the Next Generation Chemical Standoff Detection (NGCSD) program. The NGCSD SoS approach will increase the range of standoff detection and decrease detection time.

The Major Defense Acquisition Program (MDAP) Support program will integrate System of Systems (SoS) solutions across the Armed Services for Major Defense Acquisition Programs (MDAP) having Chemical and Biological Radiological and Nuclear (CBRN) survivability requirements. The program will demonstrate modular, net-centric, "plug and play" capabilities for mounted and dismounted CBRN reconnaissance that will establish a common CBRN reconnaissance architecture across the services.

The NGCSD, which was initiated under the JSLSCAD program, will provide early warning for both traditional and non-traditional chemical agent attacks at fixed sites, forward operating bases and on Service designated vehicles and ships. This effort will develop and integrate new standoff sensor technologies for future standoff systems. The detection system will interoperate with the Services and Joint Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) architectures.

The future increments in point detection will focus on capability gaps not addressed by M4 and M4E1 JCAD. Shipboard operation, aircraft operation, unmasking tool as well as improved decontamination verification will be primary focus areas.

The CBRN Dismounted Reconnaissance Systems (CBRN DRS) program fills a mission critical need to enhance CBRN reconnaissance platoon capabilities. The program consists of two phases. Phase I is the Dismounted Reconnaissance (DR) Sets, Kits, and Outfits (SKO) configuration which provides an immediate critical need consisting of Commercial Off-The-Shelf (COTS) and Government Off-The-Shelf (GOTS) equipment integrated into a modular, transportable container for dismounted operations. It will form the basis for Phase II, which is the Monitoring and Survey (MS) SKO. The MS SKO will feature technology insertion, the addition of net-centric capability, and tailoring to focus on the Service-specific needs, to include Non Traditional Agent (NTA) detection.

**B. Accomplishments/Planned Program ($ in Millions)**

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CA4: *CONTAMINATION AVOIDANCE (ACD&P)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) CBRN DRS<br>*FY 2011 Base Plans:*<br>Initiate CBRN DRS program. Initiate technology development and preliminary design to include Non Traditional Agent (NTA) and CBRN Common Sensor Interface (CCSI) efforts. | 0.000 | 0.000 | 1.986 | 0.000 | 1.986 |
| 2) JBSDS Increment 2<br>*FY 2010 Plans:*<br>Provide strategic, tactical planning, government system engineering, program/financial management, costing, contracting, scheduling, acquisition oversight, technical support and milestone documentation.<br>*FY 2011 Base Plans:*<br>Continue strategic, tactical planning, government system engineering, program/financial management, costing, contracting, scheduling, acquisition oversight, technical support and milestone documentation. | 0.000 | 4.132 | 5.443 | 0.000 | 5.443 |
| 3) JBSDS Increment 2<br>*FY 2010 Plans:*<br>Initiate Agent Performance Assessment and Cross Section Measurements.<br>*FY 2011 Base Plans:*<br>Continue Agent Performance Assessment and Cross Section Measurements. | 0.000 | 1.250 | 1.500 | 0.000 | 1.500 |
| 4) JBSDS Increment 2<br>*FY 2010 Plans:*<br>Initiate Increment 2 Modeling and Simulation in support of Agent Performance Assessment.<br>*FY 2011 Base Plans:*<br>Continuing Increment 2 Modeling and Simulation in support of Agent Performance Assessment. | 0.000 | 1.500 | 2.000 | 0.000 | 2.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 5) JBSDS Increment 2<br>*FY 2010 Plans:*<br>Initiate Technology Development and Preliminary Designs including competitive prototyping.<br>*FY 2011 Base Plans:*<br>Continue Technology Development and Preliminary Designs and competitive prototyping. | 0.000 | 9.701 | 10.336 | 0.000 | 10.336 |
| 6) JBSDS Increment 2<br>*FY 2010 Plans:*<br>Provide developmental test organizations funding to support test planning and test support for evaluation of the competitive prototypes. | 0.000 | 1.100 | 0.000 | 0.000 | 0.000 |
| 7) JBSDS Increment 2<br>*FY 2011 Base Plans:*<br>Initiate pre-Milestone B contractual activities including development of proposal package, release of draft request for proposal (RFP), update RFP with CDD requirements and comments from industry, conduct government evaluation team source selection training, and system engineering activities leading up to Engineering and Manufacturing Development phase. | 0.000 | 0.000 | 2.425 | 0.000 | 2.425 |
| 8) JBSDS Increment 2<br>*FY 2011 Base Plans:*<br>Initiate validation of simulants, models, and test support equipment including referee equipment development for the evaluation of competitive prototypes and advance development hardware. | 0.000 | 0.000 | 6.447 | 0.000 | 6.447 |
| 9) JBTDS | 2.129 | 3.651 | 3.698 | 0.000 | 3.698 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CA4: *CONTAMINATION AVOIDANCE (ACD&P)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued to provide strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support.<br><br>*FY 2010 Plans:*<br>Continue to provide strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support.<br><br>*FY 2011 Base Plans:*<br>Continue to provide strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. | | | | | |
| 10) JBTDS<br>*FY 2009 Accomplishments:*<br>Conducted Technology Readiness Evaluations on identifier candidates. | 1.045 | 0.000 | 0.000 | 0.000 | 0.000 |
| 11) JBTDS<br>*FY 2009 Accomplishments:*<br>Continued Pre-Milestone A activities, analysis and risk reduction demonstrations.<br><br>*FY 2010 Plans:*<br>Complete Pre-Milestone A activities, analysis and risk reduction demonstrations. | 1.500 | 4.007 | 0.000 | 0.000 | 0.000 |
| 12) JBTDS | 0.235 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued network algorithm development/demonstration. | | | | | |
| 13) JBTDS<br>*FY 2011 Base Plans:*<br>Initiate government testing and analysis, to include Manufacturing Readiness Assessment and Technology Readiness Assessment of hardware submitted for evaluation in Competitive Prototyping. | 0.000 | 0.000 | 2.700 | 0.000 | 2.700 |
| 14) JBTDS<br>*FY 2010 Plans:*<br>Initiate competitive prototyping contracts effort for JBTDS Increment 1 prototypes.<br>*FY 2011 Base Plans:*<br>Continue competitive prototyping contracts effort for JBTDS Increment 1 prototypes. | 0.000 | 1.800 | 1.500 | 0.000 | 1.500 |
| 15) JBTDS<br>*FY 2011 Base Plans:*<br>Initiate technology development phase activities to mature technologies that are at Technology Readiness Level 4 (TRL 4). | 0.000 | 0.000 | 0.900 | 0.000 | 0.900 |
| 16) JBTDS<br>*FY 2010 Plans:*<br>Conduct field demonstration analysis for end to end integrated candidates at government test ranges. | 0.000 | 1.106 | 0.000 | 0.000 | 0.000 |
| 17) JBTDS | 0.000 | 0.000 | 1.434 | 0.000 | 1.434 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Initiate activities to support Milestone B Engineering and Manufacturing Development (EMD) phase requirements and milestone documentation development. | | | | | |
| 18) JBTDS<br>*FY 2011 Base Plans:*<br>Initiate assay transition with Critical Reagents Program (CRP) for identifier to include emerging bio-surveillance threats approved by threat agencies. | 0.000 | 0.000 | 2.500 | 0.000 | 2.500 |
| 19) JBTDS<br>*FY 2011 Base Plans:*<br>Initiate pre-MS B contractual efforts including development of proposal package, release draft Request For Proposal (RFP), prepare final EMD RFP, release RFP, conduct source selection training, conduct source selection and complete proposal evaluations. | 0.000 | 0.000 | 3.400 | 0.000 | 3.400 |
| 20) JCAD<br>*FY 2011 Base Plans:*<br>Initiate Analysis of Alternatives for the future increments in point detection. | 0.000 | 0.000 | 1.986 | 0.000 | 1.986 |
| 21) JSLSCAD<br>*FY 2009 Accomplishments:*<br>Conducted strategic/tactical planning, systems engineering, and technology assessment for Next Generation Chemical Standoff Detection (NGCSD). | 0.907 | 0.000 | 0.000 | 0.000 | 0.000 |
| 22) JSLSCAD | 0.577 | 0.000 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Conducted Testing Evaluation and Methodology Analysis for NGCSD. | | | | | |
| 23) JSLSCAD<br>*FY 2009 Accomplishments:*<br>Integrated Requirements Analysis, Development, and Demonstration for NGCSD. | 0.123 | 0.000 | 0.000 | 0.000 | 0.000 |
| 24) MDAP SPRT<br>Catalytic Oxidation (CatOx) Technology Demonstration of improved air purification for the Abrams Main Battle Tank.<br>*FY 2010 Plans:*<br>Initiate transition of CatOx air purification process for design to increase CBRN defensive capability and reduce logistical costs.<br>*FY 2011 Base Plans:*<br>Initiate developmental (shock, vibration, temperature, dust environment) testing of CatOx prototypes in the Abrams Main Battle Tank operating environment. | 0.000 | 1.100 | 0.900 | 0.000 | 0.900 |
| 25) MDAP SPRT<br>Chemical, Biological, Radiological and Nuclear (CBRN) Capabilities Analysis<br>*FY 2010 Plans:*<br>Conduct CBRN Capabilities Analysis for Ground Combat Vehicle.<br>*FY 2011 Base Plans:*<br>Conduct CBRN Capabilities Analysis for the Ship to Shore Connector and Ground Combat Vehicle. | 0.000 | 0.200 | 0.500 | 0.000 | 0.500 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 26) MDAP SPRT<br>Chemical, Biological, Radiological and Nuclear (CBRN) Material Solutions Analysis.<br>*FY 2010 Plans:*<br>Conduct CBRN Material Solutions Analysis for Ground Combat Vehicle.<br>*FY 2011 Base Plans:*<br>Complete CBRN Material Solutions Analysis for Ground Combat Vehicle. Initiate the CBRN Material Solutions Analysis for Ship to Shore Connector, Apache Block Three, and Next Generation Cruiser (CG(X)). | 0.000 | 0.216 | 1.577 | 0.000 | 1.577 |
| 27) NGCSD<br>*FY 2010 Plans:*<br>Initiate sensor prototype development.<br>*FY 2011 Base Plans:*<br>Continue sensor prototype development. | 0.000 | 4.500 | 6.015 | 0.000 | 6.015 |
| 28) NGCSD<br>*FY 2010 Plans:*<br>Conduct Technology Readiness Evaluation (TRE) and support of Analysis of Alternatives (AoA).<br>*FY 2011 Base Plans:*<br>Continue support of Analysis of Alternatives (AoA). | 0.000 | 1.833 | 0.300 | 0.000 | 0.300 |
| 29) NGCSD | 0.000 | 2.800 | 1.500 | 0.000 | 1.500 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Initiate engineering support.<br><br>*FY 2011 Base Plans:*<br>Continue engineering support. | | | | | |
| 30) NGCSD<br>*FY 2011 Base Plans:*<br>Initiate Pre-MS B prototype procurement (3 each of 3 technologies at a cost of $300 thousand each). | 0.000 | 0.000 | 2.700 | 0.000 | 2.700 |
| 31) NGCSD<br>*FY 2011 Base Plans:*<br>Initiate planning for Early Operational Assessment (EOA). | 0.000 | 0.000 | 0.400 | 0.000 | 0.400 |
| 32) NGCSD<br>*FY 2011 Base Plans:*<br>Initiate prototype Developmental Test (DT) planning and execution. | 0.000 | 0.000 | 1.200 | 0.000 | 1.200 |
| 33) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.493 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 6.516 | 39.389 | 63.347 | 0.000 | 63.347 |

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: 1) JBSDS Increment 2 | 1.187 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| *FY 2009 Accomplishments:*<br>Initiated Testing and Support Equipment Development. | | |
| Congressional Add: 2) JBTDS | 0.000 | 0.797 |
| *FY 2010 Plans:*<br>Initiate Sample Preparation for Biological Detection | | |
| Congressional Adds Subtotals | 1.187 | 0.797 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CA5: *CONTAMINATION AVOIDANCE (SDD)* | 46.316 | 78.042 | 124.936 | | 124.936 | 117.729 | 110.250 | 89.493 | 58.830 | Continuing | Continuing |
| • JC0100: *JOINT BIO POINT DETECTION SYSTEM (JBPDS)* | 75.545 | 41.976 | 43.555 | | 43.555 | 41.252 | 52.776 | 73.164 | 71.894 | Continuing | Continuing |
| • JC0101: *JS CHEM/BIO/RAD AGENT WATER MONITOR (JCBRAWM)* | 6.000 | 3.184 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • JC0250: *JOINT BIO STANDOFF DETECTOR SYSTEM (JBSDS)* | 4.000 | 0.000 | 0.000 | | 0.000 | 0.273 | 19.840 | 20.834 | 35.728 | Continuing | Continuing |
| • JC4500: *NEXT GENERATION CHEMICAL STANDOFF DETECTION (NGCSD)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 9.840 | 12.120 | 21.799 | Continuing | Continuing |
| • JF0100: *JOINT CHEMICAL AGENT DETECTOR (JCAD)* | 58.406 | 27.694 | 40.071 | | 40.071 | 45.805 | 52.762 | 53.330 | 63.217 | Continuing | Continuing |
| • JN0900: *NON TRADITIONAL AGENT DETECTION (NTAD)* | 0.000 | 0.000 | 4.178 | | 4.178 | 4.075 | 3.376 | 6.745 | 8.918 | Continuing | Continuing |

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**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • MC0100: *JOINT NBC RECONNAISSANCE SYSTEM (JNBCRS)* | 32.699 | 32.421 | 22.511 | | 22.511 | 65.779 | 122.214 | 50.385 | 0.000 | Continuing | Continuing |
| • MC0101: *CBRN DISMOUNTED RECONNAISSANCE SYSTEMS (CBRN DRS)* | 0.000 | 11.415 | 15.414 | | 15.414 | 24.056 | 33.504 | 56.718 | 53.938 | Continuing | Continuing |
| • MC0102: *JOINT CONTAMINATED SURFACE DETECTOR (JCSD)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 5.288 | 40.072 | Continuing | Continuing |
| • MX0001: *JOINT BIO TACTICAL DETECTION SYSTEM (JBTDS)* | 0.000 | 0.000 | 0.000 | | 0.000 | 8.080 | 19.060 | 29.237 | 33.933 | Continuing | Continuing |

**D. Acquisition Strategy**

CBRN DRS

The Chemical Biological Radiological Nuclear Dismounted Reconnaissance Systems (CBRN DRS) program uses spiral development with an evolutionary component/ suite upgrade acquisition approach. Funding finalizes the design to provide the Services with enhanced full spectrum CBRN detection capability to support strategic, operational, and tactical objectives at lower life cycle costs. CBRN DRS will enhance the Situational Awareness (SA) by providing a dismounted ability to detect chemical, biological and radiological hazards across the Range of Military Operations (ROMO) and employ contamination avoidance activities to prevent disruption to operations and organizations.

JBSDS

The Joint Bio Stand-off Detector System (JBSDS) is employing an incremental acquisition strategy. JBSDS Increment 1 is the first standoff early warning biological detection (BD) system for the Joint Services. The JBSDS Increment 2 system will focus on providing 24-hour operations (Increment 1 is night-time only), improving the false alarm rate and detection sensitivity, while decreasing size, weight and power. The JBSDS Increment 2 will also integrate with the global information network to provide near real time detection and warning theater-wide to limit the effect of biological agent hazards against U.S. forces at the tactical and operational levels of war. JBSDS Increment 3 will build on Increment 2 and focus on the development of a system that will operate on-the-move on mobile platforms as determined by the Warfighter.

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JBTDS

The Joint Biological Tactical Detection (JBTDS) program will pursue an evolutionary incremental approach to provide capability to the Warfighter. The JBTDS program will develop, integrate, test, procure and field systems that improve biological aerosol detection, identification, and sampling capabilities. The JBTDS program will also reduce size, weight, power consumption, and logistic footprint over current systems. Test Readiness Evaluations (TRE) and Competitive Prototyping will support the JBTDS Engineering and Manufacturing Development (EMD) phase by identifying mature technologies and reducing overall risk. Modeling and simulation tools will be used in order to lower program risks, reduce costs and ensure a higher confidence in selected technologies.

JCAD

The current strategy employs a product improvement of the M4 JCAD to reduce Life Cycle costs, transition to a competitive procurement contract, and attain objective capability. Three competitive fixed-price contracts for the M4E1 were awarded in Sep 2007 for prototypes and options for full rate production. Competitive prototype testing was conducted and one system was selected for continued development. The production options will be exercised in FY11 following a successful production cut-in decision.

JSLSCAD

The acquisition strategy for the Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD) production phase focused upon a dual path to procure required systems and concurrently develop and test system improvements to increase the military utility. The Milestone Decision Authority (MDA) approved procurement of additional JSLSCAD LRIP systems in February 2008. The Government awarded a Fixed Price Incentive contract to GD-ATP in July 2008 for production of systems to fulfill the Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Extended LRIP requirements and additional delivery orders will be exercised for full rate production of systems to fulfill the remaining NBCRV requirements. The JSLSCAD program office awarded multiple contracts to support system engineering, software development, test and evaluation, and system support efforts to increase standoff detection capabilities to rapidly respond to evolving system integration requirements with minimal contractual lead time. All these efforts are being integrated into the Next Generation Chemical Standoff Detection (NGCSD) program.

MDAP SPRT

Major Defense Acquisition Program (MDAP) Support program will integrate System of Systems (SoS) solutions across the Armed Service's for Major Defense Acquisition Programs (MDAP) having Chemical and Biological Radiological and Nuclear (CBRN) survivability requirements. The MDAP program will achieve these SoS solutions by: (1) leading CBRN architecture development and System Engineering efforts that result in enterprise concepts that address requirements; (2) establishing agreements with the MDAPs on roles and responsibilities with respect to funding deliverables and integration; (3) demonstrating modular, net-centric,

"plug and play" capabilities for mounted and dismounted CBRN reconnaissance requirements; (4) developing design and test schedules which synchronize support for CBRN capability integration with MDAPs' schedules; and (5) providing integrated program management across the CBRN commodity areas to deliver capabilities on time that support MDAP goals.

NGCSD

The Next Generation Chemical Standoff Detection (NGCSD) program, which was initiated under the JSLSCAD program, will award Indefinite Delivery/Indefinite Quantity contract(s) to support system engineering, software development, test and evaluation, and system support efforts to increase standoff detection capabilities. This contract type will allow the program office to rapidly respond to evolving system integration requirements and emerging test results with minimal contractual lead time. This will optimize the program goal of inserting the latest software and standoff detection technology into the host platforms in the shortest possible time.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
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**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CBRN DRS - HW C - CBRN DRS Preliminary Design | C/FP | TBD | 0.000 | 0.000 | | 1.386 | Jan 2011 | 0.000 | | 1.386 | 0.000 | 1.386 | 0.000 |
| ** JBSDS - HW SB - Technology Development and Preliminary Designs | C/FPI | TBD | 0.000 | 9.701 | Jan 2010 | 10.336 | Oct 2010 | 0.000 | | 10.336 | 0.000 | 20.037 | 0.000 |
| ** JBTDS - HW S - Competitive Prototype Contract | C/FFP | TBD | 0.000 | 1.800 | Jul 2010 | 1.500 | Oct 2010 | 0.000 | | 1.500 | 0.000 | 3.300 | 0.000 |
| HW S - EMD Contract development and Source Selection Activities | C/CPIF | TBD | 0.000 | 0.000 | | 3.400 | Apr 2011 | 0.000 | | 3.400 | 0.000 | 3.400 | 0.000 |
| HW S - Tech Development | C/FP | TBD | 0.000 | 0.000 | | 0.900 | Jan 2011 | 0.000 | | 0.900 | 0.000 | 0.900 | 0.000 |
| HW S - Automated Sample Prep | SS/FFP | TBD | 0.000 | 0.797 | Jul 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.797 | 0.000 |
| ** JCAD - SW SB - Initiate Sensor Prototype Development | C/CPFF | TBD | 0.000 | 0.000 | | 0.750 | Jan 2011 | 0.000 | | 0.750 | 0.000 | 0.750 | 0.000 |
| ** MDAP SPRT - HW S - Catalytic Oxidation (CatOx) Technology Demonstration | C/CPFF | Honeywell Corporation Phoenix, AZ | 0.000 | 1.100 | Jan 2010 | 0.900 | Jan 2011 | 0.000 | | 0.900 | 0.000 | 2.000 | 0.000 |
| ** NGCSD - HW SB - Initiate Sensor Prototype Development | C/CPFF | TBD | 0.000 | 4.500 | Apr 2010 | 6.015 | Apr 2011 | 0.000 | | 6.015 | 0.000 | 10.515 | 0.000 |

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**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| SW SB - Pre-MS B Prototype Acquisition (3 each of 3 technologies) | C/CPFF | TBD | 0.000 | 0.000 | | 2.700 | Jan 2011 | 0.000 | | 2.700 | 0.000 | 2.700 | 0.000 |
| | | **Subtotal** | 0.000 | 17.898 | | 27.887 | | 0.000 | | 27.887 | 0.000 | 45.785 | 0.000 |

**Remarks**

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JBSDS - ES S - INC 2 - Modeling & Simulation Test Support | C/CPFF | Bricks<br>Sigal & Miller Inc., Kennett Square | 0.000 | 0.400 | Jan 2010 | 0.500 | Jan 2011 | 0.000 | | 0.500 | 0.000 | 0.900 | 0.000 |
| ES S - INC 2 - Modeling & Simulation Test Support | C/CPFF | NAVSEA<br>Johns Hopkins-Applied Physics Lab, Baltimore | 0.000 | 1.500 | Jan 2010 | 1.436 | Jan 2011 | 0.000 | | 1.436 | 0.000 | 2.936 | 0.000 |
| ES S - INC 2 - Modeling & Simulation Test Support #2 | MIPR | Sandia National Lab<br>Albuquerque, NM | 0.000 | 0.500 | Jan 2010 | 0.936 | Jan 2011 | 0.000 | | 0.936 | 0.000 | 1.436 | 0.000 |
| ES S - INC 2 - Modeling, Simulation & Data Analysis | MIPR | Various | 0.000 | 0.350 | Oct 2009 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.350 | 0.000 |

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**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JBTDS - ES S - Pre MS A Analysis & Activities | MIPR | Various | 1.714 | 3.229 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 4.943 | 0.000 |
| ES S - EMD Activities & Analysis and Document Development | MIPR | Various | 0.000 | 0.000 | | 1.434 | Jan 2011 | 0.000 | | 1.434 | 0.000 | 1.434 | 0.000 |
| ES S - Assay Development | MIPR | CRP Frederick, MD | 0.000 | 0.000 | | 2.500 | Apr 2011 | 0.000 | | 2.500 | 0.000 | 2.500 | 0.000 |
| ES S - MS A Document Development | C/FFP | TBD | 0.000 | 0.778 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.778 | 0.000 |
| ** JCAD - TD/D SB - MS A | MIPR | TBD | 0.000 | 0.000 | | 0.500 | Oct 2010 | 0.000 | | 0.500 | 0.000 | 0.500 | 0.000 |
| ** MDAP SPRT - ES S - CBRN Capability Analysis | MIPR | Various | 0.000 | 0.200 | Jan 2010 | 0.500 | Jan 2011 | 0.000 | | 0.500 | 0.000 | 0.700 | 0.000 |
| ES S - CBRN Material Solutions Analysis | MIPR | Various | 0.000 | 0.216 | Jan 2010 | 1.577 | Jan 2011 | 0.000 | | 1.577 | 0.000 | 1.793 | 0.000 |
| ** NGCSD - TD/D S - AoA | MIPR | TBD | 0.000 | 0.500 | Jan 2010 | 0.300 | Jan 2011 | 0.000 | | 0.300 | 0.000 | 0.800 | 0.000 |
| | | Subtotal | 1.714 | 7.673 | | 9.683 | | 0.000 | | 9.683 | 0.000 | 19.070 | 0.000 |

**Remarks**

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**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JBSDS - OTHT SB - INC 2 - Developmental Testing Support | MIPR | DPG<br>Dugway, UT | 0.000 | 1.100 | Jan 2010 | 5.000 | Jan 2011 | 0.000 | | 5.000 | 0.000 | 6.100 | 0.000 |
| OTHT SB - Networking algorithm development | MIPR | MA Institute of Technology - Lincoln Labs<br>Boston, MA | 0.000 | 0.000 | | 0.500 | Jan 2011 | 0.000 | | 0.500 | 0.000 | 0.500 | 0.000 |
| OTHT SB - Requirements Testing | MIPR | WSMR<br>Nevada Test Site, NV | 0.000 | 0.000 | | 1.000 | Jan 2011 | 0.000 | | 1.000 | 0.000 | 1.000 | 0.000 |
| OTHT SB - Agent performance analysis support | MIPR | DPG<br>Dugway, UT | 0.000 | 0.000 | | 1.000 | Jan 2011 | 0.000 | | 1.000 | 0.000 | 1.000 | 0.000 |
| OTHT SB - Agent performance analysis | MIPR | Johns Hopkins - Applied Physics Lab<br>Baltimore, MD | 0.000 | 0.000 | | 2.000 | Jan 2011 | 0.000 | | 2.000 | 0.000 | 2.000 | 0.000 |
| ** JBTDS - OTHT SB - Competitive Prototype Testing | MIPR | DPG<br>Dugway, UT | 0.000 | 0.000 | | 2.700 | Oct 2010 | 0.000 | | 2.700 | 0.000 | 2.700 | 0.000 |
| DTE SB - Field Demonstration | MIPR | DPG<br>Dugway, UT | 0.000 | 1.106 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.106 | 0.000 |
| ** JCAD - OTHT SB - Technology Demo | MIPR | Various | 0.000 | 0.000 | | 0.500 | Apr 2011 | 0.000 | | 0.500 | 0.000 | 0.500 | 0.000 |
| ** NGCSD - OTHT SB - Conduct TRE | MIPR | Various | 0.000 | 1.333 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.333 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CA4: *CONTAMINATION AVOIDANCE (ACD&P)* |

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| OTHT S - Conduct EOA | MIPR | Various | 0.000 | 0.000 | | 0.400 | Jan 2011 | 0.000 | | 0.400 | 0.000 | 0.400 | 0.000 |
| DTE S - DT Planning and Execution | MIPR | Various | 0.000 | 0.000 | | 1.200 | Jan 2011 | 0.000 | | 1.200 | 0.000 | 1.200 | 0.000 |
| | | Subtotal | 0.000 | 3.539 | | 14.300 | | 0.000 | | 14.300 | 0.000 | 17.839 | 0.000 |

**Remarks**

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CBRN DRS - PM/MS S - JPM CA | MIPR | JPM CA<br>APG, MD | 0.000 | 0.000 | | 0.600 | Oct 2010 | 0.000 | | 0.600 | 0.000 | 0.600 | 0.000 |
| ** JBSDS - PM/MS S - JPM BD | MIPR | JPM BD<br>APG, MD | 0.000 | 1.600 | Jan 2010 | 2.207 | Jan 2011 | 0.000 | | 2.207 | 0.000 | 3.807 | 0.000 |
| PM/MS S - PM/MS Other Government Agencies | MIPR | USN<br>USMC, USAF | 0.000 | 1.632 | Jan 2010 | 0.548 | Jan 2011 | 0.000 | | 0.548 | 0.000 | 2.180 | 0.000 |
| PM/MS S - JPEO Management Support | Allot | JPEO<br>Falls Church, VA | 0.000 | 0.900 | Jul 2010 | 2.688 | Jul 2011 | 0.000 | | 2.688 | 0.000 | 3.588 | 0.000 |
| ** JBTDS - PM/MS S - JPM BD, APG, MD | MIPR | JPM BD<br>APG, MD | 3.059 | 3.651 | Jan 2010 | 3.698 | Oct 2010 | 0.000 | | 3.698 | 0.000 | 10.408 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CA4: *CONTAMINATION AVOIDANCE (ACD&P)* |

**Management Services ($ in Millions)**

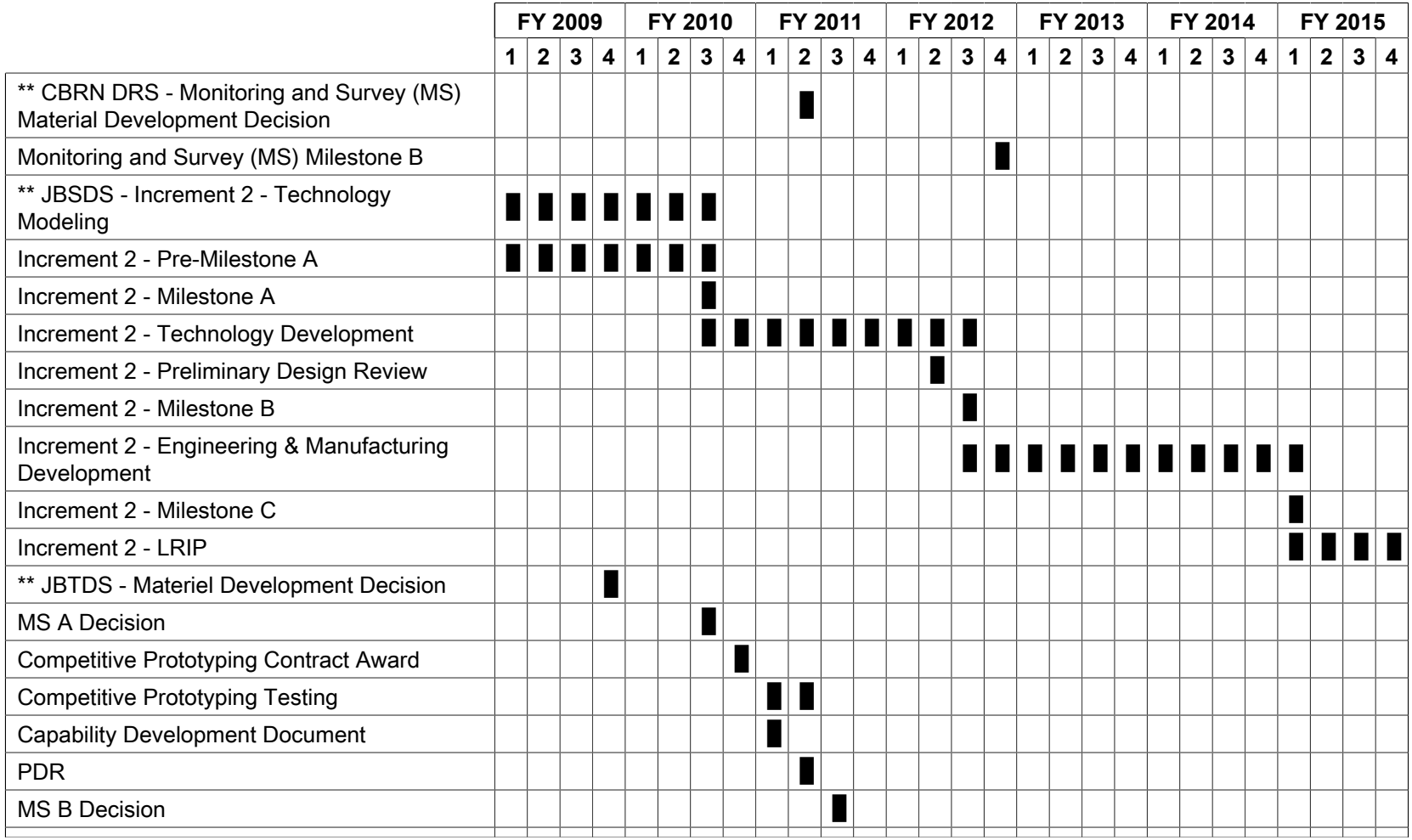
| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JCAD - PM/ MS SB - Program Management and Systems Engineering Support | MIPR | JPM NBC CA APG, MD | 0.000 | 0.000 | | 0.236 | Oct 2010 | 0.000 | | 0.236 | 0.000 | 0.236 | 0.000 |
| ** NGCSD - PM/ MS S - Program Management and Systems Engineering Support | MIPR | JPM NBC CA APG, MD | 0.000 | 2.800 | Oct 2009 | 1.500 | Oct 2010 | 0.000 | | 1.500 | 0.000 | 4.300 | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | MIPR | HQ AMC, Alexandria | 0.000 | 0.493 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.493 | 0.000 |
| | | Subtotal | 3.059 | 11.076 | | 11.477 | | 0.000 | | 11.477 | 0.000 | 25.612 | 0.000 |

**Remarks**

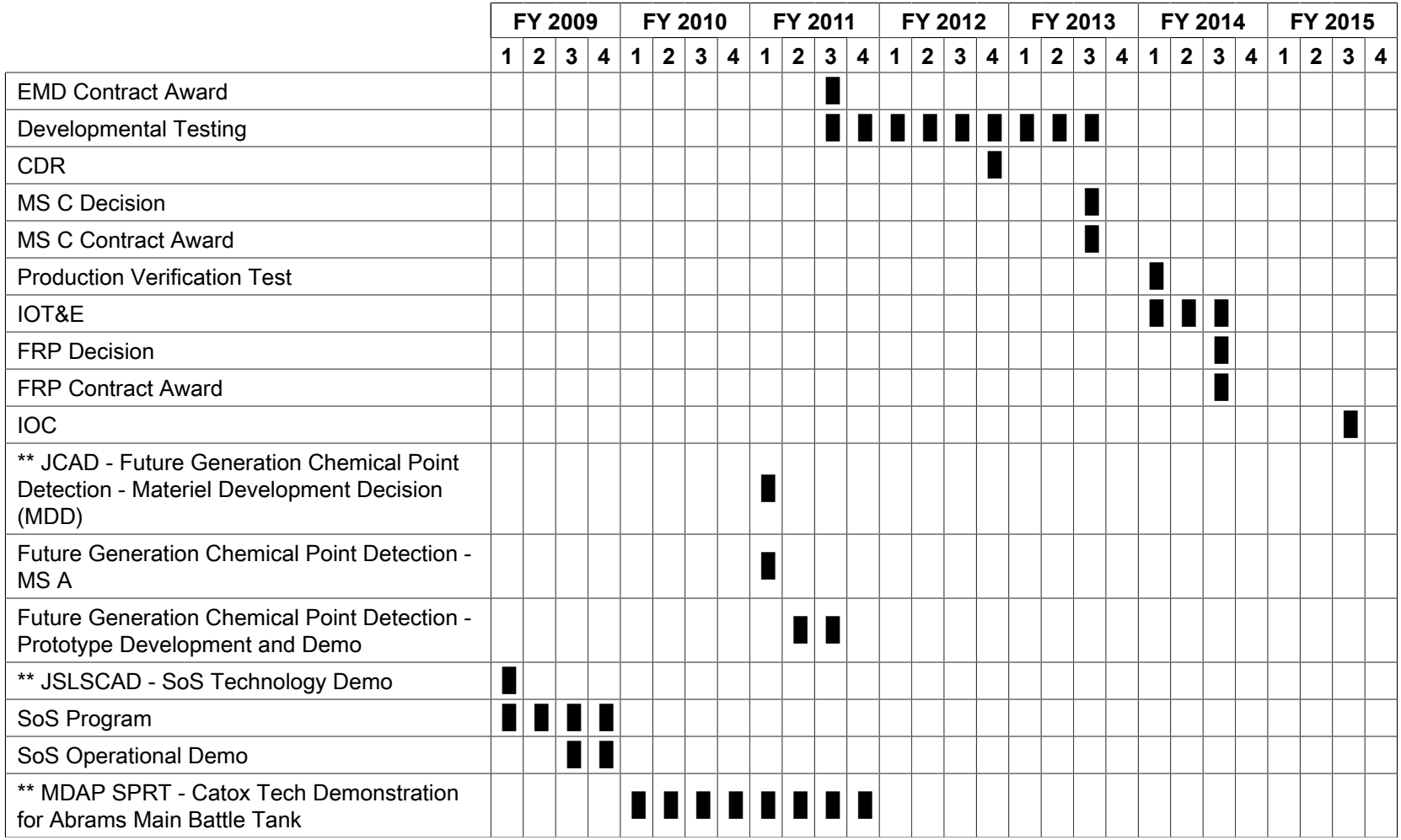
| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | 4.773 | 40.186 | | 63.347 | | 0.000 | | 63.347 | 0.000 | 108.306 | 0.000 |

**Remarks**

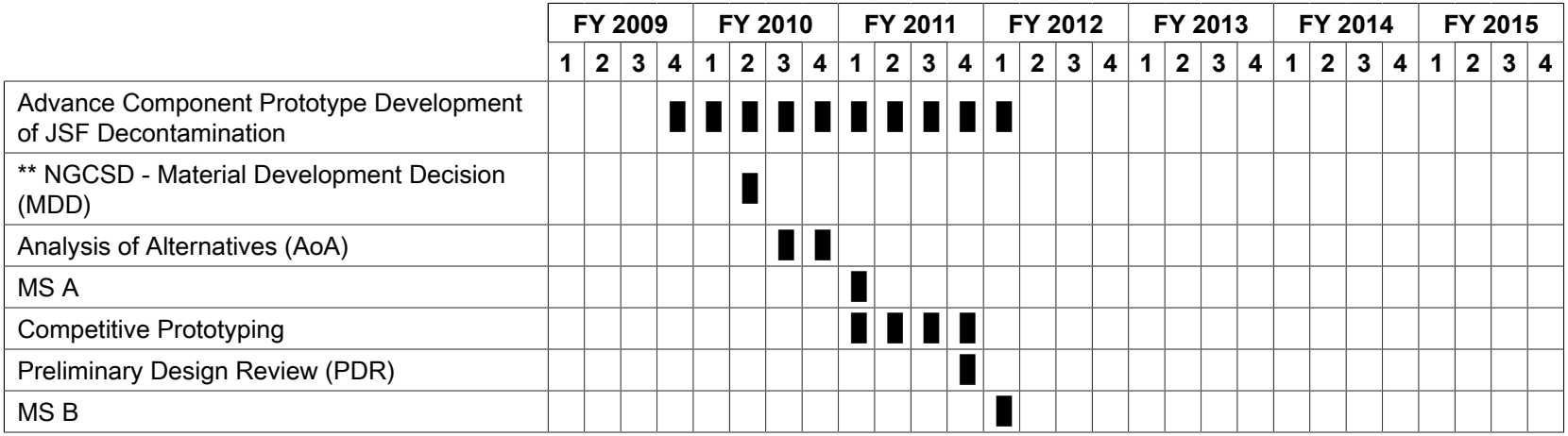
| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CA4: *CONTAMINATION AVOIDANCE (ACD&P)* | |



| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CA4: *CONTAMINATION AVOIDANCE (ACD&P)* | |



| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CA4: *CONTAMINATION AVOIDANCE (ACD&P)* | |



| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CA4: *CONTAMINATION AVOIDANCE (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** CBRN DRS - Monitoring and Survey (MS) Material Development Decision | 2 | 2011 | 2 | 2011 |
| Monitoring and Survey (MS) Milestone B | 4 | 2012 | 4 | 2012 |
| ** JBSDS - Increment 2 - Technology Modeling | 4 | 2004 | 3 | 2010 |
| Increment 2 - Pre-Milestone A | 1 | 2008 | 3 | 2010 |
| Increment 2 - Milestone A | 3 | 2010 | 3 | 2010 |
| Increment 2 - Technology Development | 3 | 2010 | 3 | 2012 |
| Increment 2 - Preliminary Design Review | 2 | 2012 | 2 | 2012 |
| Increment 2 - Milestone B | 3 | 2012 | 3 | 2012 |
| Increment 2 - Engineering & Manufacturing Development | 3 | 2012 | 1 | 2015 |
| Increment 2 - Milestone C | 1 | 2015 | 1 | 2015 |
| Increment 2 - LRIP | 1 | 2015 | 2 | 2017 |
| ** JBTDS - Materiel Development Decision | 4 | 2009 | 4 | 2009 |
| MS A Decision | 3 | 2010 | 3 | 2010 |
| Competitive Prototyping Contract Award | 4 | 2010 | 4 | 2010 |
| Competitive Prototyping Testing | 1 | 2011 | 2 | 2011 |
| Capability Development Document | 1 | 2011 | 1 | 2011 |
| PDR | 2 | 2011 | 2 | 2011 |
| MS B Decision | 3 | 2011 | 3 | 2011 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CA4: *CONTAMINATION AVOIDANCE (ACD&P)* |

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| EMD Contract Award | 3 | 2011 | 3 | 2011 |
| Developmental Testing | 3 | 2011 | 3 | 2013 |
| CDR | 4 | 2012 | 4 | 2012 |
| MS C Decision | 3 | 2013 | 3 | 2013 |
| MS C Contract Award | 3 | 2013 | 3 | 2013 |
| Production Verification Test | 1 | 2014 | 1 | 2014 |
| IOT&E | 1 | 2014 | 3 | 2014 |
| FRP Decision | 3 | 2014 | 3 | 2014 |
| FRP Contract Award | 3 | 2014 | 3 | 2014 |
| IOC | 3 | 2015 | 3 | 2015 |
| ** JCAD - Future Generation Chemical Point Detection - Materiel Development Decision (MDD) | 1 | 2011 | 1 | 2011 |
| Future Generation Chemical Point Detection - MS A | 1 | 2011 | 1 | 2011 |
| Future Generation Chemical Point Detection - Prototype Development and Demo | 2 | 2011 | 3 | 2011 |
| ** JSLSCAD - SoS Technology Demo | 4 | 2008 | 1 | 2009 |
| SoS Program | 4 | 2008 | 4 | 2009 |
| SoS Operational Demo | 3 | 2009 | 4 | 2009 |
| ** MDAP SPRT - Catox Tech Demonstration for Abrams Main Battle Tank | 1 | 2010 | 4 | 2011 |
| Advance Component Prototype Development of JSF Decontamination | 4 | 2009 | 1 | 2012 |
| ** NGCSD - Material Development Decision (MDD) | 2 | 2010 | 2 | 2010 |
| Analysis of Alternatives (AoA) | 3 | 2010 | 4 | 2010 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CA4: *CONTAMINATION AVOIDANCE (ACD&P)* |

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| MS A | 1 | 2011 | 1 | 2011 |
| Competitive Prototyping | 1 | 2011 | 4 | 2011 |
| Preliminary Design Review (PDR) | 4 | 2011 | 4 | 2011 |
| MS B | 1 | 2012 | 1 | 2012 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CM4: *HOMELAND DEFENSE (ACD&P)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CM4: *HOMELAND DEFENSE (ACD&P)* | 0.000 | 0.000 | 9.526 | 0.000 | 9.526 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This project funds initial development of the Common Analytical Laboratory System (CALS) to include evaluation and selection of subsystems (analytical detection, laboratory information management, data fusion, engineering controls) as well as development of a set of modular designed configurations for system level prototyping utilizing open system architecture. In addition, it provides for validation and demonstration of desired functional capabilities.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) CALS<br>*FY 2011 Base Plans:*<br>Continue program office planning and programming. | 0.000 | 0.000 | 0.513 | 0.000 | 0.513 |
| 2) CALS<br>*FY 2011 Base Plans:*<br>Continue system engineering and logistics support. | 0.000 | 0.000 | 1.017 | 0.000 | 1.017 |
| 3) CALS<br>*FY 2011 Base Plans:*<br>Complete subsystem design and development - open architecture design analytics and laboratory information management. | 0.000 | 0.000 | 1.837 | 0.000 | 1.837 |
| 4) CALS | 0.000 | 0.000 | 5.511 | 0.000 | 5.511 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CM4: *HOMELAND DEFENSE (ACD&P)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Develop system prototypes - alternative system configuration approaches. | | | | | |
| 5) CALS<br>*FY 2011 Base Plans:*<br>Initiate system demonstration and validation. | 0.000 | 0.000 | 0.648 | 0.000 | 0.648 |
| Accomplishments/Planned Programs Subtotals | 0.000 | 0.000 | 9.526 | 0.000 | 9.526 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CM5: *HOMELAND DEFENSE (SDD)* | 3.897 | 8.638 | 1.166 | | 1.166 | 3.822 | 0.000 | 2.361 | 2.413 | Continuing | Continuing |
| • JS0004: *WMD - CIVIL SUPPORT TEAMS (WMD CST)* | 8.300 | 11.765 | 39.862 | | 39.862 | 33.402 | 37.398 | 44.817 | 47.159 | Continuing | Continuing |
| • JS0500: *CB INSTALLATION/ FORCE PROTECTION PROGRAM (FORCE PROT)* | 80.103 | 53.623 | 50.773 | | 50.773 | 60.324 | 59.836 | 57.840 | 54.455 | Continuing | Continuing |

**D. Acquisition Strategy**

CALS

The Common Analytical Laboratory System (CALS) will follow an incremental approach designed to address known joint force capability requirements for Chemical, Biological, Radiological and Nuclear (CBRN) detection which includes Toxic Industrial Chemicals (TICs), Toxic Industrial Materials (TIMs), Chemical Warfare Agents (CWAs), Biological Warfare Agents (BWAs). CALS will address situational awareness by leveraging efforts underway with JPEO-CBD to the extent possible. CALS will accommodate these component requirements within a modular and scalable concept framework.

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CM4: *HOMELAND DEFENSE (ACD&P)* |

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CM4: *HOMELAND DEFENSE (ACD&P)* | |

**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CALS - HW SB - Analytical Subsystem Evaluation and Selection | C/CPIF | TBD | 0.000 | 0.000 | | 0.473 | Jan 2011 | 0.000 | | 0.473 | 0.000 | 0.473 | 0.000 |
| SW SB - Information Technology Subsystem Evaluation and Selection | C/CPIF | TBD | 0.000 | 0.000 | | 0.480 | Jan 2011 | 0.000 | | 0.480 | 0.000 | 0.480 | 0.000 |
| HW S - Analytical Protocol Development | MIPR | TBD | 0.000 | 0.000 | | 0.884 | Jan 2011 | 0.000 | | 0.884 | 0.000 | 0.884 | 0.000 |
| HW S - CALS Prototype Systems | C/CPIF | TBD | 0.000 | 0.000 | | 5.511 | Jan 2011 | 0.000 | | 5.511 | 0.000 | 5.511 | 0.000 |
| | | **Subtotal** | 0.000 | 0.000 | | 7.348 | | 0.000 | | 7.348 | 0.000 | 7.348 | 0.000 |

**Remarks**

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CALS - ES S - Engineering Support System - CALS | MIPR | TBD | 0.000 | 0.000 | | 0.513 | Oct 2010 | 0.000 | | 0.513 | 0.000 | 0.513 | 0.000 |
| | | **Subtotal** | 0.000 | 0.000 | | 0.513 | | 0.000 | | 0.513 | 0.000 | 0.513 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CM4: *HOMELAND DEFENSE (ACD&P)* | |

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |

Remarks

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CALS - OTHT S - CALS Prototype Demonstration and Validation | MIPR | TBD | 0.000 | 0.000 | | 0.648 | Apr 2011 | 0.000 | | 0.648 | 0.000 | 0.648 | 0.000 |
| | | Subtotal | 0.000 | 0.000 | | 0.648 | | 0.000 | | 0.648 | 0.000 | 0.648 | 0.000 |

Remarks

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CALS - PM/MS S - Program Office | MIPR | TBD | 0.000 | 0.000 | | 1.017 | Jan 2011 | 0.000 | | 1.017 | 0.000 | 1.017 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CM4: *HOMELAND DEFENSE (ACD&P)* |

**Management Services ($ in Millions)**

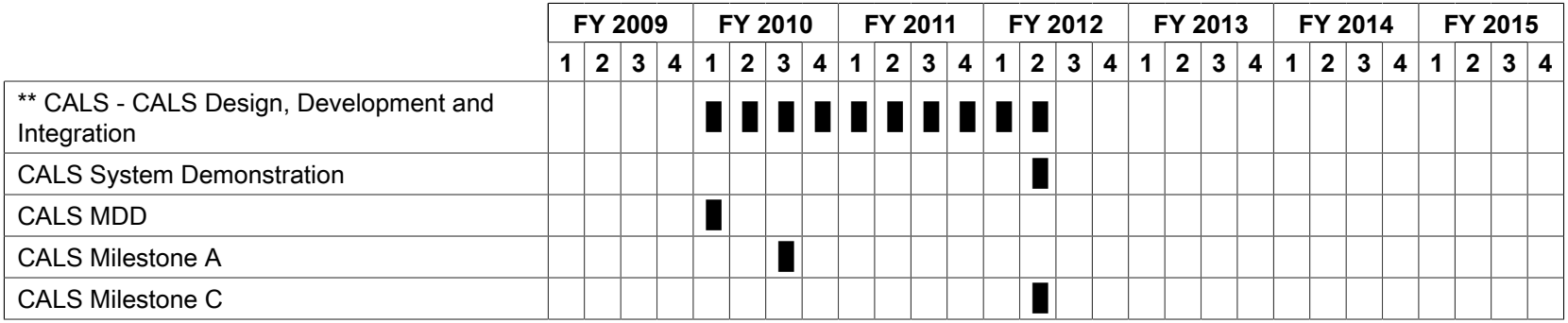
| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| - Planning and Programming | | | | | | | | | | | | | |
| | | Subtotal | 0.000 | 0.000 | | 1.017 | | 0.000 | | 1.017 | 0.000 | 1.017 | 0.000 |

**Remarks**

| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | 0.000 | 0.000 | | 9.526 | | 0.000 | | 9.526 | 0.000 | 9.526 | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CM4: *HOMELAND DEFENSE (ACD&P)* | |



| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **PROJECT**<br>CM4: *HOMELAND DEFENSE (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** CALS - CALS Design, Development and Integration | 1 | 2010 | 2 | 2012 |
| CALS System Demonstration | 2 | 2012 | 2 | 2012 |
| CALS MDD | 1 | 2010 | 1 | 2010 |
| CALS Milestone A | 3 | 2010 | 3 | 2010 |
| CALS Milestone C | 2 | 2012 | 2 | 2012 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CP4: *COUNTERPROLIFERATION SUPPORT (ACD&P)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CP4: *COUNTERPROLIFERATION SUPPORT (ACD&P)* | 2.373 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This project provides for the Joint Material Decontamination System (JMDS) as a Congressional Interest Item in FY09.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: 1) JMDS<br>*FY 2009 Accomplishments:*<br>Congressional Interest Item - CATOX system. Developed, conducted testing, and integrated a CATOX system into a U.S. Army vehicle. | 2.373 | 0.000 |
| Congressional Adds Subtotals | 2.373 | 0.000 |

**C. Other Program Funding Summary ($ in Millions)**

N/A

**D. Acquisition Strategy**

JMDS

Joint Material Decontamination System (JMDS) - Congressional Interest Item.

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CP4: *COUNTERPROLIFERATION SUPPORT (ACD&P)* |

**E. Performance Metrics**

N/A

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CP4: *COUNTERPROLIFERATION SUPPORT (ACD&P)* | |

| | FY 2009 | | | | FY 2010 | | | | FY 2011 | | | | FY 2012 | | | | FY 2013 | | | | FY 2014 | | | | FY 2015 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| ** JMDS - Catalytic Oxidation Integrated Demonstration | | | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | | |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **PROJECT**<br>CP4: *COUNTERPROLIFERATION SUPPORT (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** JMDS - Catalytic Oxidation Integrated Demonstration | 3 | 2009 | 3 | 2010 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>DE4: *DECONTAMINATION SYSTEMS (ACD&P)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DE4: *DECONTAMINATION SYSTEMS (ACD&P)* | 4.822 | 1.792 | 7.051 | 0.000 | 7.051 | 5.748 | 1.386 | 0.000 | 0.000 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This ACD&P project supports the development of decontamination systems utilizing solutions that will remove and/or detoxify contaminated material without damaging combat equipment, personnel, or the environment. Decontamination systems provide a force restoration capability for units that become contaminated. Development efforts will provide systems that reduce operational impact and logistics burden, reduce sustainment costs, increase safety, and minimize environmental effects over currently fielded decontaminants.

This funding supports Human Remains Decontamination System (HRDS) and Joint Platform Interior Decontamination/Joint Service Sensitive Equipment Decontamination (JPID/JSSED) Congressional Interest Item programs.

The HRDS, Increment I, will utilize mature technologies to provide the capability for safe intra-theater handling and storage of Contaminated Human Remains (CHR) associated with a Chemical Warfare Agent (CWA) event. HRDS will be a Family-of-Systems (FoS) designed to leverage differing technology and requirements readiness across three systems: (1) a Contaminated Human Remains Pouch (CHRP) to support the initial recovery of CHR from Point of Fatality to a Mortuary Affairs Decontamination Collection Point (MADCP); (2) a Contaminated Remains Transfer Case System (CHRTS) capability to store or transport CHR post MADCP operations; and (3) a Remains Decontamination System (RDS) to support the capability to store or transport CHR post MADCP operations. The HRDS will provide the Services the capability to: 1) Safely recover, handle, and transport contaminated human remains prior to decontamination at a MADCP; 2) Enable mortuary affairs units to safely perform their mission with a critical task being that of extensively documenting decedent data and obtaining DNA samples to facilitate positive identification of remains; 3) Fully decontaminate human remains (external), and; 4) Safely allow transport of decontaminated human remains from the MADCP to a final destination in the continental United States for final disposition.

The JPID/JSSED will fill the capability gap to decontaminate chemical and biological warfare agents from vehicle/aircraft/building interiors, sensitive equipment within, and the associated cargo. This is a new capability that currently does not exist in the DoD. The program goal is to use multiple technologies to provide sensitive equipment and platform interiors decontamination capability.

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **PROJECT**<br>DE4: *DECONTAMINATION SYSTEMS (ACD&P)* |

The Decontamination Family of Systems (DFoS) program facilitates the rapid transition of mature Science and Technology (S&T) research developments to existing JPM - Decon Program of Record (PoR) and guides S&T community efforts toward meeting the needs of the Warfighter. Leveraging the outcomes of the Analysis of Alternatives scheduled for FY10, DFoS will develop a FoS, to include equipment, to improve decontamination processes and decontaminant solutions to meet the capability gaps for decontaminating NTA and chemical and biological warfare agents from personnel, equipment, vehicle, ship, and aircraft interiors/exteriors, terrain and fixed facility interiors/exteriors.

Tactical, Cargo, and Rotary Wing Aircraft Decon (Congressional Interest Item): Develop the capability to decontaminate a broad range of military aircraft in the event of a chemical or biological attack.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) DFS<br>*FY 2011 Base Plans:*<br>Initiate development of non-traditional agent (NTA) efforts to include initial studies and modeling for decontamination assurance spray, chemical decontaminant, reactive skin decontamination lotion/ oxime evaluation for NTA decontamination on equipment, effluent decontamination and strippable/ sealant coatings. | 0.000 | 0.000 | 7.051 | 0.000 | 7.051 |
| 2) HRDS<br>*FY 2009 Accomplishments:*<br>Developed and refined metrics to support Analysis of Alternatives. Began development of Technology Development Strategy (TDS), Test and Evaluation Strategy (TES) and Systems Engineering Plan (SEP). | 1.658 | 0.000 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 1.658 | 0.000 | 7.051 | 0.000 | 7.051 |

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: 1) JMDS | 1.582 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **PROJECT**<br>DE4: *DECONTAMINATION SYSTEMS (ACD&P)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| *FY 2009 Accomplishments:*<br>Congressional Interest Item - Reactive Overlay and Removable Coatings. | | |
| Congressional Add: 2) JPID<br>*FY 2009 Accomplishments:*<br>Congressional Interest Item - Environmentally Friendly Aircraft Decontamination System (EFADS). Developed a VHP/Hot Air Prototype Decon System to support the decontamination of Tactical and Cargo Aircraft. | 1.582 | 0.000 |
| Congressional Add: 3) JPID<br>*FY 2010 Plans:*<br>Congressional Interest Item - Tactical, Cargo, & Rotary Wing Aircraft Decontamination. | 0.000 | 1.792 |
| Congressional Adds Subtotals | 3.164 | 1.792 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • DE5: *DECONTAMINATION SYSTEMS (SDD)* | 16.611 | 36.786 | 28.499 | | 28.499 | 23.944 | 25.770 | 14.701 | 5.928 | Continuing | Continuing |
| • JD0055: *JOINT SERVICE PERSONNEL/SKIN DECON SYSTEM (JSPDS)* | 8.280 | 4.466 | 0.000 | | 0.000 | 0.000 | 0.000 | 8.645 | 9.105 | Continuing | Continuing |
| • JD0056: *JS TRANS DECON SYSTEM - SMALL SCALE (JSTDS-SS)* | 12.124 | 21.940 | 18.160 | | 18.160 | 12.924 | 7.900 | 5.455 | 4.459 | Continuing | Continuing |
| | 0.000 | 0.000 | 0.000 | | 0.000 | 4.097 | 14.064 | 18.977 | 25.604 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>DE4: *DECONTAMINATION SYSTEMS (ACD&P)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JD0060: *JOINT PLATFORM INTERIOR DECON (JPID)* | | | | | | | | | | | |
| • JD0061: *JS SENSITIVE EQUIP DECON (JSSED)* | 0.000 | 0.000 | 0.000 | | 0.000 | 14.648 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • JD0062: *HUMAN REMAINS DECON SYSTEM (HRDS)* | 0.000 | 0.000 | 3.410 | | 3.410 | 3.064 | 2.936 | 0.992 | 0.000 | Continuing | Continuing |

**D. Acquisition Strategy**

DFS

DFoS will utilize an incremental acquisition strategy to transition various developmental technology efforts (COTS, JSTO, DTRA efforts, etc.) to fill current and future capability gaps. DFoS will support MDAPs and Programs of Record (POR) by guiding S&T efforts and transitioning mature technologies to meet program requirements. The DFoS acquisition will be managed as a Family-of-Systems (FoS), leveraging differing technologies in each subsystem to fulfill Warfighter capability gaps. A multi-phased Analysis of Alternatives (AoA) will be conducted to identify and evaluate the operational effectiveness of potential material solutions to satisfy Service requirements. As each AoA phase is completed, individual systems and their respective phases of entry will be identified. Industry will be solicited and through competitive prototyping, material solutions will be down-selected for continued development and fielding as a new joint force capability.

HRDS

The Human Remains Decontamination System (HRDS) acquisition will be managed as a Family-of-Systems (FoS), leveraging differing technologies in each subsystem to fulfill Warfighter capability gaps. A multi-phased Analysis of Alternatives (AoA) is being conducted for the HRDS FoS to identify and evaluate the operational effectiveness of potential material solutions to satisfy Service requirements. As each AoA phase is completed, individual systems and their respective phases of entry will be identified. Industry will be solicited and through competitive prototyping, material solutions will be down-selected for continued development and fielding as a new joint force capability.

JMDS

Joint Material Decontamination System (JMDS) - Congressional Interest Item.

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>DE4: *DECONTAMINATION SYSTEMS (ACD&P)* |

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>DE4: *DECONTAMINATION SYSTEMS (ACD&P)* |

**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** DFS - NTA Decon Assurance Spray | C/FFP | TBD | 0.000 | 0.000 | | 1.000 | Jan 2011 | 0.000 | | 1.000 | 0.000 | 1.000 | 0.000 |
| NTA Chemical Decon | C/FFP | TBD | 0.000 | 0.000 | | 0.850 | Jan 2011 | 0.000 | | 0.850 | 0.000 | 0.850 | 0.000 |
| RSDL/Oxime for NTA Decon on Equipment | C/FFP | TBD | 0.000 | 0.000 | | 1.000 | Jan 2011 | 0.000 | | 1.000 | 0.000 | 1.000 | 0.000 |
| Effluent Decon for NTA Contaminated Run-off | C/FFP | TBD | 0.000 | 0.000 | | 0.859 | Jan 2011 | 0.000 | | 0.859 | 0.000 | 0.859 | 0.000 |
| NTA Strippable / Sealant Coatings | C/FFP | TBD | 0.000 | 0.000 | | 0.950 | Jan 2011 | 0.000 | | 0.950 | 0.000 | 0.950 | 0.000 |
| ** JPID - Congressional Interest Item - Tactical, Cargo & Rotary Wing Aircraft Decontamination | SS/FFP | Steris Corp Mentor, Ohio | 0.000 | 1.792 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.792 | 0.000 |
| | | Subtotal | 0.000 | 1.792 | | 4.659 | | 0.000 | | 4.659 | 0.000 | 6.451 | 0.000 |

**Remarks**

DFoS funding increased for NTAs in FY11.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>DE4: *DECONTAMINATION SYSTEMS (ACD&P)* |

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** DFS - IPT Technical Support | MIPR | RDECOM-Natick MA | 0.000 | 0.000 | | 0.400 | Jan 2011 | 0.000 | | 0.400 | 0.000 | 0.400 | 0.000 |
| | | Subtotal | 0.000 | 0.000 | | 0.400 | | 0.000 | | 0.400 | 0.000 | 0.400 | 0.000 |

**Remarks**

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** DFS - NTA Decon Assurance Spray | MIPR | TBD | 0.000 | 0.000 | | 0.420 | Jan 2011 | 0.000 | | 0.420 | 0.000 | 0.420 | 0.000 |
| NTA Chemical Decon | MIPR | TBD | 0.000 | 0.000 | | 0.320 | Jan 2011 | 0.000 | | 0.320 | 0.000 | 0.320 | 0.000 |
| RSDL/Oxime evaluation for NTA Decon on Equipment | MIPR | TBD | 0.000 | 0.000 | | 0.420 | Jan 2011 | 0.000 | | 0.420 | 0.000 | 0.420 | 0.000 |
| Effluent Decon for NTA Contaminated Run-off | MIPR | TBD | 0.000 | 0.000 | | 0.300 | Jan 2011 | 0.000 | | 0.300 | 0.000 | 0.300 | 0.000 |
| NTA Strippable / Sealant Coatings | MIPR | TBD | 0.000 | 0.000 | | 0.532 | Jan 2011 | 0.000 | | 0.532 | 0.000 | 0.532 | 0.000 |
| | | Subtotal | 0.000 | 0.000 | | 1.992 | | 0.000 | | 1.992 | 0.000 | 1.992 | 0.000 |

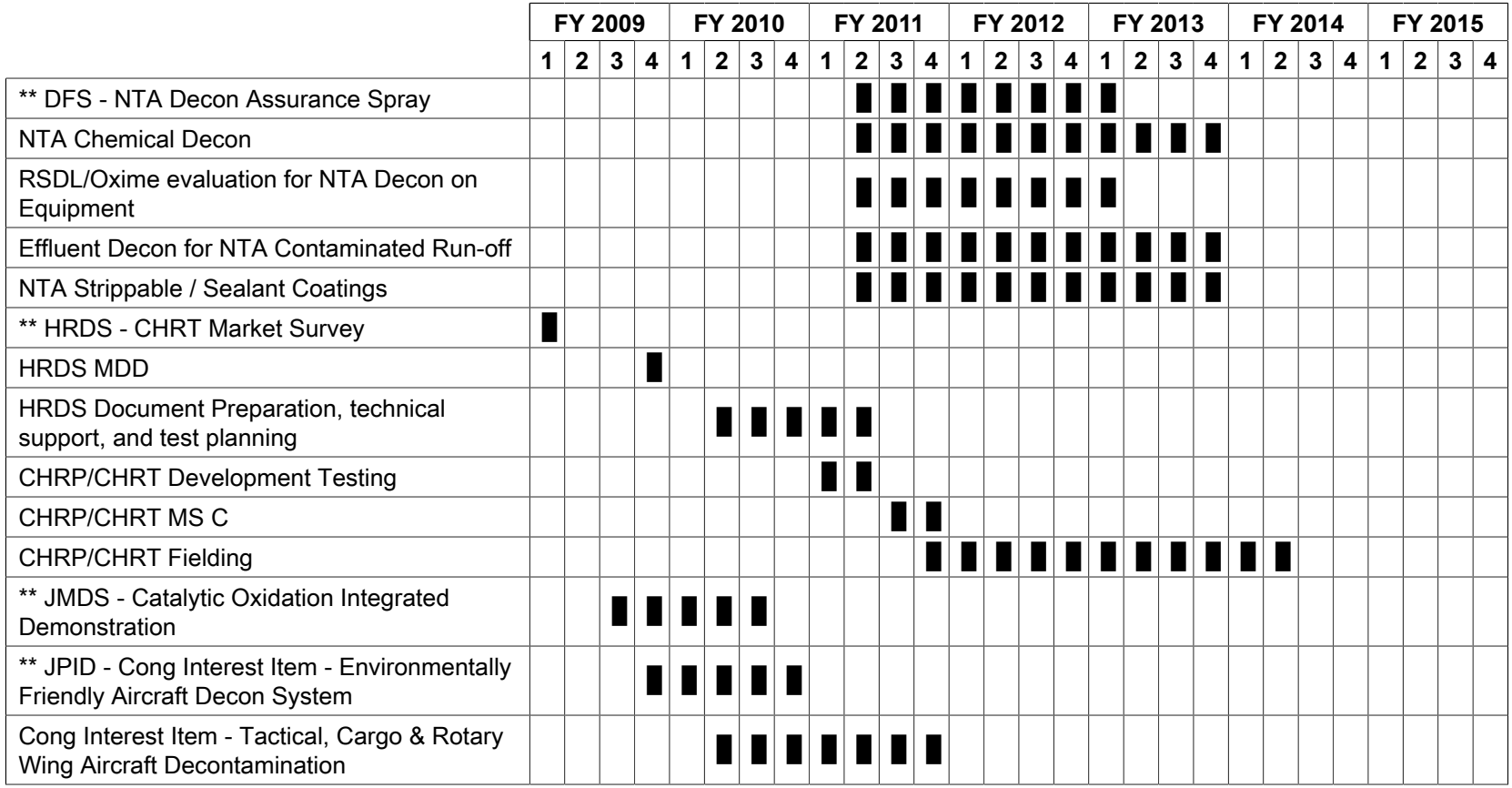
**Remarks**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>DE4: *DECONTAMINATION SYSTEMS (ACD&P)* | |

| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | 0.000 | 1.792 | | 7.051 | | 0.000 | | 7.051 | 0.000 | 8.843 | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>DE4: *DECONTAMINATION SYSTEMS (ACD&P)* | |



| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **PROJECT**<br>DE4: *DECONTAMINATION SYSTEMS (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** DFS - NTA Decon Assurance Spray | 2 | 2011 | 1 | 2013 |
| NTA Chemical Decon | 2 | 2011 | 4 | 2013 |
| RSDL/Oxime evaluation for NTA Decon on Equipment | 2 | 2011 | 1 | 2013 |
| Effluent Decon for NTA Contaminated Run-off | 2 | 2011 | 4 | 2013 |
| NTA Strippable / Sealant Coatings | 2 | 2011 | 4 | 2013 |
| ** HRDS - CHRT Market Survey | 1 | 2009 | 1 | 2009 |
| HRDS MDD | 4 | 2009 | 4 | 2009 |
| HRDS Document Preparation, technical support, and test planning | 2 | 2010 | 2 | 2011 |
| CHRP/CHRT Development Testing | 1 | 2011 | 2 | 2011 |
| CHRP/CHRT MS C | 3 | 2011 | 4 | 2011 |
| CHRP/CHRT Fielding | 4 | 2011 | 2 | 2014 |
| ** JMDS - Catalytic Oxidation Integrated Demonstration | 3 | 2009 | 3 | 2010 |
| ** JPID - Cong Interest Item - Environmentally Friendly Aircraft Decon System | 4 | 2009 | 4 | 2010 |
| Cong Interest Item - Tactical, Cargo & Rotary Wing Aircraft Decontamination | 2 | 2010 | 4 | 2011 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>IP4: *INDIVIDUAL PROTECTION (ACD&P)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IP4: *INDIVIDUAL PROTECTION (ACD&P)* | 0.000 | 0.000 | 3.172 | 0.000 | 3.172 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This project funds ACD&P of a Lightweight Chemical Biological Ensemble (LCBE) aimed at improving current protection levels while reducing physiological and logistical burdens. The goal is to provide equipment that allows the individual soldier, sailor, airman, or marine to operate in a contaminated chemical and biological (CB) environment with no or minimal degradation to his/her performance.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) LCBE | 0.000 | 0.000 | 3.172 | 0.000 | 3.172 |
| *FY 2011 Base Plans:*<br>Prepare Request for Information (RFI)/Request for Proposal (RFP); initiate developmental testing (DT) efforts for LCBE Increment 1. Acquire prototypes and perform physical testing and chemical agent testing. Initiates development to reduce thermal burden/bulk/weight over existing CB ensemble, increase cooling/venting potential, improve operational capabilities. | | | | | |
| Accomplishments/Planned Programs Subtotals | 0.000 | 0.000 | 3.172 | 0.000 | 3.172 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • IP5: *INDIVIDUAL PROTECTION (SDD)* | 18.363 | 21.094 | 9.678 | | 9.678 | 4.833 | 3.044 | 0.756 | 0.563 | Continuing | Continuing |
| | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>IP4: *INDIVIDUAL PROTECTION (ACD&P)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JSM001: *JOINT SERVICE MASK LEAKAGE TESTER (JSMLTS)* | | | | | | | | | | | |
| • MA0400: *PROTECTIVE CLOTHING (JSLIST)* | 37.484 | 20.393 | 17.887 | | 17.887 | 18.208 | 9.429 | 6.943 | 6.944 | Continuing | Continuing |

**D. Acquisition Strategy**

LCBE

The Lightweight Chemical Biological Ensemble (LCBE) program will pursue an evolutionary incremental approach to provide capability to the Warfighter. Each increment of LCBE will provide technologies with military utility that are modular in function, and offer improvement in form and fit over current systems. The LCBE program will develop, integrate, test, procure and field systems that increase Warfighter operational performance in a CBRN environment via the use of emerging technologies and by leveraging tradespace in areas such as protection level, heat stress, durability, antimicrobial properties, launderability, self-detoxification, protection time, etc. Where appropriate, modeling and simulation tools will be used to lower LCBE program risks, reduce costs and ensure a high confidence in selected technologies.

LCBE INCREMENT 1

The LCBE will use an evolutionary acquisition strategy with phased development. The first LCBE increment will provide an operationally useful and supportable capability in as short a time as possible. Accordingly, Increment 1 of LCBE will incorporate an accelerated development cycle leveraging existing COTS technologies that will, at a minimum, provide a lightweight CB protective garment capability. Gate testing and down-selection of prototypes will comprise the initial phases of the Government's testing program. A competitively awarded contract is planned for DT and Operational Assessment (OA) will occur prior to MS C. Appropriate system requirements reviews, test readiness reviews, producibility reviews and audits will be scheduled as required prior to each milestone.

Future increments of LCBE shall be defined via separate Capability Development Document (CDDs)/Capability Production Document (CPDs) and will follow a similar path/process from MS A or MS B through MS C/FRP and will leverage preceding efforts to the greatest extent possible, maintaining commonality and synergy across all increments.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>IP4: *INDIVIDUAL PROTECTION (ACD&P)* | |

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** LCBE - ES S - Engineering IPT | MIPR | Various | 0.000 | 0.000 | | 0.600 | Jan 2011 | 0.000 | | 0.600 | 0.000 | 0.600 | 0.000 |
| ES S - Tech Demos | MIPR | Various | 0.000 | 0.000 | | 1.993 | Apr 2011 | 0.000 | | 1.993 | 0.000 | 1.993 | 0.000 |
| | | Subtotal | 0.000 | 0.000 | | 2.593 | | 0.000 | | 2.593 | 0.000 | 2.593 | 0.000 |

**Remarks**

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** LCBE - PM/MS S - JPM IP Program Management | MIPR | Various | 0.000 | 0.000 | | 0.579 | Jan 2011 | 0.000 | | 0.579 | 0.000 | 0.579 | 0.000 |
| | | Subtotal | 0.000 | 0.000 | | 0.579 | | 0.000 | | 0.579 | 0.000 | 0.579 | 0.000 |

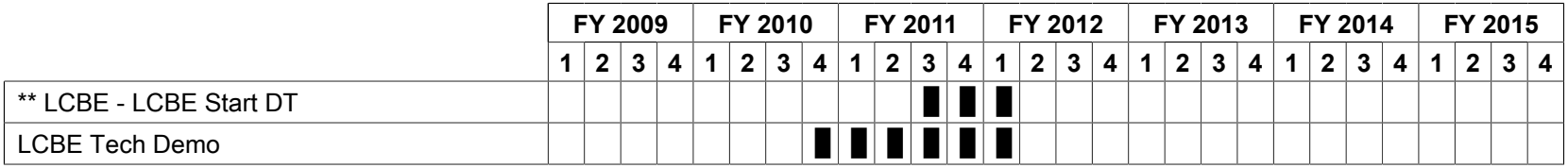
**Remarks**

| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | 0.000 | 0.000 | | 3.172 | | 0.000 | | 3.172 | 0.000 | 3.172 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>IP4: *INDIVIDUAL PROTECTION (ACD&P)* | |

| | Total Prior Years Cost | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|
| **Remarks** | | | | | | | | |

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>IP4: *INDIVIDUAL PROTECTION (ACD&P)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **PROJECT**<br>IP4: *INDIVIDUAL PROTECTION (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** LCBE - LCBE Start DT | 3 | 2011 | 1 | 2012 |
| LCBE Tech Demo | 4 | 2010 | 1 | 2012 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>IS4: *INFORMATION SYSTEMS (ACD&P)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IS4: *INFORMATION SYSTEMS (ACD&P)* | 0.000 | 0.000 | 11.221 | 0.000 | 11.221 | 3.404 | 4.565 | 4.676 | 4.741 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This Advanced Component Development and Prototypes (ACD&P) funding supports the Joint Effects Model (JEM) Program.

The JEM is DoD's only accredited model for predicting hazards associated with the release of contaminants into the environment. JEM is being developed in separate increments and is capable of modeling hazards in a variety of scenarios including: counterforce, passive defense, accident and/or incidents (Increment 1); high altitude releases, urban NBC environments (Increment 2); building interiors, and human performance degradation (Increment 3). Battle space commanders and first responders must have a CBRN hazard prediction capability in order to make decisions that will minimize risks of CBRN contamination and enable them to continue mission operations. JEM operates in an integrated fashion with operational and tactical Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) systems, and in a standalone mode. JEM will interface and communicate with the other programs such as JWARN, JOEF, weather systems, intelligence systems, and various databases.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) JEM<br>Analysis of Alternatives Support<br><br>*FY 2011 Base Plans:*<br>Provide Chemical, Biological, Radiological and Nuclear subject matter experts to support the Analysis of Technical Alternatives (ATA). | 0.000 | 0.000 | 0.689 | 0.000 | 0.689 |
| 2) JEM | 0.000 | 0.000 | 0.643 | 0.000 | 0.643 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>IS4: *INFORMATION SYSTEMS (ACD&P)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Analysis of Technical Alternatives (ATA) Evaluation<br><br>*FY 2011 Base Plans:*<br>Evaluate and assess results of ATA including a Technology Readiness Assessment of the candidate technologies. Analyze the impact of implementing the emerging technologies in the JEM architecture. | | | | | |
| 3) JEM<br>Prototyping<br><br>*FY 2011 Base Plans:*<br>Conduct competitive prototyping contracting efforts for JEM Increment 2. | 0.000 | 0.000 | 4.863 | 0.000 | 4.863 |
| 4) JEM<br>Increment 2 User Assessments and Demonstrations<br><br>*FY 2011 Base Plans:*<br>Prepare for and conduct JEM Increment 2 User Assessments and Demonstrations to validate requirements and system performance, and to evaluate critical science and technology within software prototype(s). | 0.000 | 0.000 | 1.326 | 0.000 | 1.326 |
| 5) JEM<br><br>*FY 2011 Base Plans:*<br>Conduct government developmental testing and analysis, to include Technology Readiness Assessment of software submitted for evaluation during competitive prototyping. | 0.000 | 0.000 | 0.961 | 0.000 | 0.961 |
| 6) JEM<br>Administrative Preparation for Development Contract | 0.000 | 0.000 | 0.396 | 0.000 | 0.396 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>IS4: *INFORMATION SYSTEMS (ACD&P)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Initiate pre-MS B contractual efforts: develop proposal package, release draft Request for Proposal (RFP), prepare final EMD request for proposal, release RFP, conduct source selection training, conduct source selection and complete proposal evaluations. | | | | | |
| 7) JEM<br>Management Support<br>*FY 2011 Base Plans:*<br>Provide strategic, tactical planning, program/financial management, costing, contracting, scheduling, acquisition oversight, and milestone documentation. | 0.000 | 0.000 | 1.349 | 0.000 | 1.349 |
| 8) JEM<br>Technical Support<br>*FY 2011 Base Plans:*<br>Provide engineering and technical support to Increment 2 development. Provide system independent verification and validation. | 0.000 | 0.000 | 0.994 | 0.000 | 0.994 |
| Accomplishments/Planned Programs Subtotals | 0.000 | 0.000 | 11.221 | 0.000 | 11.221 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • G47101: *JOINT WARNING & REPORTING NETWORK (JWARN)* | 4.375 | 6.551 | 6.903 | | 6.903 | 8.078 | 5.590 | 8.183 | 8.423 | Continuing | Continuing |
| | 45.694 | 27.301 | 13.844 | | 13.844 | 24.984 | 24.872 | 25.345 | 25.775 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>IS4: *INFORMATION SYSTEMS (ACD&P)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • IS5: *INFORMATION SYSTEMS (SDD)* | | | | | | | | | | | |
| • IS6: *INFORMATION SYSTEMS (RDT&E MGT SUPPORT)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • IS7: *INFORMATION SYSTEMS (OP SYS DEV)* | 0.897 | 1.302 | 1.821 | | 1.821 | 1.669 | 1.518 | 1.555 | 1.577 | Continuing | Continuing |
| • JC0208: *JOINT EFFECTS MODEL (JEM)* | 5.546 | 3.482 | 3.482 | | 3.482 | 0.000 | 0.000 | 3.369 | 3.568 | Continuing | Continuing |
| • JC0209: *JOINT OPERATIONAL EFFECTS FEDERATION (JOEF)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 2.482 | 2.480 | 3.716 | Continuing | Continuing |

**D. Acquisition Strategy**

JEM

The Joint Effects Model (JEM) is following an evolutionary acquisition approach that will allow rapid fielding of existing technologies while further research and development (R&D) continues in order to mature the technologies required for subsequent versions of JEM. It is now being fielded in increments of capabilities. Each increment will retain the functionality of the preceding increment. The JEM development effort will be aligned with the evolving JPEO-CBD architectures and technologies, as well as with Service C2 systems. JEM is expected to develop three distinct increments of software. JEM will define and publish its web-services interface; the JEM interface will be the same on all systems, utilizing data definitions from the approved CBRN data model as appropriate. A cost plus award fee contract was awarded for the follow-on JEM contract for integration and development.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>IS4: *INFORMATION SYSTEMS (ACD&P)* |

**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JEM - SW SB - JEM | MIPR | San Diego CA | 0.000 | 0.000 | | 7.521 | Jan 2011 | 0.000 | | 7.521 | 0.000 | 7.521 | 0.000 |
| | | Subtotal | 0.000 | 0.000 | | 7.521 | | 0.000 | | 7.521 | 0.000 | 7.521 | 0.000 |

**Remarks**

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JEM - ES S - JEM System | MIPR | Various | 0.000 | 0.000 | | 0.994 | Jan 2011 | 0.000 | | 0.994 | 0.000 | 0.994 | 0.000 |
| | | Subtotal | 0.000 | 0.000 | | 0.994 | | 0.000 | | 0.994 | 0.000 | 0.994 | 0.000 |

**Remarks**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>IS4: *INFORMATION SYSTEMS (ACD&P)* |

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JEM - DTE S - JEM | MIPR | Various | 0.000 | 0.000 | | 0.961 | Jan 2011 | 0.000 | | 0.961 | 0.000 | 0.961 | 0.000 |
| | | Subtotal | 0.000 | 0.000 | | 0.961 | | 0.000 | | 0.961 | 0.000 | 0.961 | 0.000 |

Remarks

**Management Services ($ in Millions)**

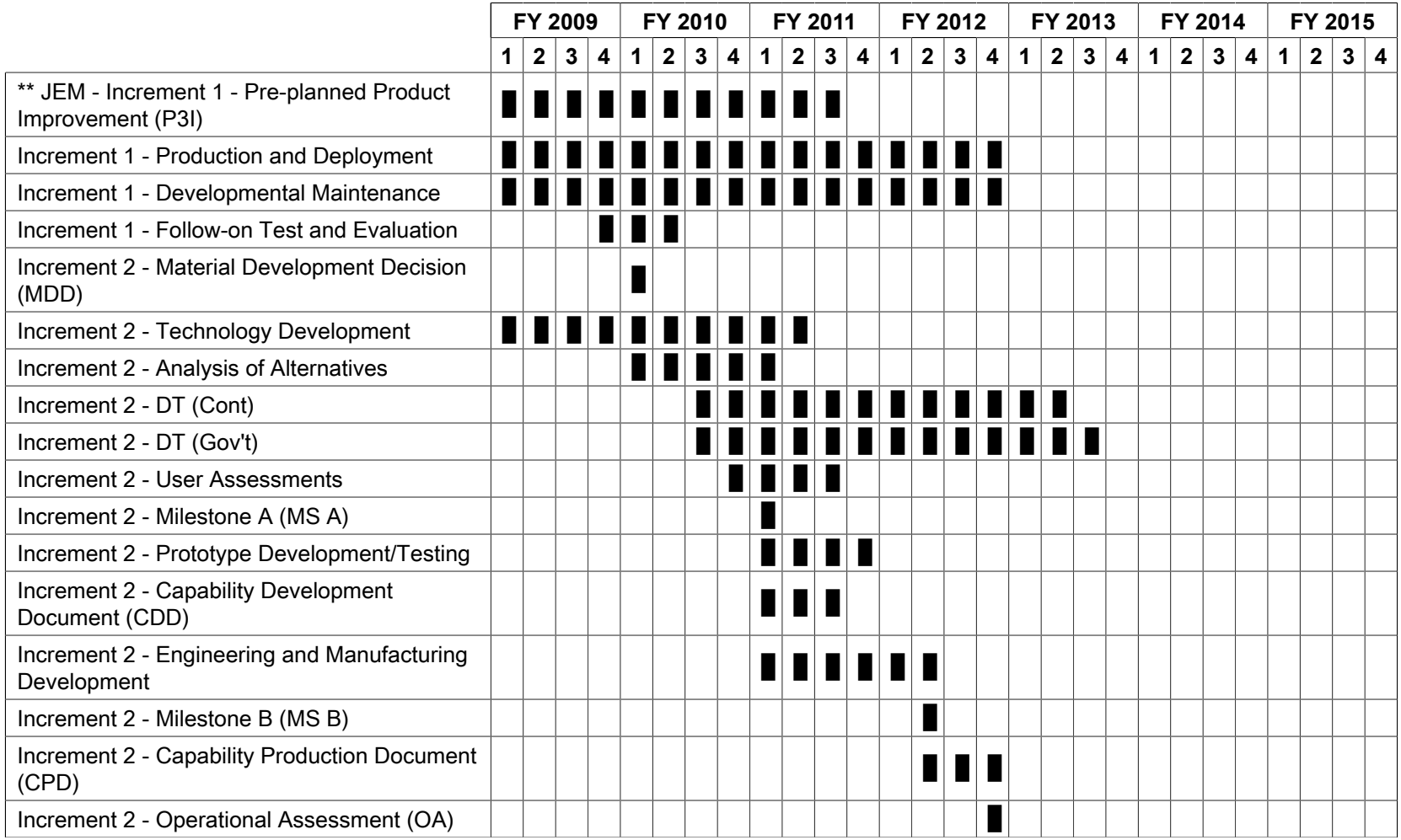
| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JEM - PM/MS S - JEM | MIPR | Various | 0.000 | 0.000 | | 1.745 | Jan 2011 | 0.000 | | 1.745 | 0.000 | 1.745 | 0.000 |
| | | Subtotal | 0.000 | 0.000 | | 1.745 | | 0.000 | | 1.745 | 0.000 | 1.745 | 0.000 |

Remarks

| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | 0.000 | 0.000 | | 11.221 | | 0.000 | | 11.221 | 0.000 | 11.221 | 0.000 |

Remarks

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>IS4: *INFORMATION SYSTEMS (ACD&P)* | |



| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>IS4: *INFORMATION SYSTEMS (ACD&P)* | |

| | FY 2009 | | | | FY 2010 | | | | FY 2011 | | | | FY 2012 | | | | FY 2013 | | | | FY 2014 | | | | FY 2015 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Increment 2 - Milestone C (MS C) | | | | | | | | | | | | | | | | | | ▮ | | | | | | | | | | |
| Increment 2 - Multi-Service Operational Test and Evaluation (MOT&E)/LOG Demo | | | | | | | | | | | | | | | | | | | | ▮ | | | | | | | | |
| Increment 2 - Standalone Full Rate Production (FRP) | | | | | | | | | | | | | | | | | | | | | | ▮ | | | | | | |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **PROJECT**<br>IS4: *INFORMATION SYSTEMS (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** JEM - Increment 1 - Pre-planned Product Improvement (P3I) | 3 | 2008 | 3 | 2011 |
| Increment 1 - Production and Deployment | 4 | 2007 | 4 | 2012 |
| Increment 1 - Developmental Maintenance | 3 | 2008 | 4 | 2012 |
| Increment 1 - Follow-on Test and Evaluation | 4 | 2009 | 2 | 2010 |
| Increment 2 - Material Development Decision (MDD) | 1 | 2010 | 1 | 2010 |
| Increment 2 - Technology Development | 3 | 2008 | 2 | 2011 |
| Increment 2 - Analysis of Alternatives | 1 | 2010 | 1 | 2011 |
| Increment 2 - DT (Cont) | 3 | 2010 | 2 | 2013 |
| Increment 2 - DT (Gov't) | 3 | 2010 | 3 | 2013 |
| Increment 2 - User Assessments | 4 | 2010 | 3 | 2011 |
| Increment 2 - Milestone A (MS A) | 1 | 2011 | 1 | 2011 |
| Increment 2 - Prototype Development/Testing | 1 | 2011 | 4 | 2011 |
| Increment 2 - Capability Development Document (CDD) | 1 | 2011 | 3 | 2011 |
| Increment 2 - Engineering and Manufacturing Development | 1 | 2011 | 2 | 2012 |
| Increment 2 - Milestone B (MS B) | 2 | 2012 | 2 | 2012 |
| Increment 2 - Capability Production Document (CPD) | 2 | 2012 | 4 | 2012 |
| Increment 2 - Operational Assessment (OA) | 4 | 2012 | 4 | 2012 |
| Increment 2 - Milestone C (MS C) | 2 | 2013 | 2 | 2013 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **PROJECT**<br>IS4: *INFORMATION SYSTEMS (ACD&P)* |

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| Increment 2 - Multi-Service Operational Test and Evaluation (MOT&E)/LOG Demo | 4 | 2013 | 4 | 2013 |
| Increment 2 - Standalone Full Rate Production (FRP) | 2 | 2014 | 2 | 2014 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* | 7.910 | 102.437 | 136.975 | 0.000 | 136.975 | 130.718 | 131.347 | 115.985 | 113.566 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

The Joint Vaccine Acquisition Program (JVAP) under Chemical Biological Medical Systems (CBMS) funds the technology development phase for vaccines that are directed against validated biological warfare (BW) weapons to include bacteria, viruses, and toxins of biological origin. Effective medical countermeasures to negate the threat of these BW agents are urgently needed. Vaccines have been identified as the most efficient countermeasure against the validated threat of BW weapons. Efforts for medical biological defense product development involve manufacturing process development, formulation development, non-clinical studies, pilot lot manufacturing, Investigational New Drug (IND) application submission and Phase 1 clinical human safety studies. Vaccine effectiveness, will be evaluated in animals to satisfy the requirements of the FDA's "Animal Rule". Products under development in this budget item include Filovirus vaccine.

The Transformational Medical Technologies Initiative (TMTI) was launched to respond to the threat of emerging or intentionally bioengineered biological threats. TMTI's mission is to protect the Warfighter from genetically engineered biological threats by providing a rapid response capability from identification of pathogens to the delivery of medical countermeasures. This mission is accomplished by developing broad spectrum (multi-agent) therapeutics against biological warfare (BW) agents (e.g. one drug that treats multiple agents). The development of broad spectrum therapeutics involves developing a capability to treat exposure to hemorrhagic fever viruses (HFVs) (e.g. Ebola virus) and intracellular bacterial pathogens (ICBs) (e.g. Tularemia). Efforts are further classified as host-directed therapeutics (e.g, drugs that target common pathways within a human to prevent or treat a variety of diseases) or pathogen-directed therapeutics (e.g. drugs that attack a common pathway found in multiple threat agents). Attrition is high throughout the drug development process. Less than 10% of all preclinical compounds become a licensed drug. Causes for attrition include scientific failures, Food and Drug Administration (FDA) rejection at major milestone reviews, and loss through down-selection at DoD Milestone Decision points. The development of medical countermeasures is an arduous process that requires extensive interaction with the FDA, from pre-clinical research to safety tests in human subjects (Phase 1 clinical studies), efficacy tests in humans/animals (Phase 2 clinical studies or pivotal animal efficacy studies), and expanded safety or efficacy studies (Phase 3 clinical studies), which culminate with a request to the FDA to license, market, and produce a drug. This interaction between the Department of Defense (DoD) and the FDA results in a coordinated, unified, and safe effort.

**B. Accomplishments/Planned Program ($ in Millions)**

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) TMTI | 0.000 | 88.611 | 98.593 | 0.000 | 98.593 |

Multiagent Broad Spectrum Medical Countermeasures - Upon Milestone A approval, this effort will advance experimental broad-spectrum drug candidates with an accepted Investigational New Drug (IND) from the Food and Drug Administration (FDA) through the Technology Development phase. This includes the initiation and completion of Phase I clinical studies, where a new drug is introduced into humans, and early evidence is gathered on drug safety. Approved performers who have had their IND applications accepted by the FDA will initiate Phase 1 clinical trials and other studies necessary to support a Milestone B decision progress toward a New Drug Application (NDA) with the FDA. Phase I trials are the first stage of drug testing in human subjects in a relatively small (between 20-100) group of healthy human volunteers. Trials are designed to assess the safety pharmacokinetics (characteristic interactions of a drug and the body in terms of its absorption, distribution, metabolism and excretion) and pharmacodynamics (the action or effects of drugs on living organisms) of a drug. Phase I trials often include dose-ranging or dose escalation studies so that the appropriate dose for therapeutic use can be found. The tested range of doses will usually be a fraction of the dose that causes harm in animal testing.

*FY 2010 Plans:*

Following review and approval of new drug candidates, initiate work on Phase I clinical trials for up to three novel drugs that show promise against several Biological Warfare (BW) threat agents. Commence Phase I clinical trials for one additional candidate drug: a previously licensed (re-purposed) drug that requires a different dosing than its existing label allows. Conduct additional safety tests on the re-purposed drug.

*FY 2011 Base Plans:*

Conduct Phase I clinical trials for up to six novel drugs that have achieved IND status as post-exposure prophylaxis or treatment against BW threat agents. Conduct additional research as required by the FDA prior to granting IND status or conducting Phase I clinical trials, as funds are available. BA4 supports the development of animal models required for pivotal animal efficacy studies

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| to evaluate medical countermeasures currently in advanced development. Animal models were previously supported in the Technologies Portfolio; the investment strategy was changed for FY11 and beyond to mitigate risk associated with seeking product licensure under the FDA Animal Rule. Animal models will be refined to determine appropriate range of product doses, optimal route of administration and timing/schedule using data from Phase I clinical studies. | | | | | |
| 2) TMTI<br>Platform Technologies: Exercises will commence on the platform technologies and the bioinformatics system developed with science and technology (S&T) funding to evaluate and determine the ability of these systems to support the capability goal of TMTI. Platform technologies will continue to be refined, and final improvements will be made as needed. Platforms will be evaluated as stand alone platforms to determine their capability in their respective area. Platforms providing a similar capability will be competed against each other to determine how each can best contribute to the response capability. The bioinformatics system will be evaluated for overall architecture, connectivity, processing capability, and user-friendliness. Lessons learned from each exercise will be analyzed and incorporated into future exercises. The ultimate goal is to improve countermeasure efficacy and to shorten the time required to produce an approved countermeasure for an unknown or genetically modified pathogen.<br>*FY 2011 Base Plans:*<br>Platforms will be developed and refined to advance TMTI capability needs, particularly in the pathogen characterization and bioinformatics areas. Up to two exercises and evaluations will be planned and executed. Data will be collected into lessons learned and analyzed with the goal of improving the performance of the individual platforms. Continue to exercise the integrated rapid response capabilities to incorporate enhanced functionality, establish standardized processes and procedures and identify areas for improvement with the goal of increasing system effectiveness and reducing overall system execution timeline. | 0.000 | 0.000 | 21.764 | 0.000 | 21.764 |
| 3) JVAP - Filovirus Vaccine | 0.000 | 0.200 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Prepare supporting acquisition documentation, conduct Milestone A, and enter into Advanced Component Development and Prototypes. | | | | | |
| 4) JVAP - Filovirus Vaccine<br>*FY 2010 Plans:*<br>Prepare solicitation documentation and conduct pre-solicitation conference.<br>*FY 2011 Base Plans:*<br>Release solicitation documentation and conduct source selection to award contract. | 0.000 | 0.200 | 0.100 | 0.000 | 0.100 |
| 5) JVAP - Filovirus Vaccine<br>*FY 2010 Plans:*<br>Initiate non-clinical studies through Interagency Agreements. Initiate procedures for safeguarding biological select agents and toxins.<br>*FY 2011 Base Plans:*<br>Continue non-clinical studies through Interagency Agreements. Continue procedures for safeguarding biological select agents and toxins. | 0.000 | 10.569 | 9.108 | 0.000 | 9.108 |
| 6) JVAP - Filovirus Vaccine<br>*FY 2011 Base Plans:*<br>Initiate small-scale manufacturing process development. | 0.000 | 0.000 | 7.410 | 0.000 | 7.410 |
| 7) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 1.264 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Accomplishments/Planned Programs Subtotals | 0.000 | 100.844 | 136.975 | 0.000 | 136.975 |

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: 1) Vacuum Sampling Pathogen Collection and Concentration<br>*FY 2009 Accomplishments:*<br>Congressional Interest Item - Vacuum Sampling Pathogen Collection and Concentration. Continued development of the M-Vac System, a field pathogen collection system, along with the Bacteria Reduction System (BRS) to enhance the current capability to find, extract and elute potentially deadly pathogens from unique surfaces. A tube sampler was developed, which enable customers and inspectors to reach and sample inaccessible surfaces and areas. An effort began to miniaturize the sampling platform in order to meet DoD requirements. | 3.164 | 0.000 |
| Congressional Add: 2) Broad Spectrum Therapeutic Countermeasure<br>*FY 2010 Plans:*<br>Congressional Interest Item - Broad Spectrum Therapeutic Countermeasure to Organophosphorus Nerve Agents. Initiate development of a broad-spectrum therapeutic capable of protecting both the central and peripheral nervous systems from injury by nerve agents and reducing reliance on pretreatments. | 0.000 | 1.593 |
| Congressional Add: 3) CRP<br>*FY 2009 Accomplishments:*<br>Congressional Interest Item - Biological Threat Antibody Research. | 1.582 | 0.000 |
| | 0.791 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: 4) TT Bio<br>*FY 2009 Accomplishments:*<br>Congressional Interest Item - IM Formulation Development of Anthrax Therapeutic. | | |
| Congressional Add: 5) TT Bio<br>*FY 2009 Accomplishments:*<br>Congressional Interest Item - Recombinant Bche Formulation Program. | 1.582 | 0.000 |
| Congressional Add: 6) TT Bio<br>*FY 2009 Accomplishments:*<br>Congressional Interest Item - Large scale single-use bio reactor for rapid response to bioterrorism. | 0.791 | 0.000 |
| Congressional Adds Subtotals | 7.910 | 1.593 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JM0001: *JOINT BIO AGENT IDENT AND DIAG SYSTEM (JBAIDS)* | 0.479 | 0.000 | 5.571 | | 5.571 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • JX0005: *DOD BIOLOGICAL VACCINE PROCUREMENT* | 38.109 | 12.701 | 12.824 | | 12.824 | 3.385 | 3.466 | 56.416 | 98.759 | Continuing | Continuing |
| • JX0210: *CRITICAL REAGENTS PROGRAM (CRP)* | 0.000 | 0.000 | 0.994 | | 0.994 | 0.993 | 0.993 | 0.992 | 0.000 | Continuing | Continuing |
| • MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* | 87.676 | 57.558 | 141.680 | | 141.680 | 161.732 | 159.144 | 141.481 | 111.671 | Continuing | Continuing |
| | 180.425 | 203.723 | 115.233 | | 115.233 | 125.666 | 109.737 | 115.049 | 117.289 | Continuing | Continuing |

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**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TB3: *MEDICAL BIOLOGICAL DEFENSE (ATD)* | | | | | | | | | | | |

**D. Acquisition Strategy**

CRP

The Critical Reagents Program's (CRP) strategy establishes a core research and development capability to develop biological threat agent, genomic reference materials (antigens, nucleic acids, and antibodies) and detection and diagnostic assays for biothreat agent detection that shall be horizontally inserted across multiple detection and diagnostic platforms. In addition, this strategy will implement a formal, validated advanced development process to transition new assays into production and integration with the appropriate detection/diagnostic platform.

TMTI

Transformational Medical Technology Initiative's (TMTI) ultimate goal is the delivery of FDA-licensed, therapeutics to the Warfighter. This goal can be reached through any one of the following three acquisition approaches: 1) through the discovery of new drugs; 2) through application of new drug indications (i.e., through a commercial off-the-shelf (COTS) approach); or, 3) through the re-engineering of previously developed drugs (i.e., through a Modified COTS approach). This may involve FDA-approved drugs or previously developed drug compounds that do not have an FDA license. Each of these approaches will require different entry points into both the drug development process and the defense acquisition management timeline. Moreover, each of these approaches will likely experience a different set of FDA regulatory requirements. In order to execute the overall acquisition strategy, TMTI has partnered with other elements within the DoD Chemical and Biological Defense Program, DoD agencies, private industry, and other DoD laboratories for the development of TMTI products. The contract types used to execute the program will depend on the circumstances, including maturity of the science, the legalities surrounding Intellectual Property (IP) and patent rights, and even the size of the performer. Cost Plus Fixed Fee and Cost Plus Incentive Fee contracts will be used with traditional or nontraditional defense contractors for most advanced development contracts. Finally, developing platform technologies, such as modeling and simulation to predict drug-to-drug interaction effects prior to actual clinical trials, and the use of genetic sequencing and a bioinformatics backbone, are examples of how TMTI managers intend to augment private industry best practices to streamline the program management, test and evaluation, and overall TMTI product development.

VAC FILO

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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Contract will be competed at Milestone A. Developer(s) and candidate(s) will be selected based on existing test data, technical approach and business case considerations. Because of inherent risk in development of vaccines for viral hemorrhagic fevers, funding requested will support development of two vaccine candidates through Milestone B, at which time, a down-select to a single candidate will be conducted. If technologically feasible, a combined Ebola/Marburg vaccine will be developed. In addition to efforts conducted under a contract, portions of the non-clinical work will be conducted under an Interagency Agreement with the US Army Medical Research Institute of Infectious Diseases (USAMRIID), because of the limited number of Biological Safety Level (BSL) 4 facilities.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
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**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** TMTI - SW SB - Therapeutic validation Contract #1 | C/CPIF | TBD | 0.000 | 5.257 | Apr 2010 | 5.765 | Apr 2011 | 0.000 | | 5.765 | 0.000 | 11.022 | 0.000 |
| SW SB - Therapeutic validation Contract #2 | C/CPIF | TBD | 0.000 | 5.256 | Apr 2010 | 5.764 | Apr 2011 | 0.000 | | 5.764 | 0.000 | 11.020 | 0.000 |
| SW SB - Therapeutic validation Contract #3 | C/CPIF | TBD | 0.000 | 5.257 | Apr 2010 | 5.764 | Apr 2011 | 0.000 | | 5.764 | 0.000 | 11.021 | 0.000 |
| SW SB - Therapeutic validation Contract #4 | C/CPIF | TBD | 0.000 | 5.256 | Apr 2010 | 5.765 | Apr 2011 | 0.000 | | 5.765 | 0.000 | 11.021 | 0.000 |
| SW SB - Therapeutic validation Contract #5 | C/CPIF | TBD | 0.000 | 5.256 | Apr 2010 | 5.764 | Apr 2011 | 0.000 | | 5.764 | 0.000 | 11.020 | 0.000 |
| SW SB - Therapeutic validation Contract #6 | C/CPIF | TBD | 0.000 | 5.256 | Apr 2010 | 5.765 | Apr 2011 | 0.000 | | 5.765 | 0.000 | 11.021 | 0.000 |
| SW S - Technology Contract | C/CPIF | TBD | 0.000 | 0.000 | | 7.635 | Oct 2010 | 0.000 | | 7.635 | 0.000 | 7.635 | 0.000 |
| ** VAC FILO - Manufacturing, Validation, Pilot Lot, and Consistency Lot Production | C/CPIF | TBD | 0.000 | 0.000 | | 4.398 | Jan 2011 | 0.000 | | 4.398 | 0.000 | 4.398 | 0.000 |
| Non Clinical Studies | MIPR | USAMRIID Fort Detrick, MD | 0.000 | 10.569 | Apr 2010 | 3.250 | Jan 2011 | 0.000 | | 3.250 | 0.000 | 13.819 | 0.000 |
| | | **Subtotal** | 0.000 | 42.107 | | 49.870 | | 0.000 | | 49.870 | 0.000 | 91.977 | 0.000 |

**Remarks**

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**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** TMTI - TD/D SB - Regulatory Integration, Quality Assurance, & FDA Support Efforts - Contract #1 | C/CPIF | TBD | 0.000 | 3.754 | Apr 2010 | 4.117 | Apr 2011 | 0.000 | | 4.117 | 0.000 | 7.871 | 0.000 |
| TD/D SB - Regulatory Integration, Quality Assurance, & FDA Support Efforts - Contract #2 | C/CPIF | TBD | 0.000 | 3.755 | Apr 2010 | 4.118 | Apr 2011 | 0.000 | | 4.118 | 0.000 | 7.873 | 0.000 |
| ES C - Regulatory Integration, Quality Assurance, & FDA Support Efforts - Contract #3 | C/CPIF | TBD | 0.000 | 3.754 | Apr 2010 | 4.117 | Apr 2011 | 0.000 | | 4.117 | 0.000 | 7.871 | 0.000 |
| ES C - Regulatory Integration, Quality Assurance, & FDA Support Efforts - Contract #4 | C/CPIF | TBD | 0.000 | 3.755 | Apr 2010 | 4.118 | Apr 2011 | 0.000 | | 4.118 | 0.000 | 7.873 | 0.000 |
| ES C - Regulatory Integration, Quality Assurance, & FDA Support Efforts - Contract #5 | C/CPIF | TBD | 0.000 | 3.755 | Apr 2010 | 4.117 | Apr 2011 | 0.000 | | 4.117 | 0.000 | 7.872 | 0.000 |
| ES C - Regulatory Integration, Quality Assurance, & FDA | C/CPIF | TBD | 0.000 | 3.754 | Apr 2010 | 4.117 | Apr 2011 | 0.000 | | 4.117 | 0.000 | 7.871 | 0.000 |

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**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Support Efforts - Contract #6 | | | | | | | | | | | | | |
| TD/D C - Technologies | C/CPIF | TBD | 0.000 | 0.000 | | 5.453 | Oct 2010 | 0.000 | | 5.453 | 0.000 | 5.453 | 0.000 |
| ** VAC FILO - Regulatory Integration (Environmental and FDA Documentation) and Delivery System | C/CPIF | TBD | 0.000 | 0.000 | | 2.288 | Jan 2011 | 0.000 | | 2.288 | 0.000 | 2.288 | 0.000 |
| | | Subtotal | 0.000 | 22.527 | | 32.445 | | 0.000 | | 32.445 | 0.000 | 54.972 | 0.000 |

**Remarks**

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CONG - Congressional Interest Item - Broad Spectrum Therapeutic | SS/FFP | TBD | 0.000 | 1.513 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.513 | 0.000 |
| ** TMTI - DTE C - Phase I trials - Contract #1 | C/CPIF | TBD | 0.000 | 6.007 | Apr 2010 | 4.588 | Apr 2011 | 0.000 | | 4.588 | 0.000 | 10.595 | 0.000 |
| | C/CPIF | TBD | 0.000 | 6.007 | Apr 2010 | 4.588 | Apr 2011 | 0.000 | | 4.588 | 0.000 | 10.595 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* |

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| DTE C - Phase I trials - Contract #2 | | | | | | | | | | | | | |
| DTE C - Phase I trials - Contract #3 | C/CPIF | TBD | 0.000 | 6.007 | Apr 2010 | 4.588 | Apr 2011 | 0.000 | | 4.588 | 0.000 | 10.595 | 0.000 |
| DTE C - Phase I trials - Contract #4 | C/CPIF | TBD | 0.000 | 6.007 | Apr 2010 | 4.588 | Apr 2011 | 0.000 | | 4.588 | 0.000 | 10.595 | 0.000 |
| DTE C - Phase I trials - Contract #5 | C/CPIF | TBD | 0.000 | 6.009 | Apr 2010 | 4.588 | Apr 2011 | 0.000 | | 4.588 | 0.000 | 10.597 | 0.000 |
| DTE C - Phase I trials - Contract #6 | C/CPIF | TBD | 0.000 | 4.509 | Apr 2010 | 4.588 | Apr 2011 | 0.000 | | 4.588 | 0.000 | 9.097 | 0.000 |
| OTHT C - Technologies | C/CPIF | TBD | 0.000 | 0.000 | | 8.450 | Apr 2011 | 0.000 | | 8.450 | 0.000 | 8.450 | 0.000 |
| DTE C - Phase I trials - IBP Contract #1 | C/CPIF | TBD | 0.000 | 0.000 | | 3.000 | Apr 2011 | 0.000 | | 3.000 | 0.000 | 3.000 | 0.000 |
| DTE C - Phase I trials - IBP Contract #2 | C/CPIF | TBD | 0.000 | 0.000 | | 3.000 | Apr 2011 | 0.000 | | 3.000 | 0.000 | 3.000 | 0.000 |
| DTE C - Phase I trials - IBP Contract #3 | C/CPIF | TBD | 0.000 | 0.000 | | 3.000 | Apr 2011 | 0.000 | | 3.000 | 0.000 | 3.000 | 0.000 |
| DTE C - Phase I trials - IBP Contract #4 | C/CPIF | TBD | 0.000 | 0.000 | | 3.000 | Apr 2011 | 0.000 | | 3.000 | 0.000 | 3.000 | 0.000 |
| ** VAC FILO - Testing, Evaluation, and Clinical Trials | C/CPIF | TBD | 0.000 | 0.000 | | 4.958 | Jan 2011 | 0.000 | | 4.958 | 0.000 | 4.958 | 0.000 |
| | | Subtotal | 0.000 | 36.059 | | 52.936 | | 0.000 | | 52.936 | 0.000 | 88.995 | 0.000 |

**Remarks**

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**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2010 Cost | FY 2010 Award Date | FY 2011 Base Cost | FY 2011 Base Award Date | FY 2011 OCO Cost | FY 2011 OCO Award Date | FY 2011 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CONG - Congressional Interest Item - Broad Spectrum Therapeutic | Allot | TBD | 0.000 | 0.080 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.080 | 0.000 |
| ** VAC FILO - PM/MS S - Program Management/ Program Manager Support | Allot | CBMS Frederick, MD | 0.000 | 0.200 | Jul 2010 | 1.035 | Jul 2011 | 0.000 | | 1.035 | 0.000 | 1.235 | 0.000 |
| PM/MS S - Contractor Systems Engineering/ Program Management Support | SS/FFP | Goldbelt Raven LLC, Frederick | 0.000 | 0.200 | Apr 2010 | 0.689 | Apr 2011 | 0.000 | | 0.689 | 0.000 | 0.889 | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | MIPR | HQ AMC, Alexandria | 0.000 | 1.264 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.264 | 0.000 |
| | | **Subtotal** | 0.000 | 1.744 | | 1.724 | | 0.000 | | 1.724 | 0.000 | 3.468 | 0.000 |

**Remarks**

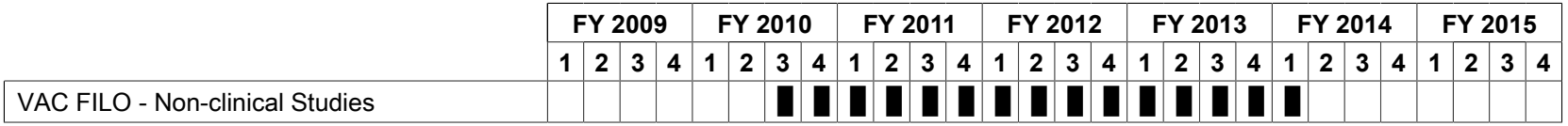
| | Total Prior Years Cost | FY 2010 Cost | FY 2010 Award Date | FY 2011 Base Cost | FY 2011 Base Award Date | FY 2011 OCO Cost | FY 2011 OCO Award Date | FY 2011 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 0.000 | 102.437 | | 136.975 | | 0.000 | | 136.975 | 0.000 | 239.412 | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* | |

| | FY 2009 | | | | FY 2010 | | | | FY 2011 | | | | FY 2012 | | | | FY 2013 | | | | FY 2014 | | | | FY 2015 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| ** CONG - Tactical, Cargo & Rotary Wing Aircraft Decon | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | |
| ** TMTI - Milestone A Decision (Hemorrhagic Fever Virus MCM) | | | | ■ | | | | | | | | | | | | | | | | | | | | | | | | |
| Contract #1-6 (HFV) Phase I trials | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | |
| Milestone A Decision (Intracellular Bacteria Pathogen MCM) | | | | | | | | ■ | | | | | | | | | | | | | | | | | | | | |
| Contract 1-4 (IBP) Phase I Trials | | | | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | |
| Milestone B Decision (Hemorrhagic Fever Viruses) | | | | | | | | | | | ■ | | | | | | | | | | | | | | | | | |
| ** TT Bio - Large Scale Single Use Bio Reactor for Rapid Response to Bioterrorism | | | ■ | ■ | | | | | | | | | | | | | | | | | | | | | | | | |
| Biological Threat Antibody Research | | | ■ | ■ | | | | | | | | | | | | | | | | | | | | | | | | |
| Recombinant Bche Formulation Program | | | ■ | ■ | | | | | | | | | | | | | | | | | | | | | | | | |
| IM Formulation development of Anthrax Therapeutic | | | ■ | ■ | | | | | | | | | | | | | | | | | | | | | | | | |
| ** VAC FILO - Prepare Acquisition Documentation | | | | | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | |
| Prepare and release solicitation | | | | | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | |
| VAC FILO - Milestone A | | | | | | | | ■ | | | | | | | | | | | | | | | | | | | | |
| VAC FILO - Manufacturing Process Development - Small Scale | | | | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | |

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* | |



| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **PROJECT**<br>MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** CONG - Tactical, Cargo & Rotary Wing Aircraft Decon | 3 | 2010 | 4 | 2012 |
| ** TMTI - Milestone A Decision (Hemorrhagic Fever Virus MCM) | 4 | 2009 | 4 | 2009 |
| Contract #1-6 (HFV) Phase I trials | 3 | 2010 | 4 | 2011 |
| Milestone A Decision (Intracellular Bacteria Pathogen MCM) | 4 | 2010 | 4 | 2010 |
| Contract 1-4 (IBP) Phase I Trials | 3 | 2011 | 4 | 2012 |
| Milestone B Decision (Hemorrhagic Fever Viruses) | 3 | 2011 | 3 | 2011 |
| ** TT Bio - Large Scale Single Use Bio Reactor for Rapid Response to Bioterrorism | 3 | 2009 | 4 | 2009 |
| Biological Threat Antibody Research | 3 | 2009 | 4 | 2009 |
| Recombinant Bche Formulation Program | 3 | 2009 | 4 | 2009 |
| IM Formulation development of Anthrax Therapeutic | 3 | 2009 | 4 | 2009 |
| ** VAC FILO - Prepare Acquisition Documentation | 1 | 2010 | 4 | 2010 |
| Prepare and release solicitation | 1 | 2010 | 2 | 2011 |
| VAC FILO - Milestone A | 4 | 2010 | 4 | 2010 |
| VAC FILO - Manufacturing Process Development - Small Scale | 3 | 2011 | 1 | 2014 |
| VAC FILO - Non-clinical Studies | 3 | 2010 | 1 | 2014 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* | 19.365 | 9.438 | 0.000 | 0.000 | 0.000 | 2.973 | 3.661 | 5.035 | 14.670 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This project funds Advanced Component Development and Prototypes (ACD&P) of countermeasures for chemical agents including life support equipment, diagnostic equipment, prophylactic and therapeutic drugs, and individual/casualty decontamination compounds. A system of medical defense against chemical agents is required to provide protection, to sustain performance in a chemical environment, and to provide for self-aid/buddy-aid and medical treatment of chemical casualties. Fielding of prophylactic and therapeutic drugs requires Food and Drug Administration (FDA) approval. Multiple long-term studies are required to obtain FDA approval resulting in longer program timelines and greater program cost than other non-pharmaceutical product programs. Efficacy testing of most candidate drugs against chemical warfare (CW) agents cannot be conducted in humans; therefore, animal surrogate models must be developed. The program currently funds the: (1) Bioscavenger Increment 2 (BSCAV Inc. 2), which will be used as a prophylaxis against nerve agents; (2) Inhalational Atropine (IA), which will be used to treat continuing nerve agent induced effects after the patient has been evacuated to a medical treatment facility; and (3) Improved Nerve Agent Treatment System (INATS), which will be used as a treatment for nerve agent intoxication to include new indications for Pyridostigmine Bromide (PB) that will be integrated with current therapeutic regimens. Time Temperature Indicators (TTI), Item Unique Identification (IUID), and Radio-Frequency Identification (RFID) will be part of the development effort for incorporation on all medical countermeasures being developed by CBMS-MITS. A TTI is a human readable tab that will provide the Warfighter immediate knowledge if the product is still useable or not. IUID and RFID labels placed on the product will improve inventory management and strategic purchasing, and enable reliable visibility, and capability-based operational readiness.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) BSCAV Increment 2<br>*FY 2009 Accomplishments:*<br>Completed Phase 1 clinical safety studies and prepared documentation for Milestone B in 1QFY10. | 4.686 | 0.000 | 0.000 | 0.000 | 0.000 |
| 2) BSCAV Increment 2 | 4.050 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued large scale manufacturing, process development, and assay validation. Prepared for transition to Engineering and Manufacturing Development phase. | | | | | |
| 3) BSCAV Increment 2<br>*FY 2009 Accomplishments:*<br>Completed NTA studies at US Army Medical Research Institute of Chemical Defense (USAMRICD). | 0.400 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4) Inhalational Atropine<br>*FY 2010 Plans:*<br>Initiate process development and cGMP requirements. | 0.000 | 0.800 | 0.000 | 0.000 | 0.000 |
| 5) Inhalational Atropine<br>*FY 2010 Plans:*<br>Initiate formulation, analytical methods and device development and transition to Engineering Manufacturing and Development phase. | 0.000 | 1.167 | 0.000 | 0.000 | 0.000 |
| 6) INATS<br>*FY 2009 Accomplishments:*<br>Completed Investigational New Drug (IND) application effort.<br>*FY 2010 Plans:*<br>Initiate and complete IND amendment. | 0.630 | 0.552 | 0.000 | 0.000 | 0.000 |
| 7) INATS | 3.750 | 3.411 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued process development and small scale Current Good Manufacturing Practices (cGMP) efforts.<br><br>*FY 2010 Plans:*<br>Complete process development and small scale cGMP efforts. | | | | | |
| 8) INATS<br>*FY 2009 Accomplishments:*<br>Continued efficacy, safety, and toxicology studies of candidate oximes.<br><br>*FY 2010 Plans:*<br>Complete efficacy, safety, and toxicology studies of candidate oximes. | 5.849 | 3.390 | 0.000 | 0.000 | 0.000 |
| 9) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.118 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 19.365 | 9.438 | 0.000 | 0.000 | 0.000 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JM6500: *INHALATIONAL ATROPINE (IA)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.496 | 0.991 | Continuing | Continuing |
| • JM6555: *IMPROVED NERVE AGENT TREATMENT SYSTEM (INATS)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 3.966 | 4.954 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* | |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JM6677: *ADVANCED ANTICONVULSANT SYSTEM (AAS)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 4.466 | 9.126 | 5.187 | Continuing | Continuing |
| • MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* | 14.203 | 14.027 | 51.856 | | 51.856 | 47.835 | 28.771 | 12.122 | 8.171 | Continuing | Continuing |

**D. Acquisition Strategy**

BSCAV

The Bioscavenger acquisition strategy consists of a developmental program with three distinct increments.

Increment 1 is butyrylcholinesterase purified from human plasma (i.e., plasma-derived Bioscavenger or pBioscavenger). The Medical Identification and Treatment Systems (MITS) Joint Product Management Office exercises management oversight, and a commercial partner serves as the system integrator during the Technology Development Phase, which includes small scale manufacturing, pre-clinical animal studies, Investigational New Drug (IND) application, and Phase 1 human clinical safety studies.

The Bioscavenger Increment 2 strategy includes a proof-of-concept study followed by an initial down-selection between two different technologies: Recombinant human butyrylcholinesterase (rHuBChE) and small synthetic molecule, awarded to two different contractors. The chosen technology, rHuBChE, will continue to a formal down-selection with the plasma-derived Bioscavenger at Milestone B prior to transition to the Engineering and Manufacturing Development (EMD) phase. Following Milestone B into EMD, MITS will continue to exercise management oversight with system integration support of a commercial partner to ensure manufacturing of the product is in accordance with Food and Drug Administration (FDA) regulations and guidelines. Prior to FDA licensure, the commercial partner will perform a Phase 2 human clinical safety study, definitive animal efficacy studies, and toxicology studies. The SDD phase will culminate in obtaining FDA licensure of the Bioscavenger. During the Production and Deployment phase, the MITS JPMO, in conjunction with a commercial partner, will pursue full rate and stockpile production and conduct any FDA-mandated post-marketing surveillance.

Unlike Bioscavenger Increment 1 and 2 technology, where the Bioscavenger becomes ineffective after binding with nerve agents, Increment 3 will include products that continuously degrade nerve agents while retaining their effectiveness (catalytic Bioscavenger). Because the technology for Increment 3 is immature, a candidate product will not be ready for transition to advanced development until late in the next decade. Therefore, CBMS MITS is exploring alternative technologies to reduce the costs of producing Bioscavenger Increment 2.

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* |

IA

Medical Identification and Treatment Systems (MITS) Joint Product Management Office (JPMO) will manage the development of Inhalational Atropine (IA) for the DoD. For this Advanced Development effort, the competitively selected contractor will serve as the systems integrator throughout development and shall be responsible for conducting the activities associated with drug development in a manner consistent with eventual approval by the Food and Drug Administration (FDA), including: human clinical safety studies; pharmacokinetic studies; and validated manufacturing. The contractor shall sponsor the drug product to the FDA and hold all approvals and/or licenses.

INATS

Medical Identification and Treatment Systems (MITS) Joint Product Management Office will serve as the system integrator during the Technology Development Phase that includes pre-clinical animal studies and Phase 1 human clinical safety studies. After Milestone B, during the System Development and Demonstration Phase, MITS and/or a commercial partner (product dependent) will serve as the system integrator to ensure that products are manufactured in accordance with Food and Drug Administration (FDA) regulations and guidelines, appropriate Phase 2 human clinical safety and definitive animal efficacy studies are conducted, and required toxicology studies are performed. During the Production and Deployment Phase, FDA approval will be obtained and full rate and stockpile production will be pursued. Any FDA mandated post-marketing surveillance will be conducted.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* | |

**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** IA - cGMP Manufacturing requirements | C/CPIF | TBD | 0.000 | 0.767 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.767 | 0.000 |
| ** INATS - INATS - Pilot Lot & Small Scale Manufacturing | C/CPFF | Southwest Research Institute San Antonio, TX | 6.653 | 1.790 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 8.443 | 0.000 |
| INATS - Scale-Up Manufacturing of Candidate Oximes | C/CPIF | TBD | 0.000 | 2.375 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 2.375 | 0.000 |
| | | **Subtotal** | 6.653 | 4.932 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 11.585 | 0.000 |

**Remarks**

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** INATS - INATS - Regulatory Integration, IND, and NDA Support Efforts | MIPR | Defense Technical Information Center Edgewood, MD | 1.890 | 0.372 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 2.262 | 0.000 |
| | | **Subtotal** | 1.890 | 0.372 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 2.262 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* | |

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |

Remarks

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** IA - Inhalational Atropine - Formulation, Analytical Methods & Device Optimization | C/CPIF | TBD | 0.000 | 1.200 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.200 | 0.000 |
| ** INATS - INATS - Conduct Studies of Candidate Oximes | MIPR | Defense Technical Information Center Edgewood, MD | 0.000 | 2.500 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 2.500 | 0.000 |
| | | Subtotal | 0.000 | 3.700 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 3.700 | 0.000 |

Remarks

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2010 Cost | FY 2010 Award Date | FY 2011 Base Cost | FY 2011 Base Award Date | FY 2011 OCO Cost | FY 2011 OCO Award Date | FY 2011 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** INATS - INATS - Product Management Support | MIPR | USAMMDA<br>Fort Detrick, MD | 0.380 | 0.148 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.528 | 0.000 |
| INATS - Chem Bio Medical Systems | Allot | CBMS<br>Frederick, MD | 1.242 | 0.168 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.410 | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | MIPR | HQ<br>AMC, Alexandria | 0.000 | 0.118 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.118 | 0.000 |
| | | **Subtotal** | 1.622 | 0.434 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 2.056 | 0.000 |

**Remarks**

| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 10.165 | 9.438 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 19.603 | 0.000 |

**Remarks**

| **Exhibit R-4**, **RDT&E Schedule Profile:** PB 2011 Chemical and Biological Defense Program | | **DATE:** February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **PROJECT**<br>MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* |

| | FY 2009 | | | | FY 2010 | | | | FY 2011 | | | | FY 2012 | | | | FY 2013 | | | | FY 2014 | | | | FY 2015 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| ** BSCAV - BSCAV Inc. 2 - Phase 1 Clinical Safety Studies | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | | | | | |
| BSCAV Inc. 2 - Large Scale Manufacturing, Process Development & Assay Validation | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | |
| BSCAV Inc. 2 - Milestone B | | | | | | ■ | | | | | | | | | | | | | | | | | | | | | | |
| BSCAV Inc. 2 - Conduct GLP Animal Efficacy Studies | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | |
| BSCAV - NTA Studies | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | | | | | |
| ** IA - IA - Process Development and current Good Manufacturing Practices (cGMP) requirements | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| IA - Formulation, analytical assay, and device development | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | |
| IA - Milestone B | | | | | | | | ■ | | | | | | | | | | | | | | | | | | | | |
| ** INATS - INATS - Process development & small scale cGMP | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | | |
| INATS - IND Application/Amendment | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | |
| INATS - Efficacy, Safety & Toxicology Studies of Candidate Oximes | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | |
| INATS - Process Development and small scale cGMP Manufacturing | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **PROJECT**<br>MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** BSCAV - BSCAV Inc. 2 - Phase 1 Clinical Safety Studies | 4 | 2007 | 4 | 2009 |
| BSCAV Inc. 2 - Large Scale Manufacturing, Process Development & Assay Validation | 1 | 2008 | 4 | 2014 |
| BSCAV Inc. 2 - Milestone B | 2 | 2010 | 2 | 2010 |
| BSCAV Inc. 2 - Conduct GLP Animal Efficacy Studies | 3 | 2010 | 4 | 2013 |
| BSCAV - NTA Studies | 4 | 2008 | 4 | 2009 |
| ** IA - IA - Process Development and current Good Manufacturing Practices (cGMP) requirements | 3 | 2010 | 3 | 2015 |
| IA - Formulation, analytical assay, and device development | 3 | 2010 | 4 | 2012 |
| IA - Milestone B | 4 | 2010 | 4 | 2010 |
| ** INATS - INATS - Process development & small scale cGMP | 2 | 2008 | 3 | 2010 |
| INATS - IND Application/Amendment | 2 | 2008 | 4 | 2010 |
| INATS - Efficacy, Safety & Toxicology Studies of Candidate Oximes | 2 | 2009 | 4 | 2010 |
| INATS - Process Development and small scale cGMP Manufacturing | 1 | 2008 | 4 | 2010 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>MR4: *MEDICAL RADIOLOGICAL DEFENSE (ACD&P)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MR4: *MEDICAL RADIOLOGICAL DEFENSE (ACD&P)* | 4.294 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This project funds the advanced development of candidate therapeutic medical countermeasures to mitigate the consequences of exposure to ionizing radiation due to nuclear or radiological attacks. Exposure to ionizing radiation causes damage to blood-forming cells (hematopoietic system) and gastrointestinal system, leading to Acute Radiation Syndrome (ARS). Medical countermeasures must be approved by the Food and Drug Administration (FDA) for human use prior to fielding. Testing the efficacy of candidate drugs against normally lethal radiation exposure cannot be conducted in humans; therefore, surrogate animal models must be used to obtain FDA approval.

Medical Radiological Countermeasures (MRADC) efforts include multiple countermeasures required to restore casualties to pre-exposure health and to protect U.S. Forces against injury caused by exposure to radiation. MRADC shall reverse or limit radiation injury resulting in increased survival, decreased incapacity, and sustained operational effectiveness. In addition, MRADC shall be effective against a broad range of radiation sources and types and shall be useable in the battle space, including evacuation.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) MRADC | 2.557 | 0.000 | 0.000 | 0.000 | 0.000 |
| *FY 2009 Accomplishments:*<br>Completed initial non-clinical efficacy studies. | | | | | |
| 2) MRADC | 1.737 | 0.000 | 0.000 | 0.000 | 0.000 |
| *FY 2009 Accomplishments:*<br>Completed product formulation studies. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>MR4: *MEDICAL RADIOLOGICAL DEFENSE (ACD&P)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Accomplishments/Planned Programs Subtotals | 4.294 | 0.000 | 0.000 | 0.000 | 0.000 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • MR5: *MEDICAL RADIOLOGICAL DEFENSE (SDD)* | 3.002 | 8.276 | 1.143 | | 1.143 | 4.817 | 2.265 | 0.000 | 0.000 | Continuing | Continuing |

**D. Acquisition Strategy**

MRADC

Medical Identification and Treatment Systems (MITS) Joint Product Management Office will manage the development of Medical Radiation Countermeasures (MRADC) for the Department of Defense (DoD). A contractor will serve as the product integrator throughout development and shall be responsible for conducting activities associated with drug development in a manner consistent with eventual approval by the Food and Drug Administration (FDA). The contractor shall sponsor the drug to the FDA and hold all approvals and/or licenses. The Technology Development phase includes pre-clinical studies and Phase 1 human clinical safety studies. During the Engineering and Manufacturing Development (EMD) phase, large scale manufacturing, Phase 2 human clinical safety studies and definitive animal efficacy studies will be conducted. FDA approval of the countermeasure is an exit criterion for the EMD phase. During the Production and Deployment Phase, sufficient quantities of product to meet Initial Operational Capability and Full Operational Capability will be purchased. Subsequent purchases will be made by the Defense Logistics Agency. Any post-marketing surveillance requested by the FDA will be conducted.

MRADC will be developed using a system-of-systems approach to provide a full spectrum capability to protect against the radiation threat. Individual countermeasure solutions will be developed using a single step to a full capability (FDA approval) strategy. The DoD is working very closely with the Department of Health and Human Services (HHS), which also has a radiation countermeasure program. The establishment of an interagency working group provides oversight and guidance to both agency programs to ensure that their efforts are non-duplicative and are directed to meeting the requirement of both agencies.

**E. Performance Metrics**

N/A

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>MR4: *MEDICAL RADIOLOGICAL DEFENSE (ACD&P)* | |

| | FY 2009 | | | | FY 2010 | | | | FY 2011 | | | | FY 2012 | | | | FY 2013 | | | | FY 2014 | | | | FY 2015 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| ** MRADC - MRADC - Initial Non-Clinical Animal Efficacy Studies for 2 Candidates | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | | | | | |
| MRADC - Product Formulation on Candidate 1 | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | | | | | |
| MRADC - Milestone B | | | | | | | ■ | | | | | | | | | | | | | | | | | | | | | |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **PROJECT**<br>MR4: *MEDICAL RADIOLOGICAL DEFENSE (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** MRADC - MRADC - Initial Non-Clinical Animal Efficacy Studies for 2 Candidates | 2 | 2008 | 4 | 2009 |
| MRADC - Product Formulation on Candidate 1 | 2 | 2008 | 4 | 2009 |
| MRADC - Milestone B | 3 | 2010 | 3 | 2010 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>TE4: *TEST & EVALUATION (ACD&P)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TE4: *TEST & EVALUATION (ACD&P)* | 6.261 | 28.773 | 19.304 | 0.000 | 19.304 | 11.851 | 28.035 | 20.266 | 21.139 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This funding supports the Joint Project Manager Nuclear, Biological, Chemical Contamination Avoidance Product Director, Test Equipment, Strategy, and Support (PD TESS) efforts. PD TESS provides test infrastructure products for testing and evaluating chemical and biological defense systems throughout the life cycle acquisition process in support of the Milestone Decision Authority, Joint Project Managers, and the Test and Evaluation (T&E) community. PD TESS test infrastructure products are aligned in four groups to include: (1) Chemical Laboratory (Sense); (2) Biological Laboratory (Sense); (3) Individual Protection, Collective Protection and Decontamination (Shield and Sustain); and (4) Field Simulant (Sense).

(1) Chemical Laboratory (Sense): Products for this area include a Non-Traditional Agent (NTA) Test Facility. The NTA Facility provides a new capability at the Edgewood Chemical Biological Center (ECBC) to conduct highly toxic materials testing using new, emerging threat agents. The NTA facility supports testing of decontamination, collective protection, individual protection, and contamination avoidance products. Major CBDP acquisition programs supported are: the Joint Chemical Agent Detector (JCAD); the Joint Service General Purpose Mask (JSGPM); the Lightweight CB Ensemble (LCBE); Joint Expeditionary Collective Protection (JECP); Joint Collective Protection Equipment (JCPE); Joint Service Transportable Decontamination System (JSTDS); Joint Warning and Reporting Network (JWARN) hardware components; the Joint Protective Aircrew Ensemble (JPACE); the Joint Service Aircrew Mask (JSAM); and the Joint Chemical Ensemble (JCE).

(2) Sense Laboratory (Biological): Products for this area include a biological live agent standoff chamber. The Chamber supports Joint Biological standoff detection testing in biological live agent environments. Major CBDP acquisition program support is the Joint Biological Standoff Detection System (JBSDS) Block II.

(3) Individual Protection, Collective Protection and Decontamination (Shield and Sustain): Products for this area include: Chemical, Biological Agent Resistance Test (CBART) fixture and Decontamination Coupon Validation Effort. CBART fixture provides a near real time testing capability under a range of environmental conditions for individual and collective protection materials. The Decontamination Coupon Validation Effort develops laboratory procedures to reduce variability in decontamination coupon testing. Acquisition Programs supported are: Joint Platform Interior Decontamination/Joint Material Decontamination System (JPID/JMDS); Joint Service Transportable Decontamination System (JSTDS); Joint Expeditionary Collective Protection (JECP); Joint Collective Protection Equipment (JCPE); Protective Clothing; Joint Protective Aircrew Ensemble (JPACE); Joint Service General Purpose Mask (JSGPM); Joint Service Aircrew Mask (JSAM); and the Joint Chemical Ensemble (JCE).

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>TE4: *TEST & EVALUATION (ACD&P)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) PD TESS - Non-Traditional Agent (NTA) Test System | 4.915 | 22.908 | 16.000 | 0.000 | 16.000 |
| *FY 2009 Accomplishments:*<br>Evaluated/optimized mock-up performance. Initiated test fixtures design and procedures development. | | | | | |
| *FY 2010 Plans:*<br>Complete NTA Test Facility final design and initiate fabrication. Continue procedure and test fixtures development. | | | | | |
| *FY 2011 Base Plans:*<br>Continue facility fabrication. | | | | | |
| 2) PD TESS - Bio Standoff Facility | 0.000 | 0.600 | 0.900 | 0.000 | 0.900 |
| *FY 2010 Plans:*<br>Initiate and complete Bio Standoff Facility feasibility effort. | | | | | |
| *FY 2011 Base Plans:*<br>Initiate Bio Standoff Facility design. | | | | | |
| 3) PD TESS - Chemical Biological Agent Resistance Test (CBART) | 0.000 | 0.000 | 0.900 | 0.000 | 0.900 |
| *FY 2011 Base Plans:*<br>Initiate design. | | | | | |
| 4) PD TESS | 1.346 | 3.904 | 1.504 | 0.000 | 1.504 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>TE4: *TEST & EVALUATION (ACD&P)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued systems engineering support for integration and execution of Advanced Component Development & Prototype development.<br>*FY 2010 Plans:*<br>Continue systems engineering support.<br>*FY 2011 Base Plans:*<br>Continue systems engineering support. | | | | | |
| 5) PD TESS - Decon Coupon Validation<br>*FY 2010 Plans:*<br>Complete lab procedures for reduced variability. | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| 6) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.361 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 6.261 | 28.773 | 19.304 | 0.000 | 19.304 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TE5: *TEST & EVALUATION (SDD)* | 37.444 | 36.593 | 15.901 | | 15.901 | 12.243 | 4.238 | 14.614 | 15.300 | Continuing | Continuing |
| | 7.037 | 4.870 | 4.813 | | 4.813 | 4.779 | 4.750 | 5.660 | 5.615 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>TE4: *TEST & EVALUATION (ACD&P)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TE7: *TEST & EVALUATION (OP SYS DEV)* | | | | | | | | | | | |

**D. Acquisition Strategy**

PD TESS

The PD TESS program provides for the development and acquisition of new and enhanced test infrastructure to support the sense, shield, shape, and sustain mission areas for the Joint Service Chemical and Biological Defense Program (CBDP). The efforts are supported through competitive contract actions, academia, and other Government agencies. Infrastructure solutions will leverage commercially available systems to provide state-of-the-art capabilities that address current and future CBDP test and evaluation needs.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>TE4: *TEST & EVALUATION (ACD&P)* | |

**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** PD TESS - HW S - NTA Test Facility Procedures/Fixtures | MIPR | Various | 8.505 | 5.190 | Jan 2010 | 2.000 | Jan 2011 | 0.000 | | 2.000 | 0.000 | 15.695 | 0.000 |
| HW S - NTA Test System Design/ Fabrication/Installation | C/FFP | TBD | 3.997 | 18.018 | Jan 2010 | 14.900 | Jan 2011 | 0.000 | | 14.900 | 0.000 | 36.915 | 0.000 |
| HW S - Bio Standoff Facility Feasibility/ Design | Reqn | TBD | 0.000 | 0.600 | Jan 2010 | 0.900 | Jan 2011 | 0.000 | | 0.900 | 0.000 | 1.500 | 0.000 |
| HW S - CBART - Design | C/CPFF | TBD | 0.000 | 0.700 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.700 | 0.000 |
| | | **Subtotal** | 12.502 | 24.508 | | 17.800 | | 0.000 | | 17.800 | 0.000 | 54.810 | 0.000 |

**Remarks**

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** PD TESS - PM/MS S - Program Management/ Systems Engineering Support | MIPR | JPM NBC CA APG, MD | 4.694 | 3.904 | Oct 2009 | 1.504 | Oct 2010 | 0.000 | | 1.504 | 0.000 | 10.102 | 0.000 |
| | MIPR | HQ | 0.000 | 0.361 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.361 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>TE4: *TEST & EVALUATION (ACD&P)* |

**Management Services ($ in Millions)**

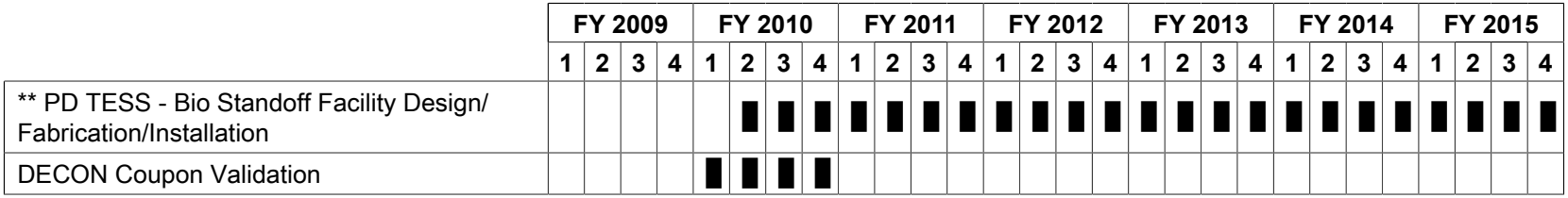
| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | | AMC, Alexandria | | | | | | | | | | | |
| | | Subtotal | 4.694 | 4.265 | | 1.504 | | 0.000 | | 1.504 | 0.000 | 10.463 | 0.000 |

**Remarks**

| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | 17.196 | 28.773 | | 19.304 | | 0.000 | | 19.304 | 0.000 | 65.273 | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>TE4: *TEST & EVALUATION (ACD&P)* | |



| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>TE4: *TEST & EVALUATION (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** PD TESS - Bio Standoff Facility Design/Fabrication/Installation | 2 | 2010 | 4 | 2015 |
| DECON Coupon Validation | 1 | 2010 | 4 | 2010 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)* | 17.065 | 26.649 | 26.466 | 0.000 | 26.466 | 18.564 | 18.838 | 19.294 | 19.563 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This project (TT4) validates high-risk/high-payoff technologies, concepts-of-operations, and reconnaissance and surveillance platforms that could significantly improve Warfighter capabilities in preparation for transition of mature technologies to advanced development programs requiring chemical and biological (CB) defense technologies. These programs offer an opportunity to identify and efficiently mature emerging technologies from laboratory experiments to acquisition programs through risk reduction, engineering and integration. These Advanced Technology Demonstrations (ATDs) and Advanced Concept Technology Demonstrations (ACTDs) seek to demonstrate the potential for enhanced military operational capability and/or cost effectiveness. Upon conclusion of the technical and operational demonstrations, the user or sponsor provides a determination of the military utility and operational impact of the technology and capability demonstrated. Successfully demonstrated technologies with proven military utility can either be left in place for extended user evaluations, accepted into advanced stages of the formal acquisition process, proceed directly into limited or full-scale production or be returned to the technical base for further development. This project funds three major thrust areas (two of which are new thrust areas that consolidate legacy systems and are annotated as such below): Advanced Remediation Technologies (ART), Early Warning Military Application in Reconnaissance Systems (EW-MARS), and Comprehensive Innovative Protection (CIP). The ART addresses Chemical, Biological, and Radiological (CBR) remediation and decontamination processes and demonstrates technologies and methods to restore assets such as mobile equipment, fixed sites, critical infrastructures, personal, and equipment to operational status as a result of having reduced or eliminated CBR contamination. The EW-MARS (new thrust area) achieves enhanced command and control decision making capabilities as a result of a combined and orchestrated family of chemical and biological defense systems deployed on various platforms in remote locations. The CIP (new thrust area) transitions mature technologies to improve individual and collective protection capabilities for U.S. and coalition Warfighters. The following is a description of specific efforts funded under each thrust area:

ART:
Interagency Biological Restoration Demonstration (IBRD) - A Department of Defense (DoD)/Department of Homeland Security (DHS) collaborative effort that will provide a coordinated, systems approach to the recovery and restoration of wide urban areas. This will include Department of Defense (DoD) infrastructures and high traffic areas (transit/transportation facilities) following the aerosol release of a biological agent.

Special Platform Interior Decontamination and Equipment Restoration (SPIDER) - A concept exploration effort that focused on decontaminating the interior of an aircraft following the release of a chemical agent. This effort merged into the Decontamination Family of Systems, also known as HaMMER (see below for description).

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| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **PROJECT**<br>TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)* |

Automated Detailed Equipment Decontamination for Land Vehicles (Auto Decon) - A chemical and biological decontamination process for land vehicles, which will prototype an improved decontamination process and will evaluate the current Detailed Equipment Decontamination (DED), which is the most thorough of Joint Service decontamination procedures. This effort will merge into the Decontamination Family of Systems, also known as HaMMER (see below for description).

Hazard Mitigation Material and Equipment Restoration (HaMMER) - A layered strategy to identify individual technologies that may be collectively applied to reduce or eliminate chemical and biological hazards. It includes a Decontamination Family of Systems that gives the Warfighter multiple capabilities to reduce or eliminate chemical hazards. This effort leverages upon and consolidates Auto Decon and SPIDER efforts described above.

EW-MARS:

Military Applications in Reconnaissance Systems for Joint Force Protection (MARS-JFP) - A data fusion ATD that leverages early warning technologies developed in Budget Activity 3 (Project TT3) to improve the capability to detect and react to an initial chemical and biological attack, as well as prevent a second attack. Specifically, this effort focuses on force protection decision making for external, cross domain sensors for cueing/tipping, and managing resources of dynamically deployable high quality chemical and biological sensors.

Rapid Area Surveillance Reconnaissance (RASR) - A sensitive-site exploration, standoff reconnaissance, ATD that leverages early warning technologies developed in Budget Activity 3 (Project TT3) to survey large areas (whole rooms, courtyards, fields) and assess and identify contamination with Chemical Warfare Agents (CWAs), Toxic Industrial Chemicals (TICs) and Non-Traditional Agents (NTAs).

Post Intercept Weapons of Mass Destruction Identification (PIWID) - An ATD that leverages early warning technologies developed in Budget Activity 3 (Project TT3), which addresses both operational and technical issues associated with the capability to determine the presence of Weapons of Mass Destruction (WMD) in the threat payload of ballistic or cruise missile delivery systems after a successful active defense intercept.

CIP:
Demo-Low Burden Individual Protection Demonstration (IP Demo) - An ATD that leverages lightweight chemical and biological protective textiles developed in Budget Activity 3 (Project CB3, Protection and Hazard Mitigation), and will support the next generation Joint Chemical Ensemble. This effort will provide significantly decreased thermal burden correlated with acceptable levels of chemical and biological protection, as well as significantly increase the ability of the Warfighter to accomplish a mission in a contaminated environment.

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Joint Medical Distance Support and Evaluation (JMDSE) - A Joint Concept Technology Demonstration (JCTD) that leverages the results of the EBD (see above for description) and seeks new detect-to-treat concept of operations (CONOPS) enabled by the deployment of new chemical and biological detection and identification capabilities to front line forces.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) TT DEMO | 5.827 | 2.716 | 0.000 | 0.000 | 0.000 |
| ART (Interagency Biological Restoration Demonstration (IBRD)):<br><br>*FY 2009 Accomplishments:*<br>Continued development of restoration plans. Continued risk assessment. Conducted decontamination technologies efficacy testing relevant to an outdoor urban environment. Conducted agent fate and transport studies and demonstrations. Continued development and demonstration of system tools. Conducted table top exercises, field exercises, and workshops.<br><br>*FY 2010 Plans:*<br>Complete IBRD development of restoration plans. Complete established risk assessment and clearance goals. Develop sampling, characterization, and long term monitoring plans. Develop and exercise wide-area decontamination methods. Develop and demonstrate restoration system tools and conduct table top exercises, field exercises, and workshops. Plan, coordinate, and execute the IBRD Final Demo/Table Top Exercise (TTX) in the Seattle urban area. Transition decontamination methods, restoration tools, agent fate and transport data to the advanced developer (Joint Program Manager for Guardian and Decontamination - see Budget Activities 4 and 5). | | | | | |
| 2) TT DEMO | 3.000 | 2.951 | 0.000 | 0.000 | 0.000 |
| ART (Automated Detailed Equipment Decontamination for Land Vehicles (Auto Decon)):<br><br>*FY 2009 Accomplishments:*<br>Initiated and conducted Test and Evaluation (T&E) of current detailed equipment decontamination processes and prototype automated decontamination solutions. | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Complete T&E of current detailed equipment decontamination processes and prototype automated decontamination solutions. Recommend optimized process for automated decontamination. Transition detailed decontamination system to the advanced developer (Joint Program Manager for Decontamination - see Budget Activities 4 and 5). | | | | | |
| 3) TT DEMO<br>ART (Hazard Mitigation Material and Equipment Restoration (HaMMER)):<br>*FY 2009 Accomplishments:*<br>Initiated identification of system and component technologies, established test protocols, and established performance metrics.<br>*FY 2010 Plans:*<br>Conduct component decontamination processes in which collective applications can be employed to eliminate or reduce chemical and biological decontamination.<br>*FY 2011 Base Plans:*<br>Conduct and complete total system decontamination processes to ensure collective applications can be employed to eliminate or reduce chemical and biological decontamination. The completed project will define and provide a flexible system design that leverages individual technologies that address both hazard mitigation and dose-based risk assessment concepts. Transition system of systems chemical/biological decontamination apparatus, TTPs, and CONOPS to JPM-Decontamination. | 0.500 | 7.772 | 7.982 | 0.000 | 7.982 |
| 4) TT DEMO<br>EW-MARS (Military Applications in Reconnaissance Systems for Joint Force Protection (MARS-JFP)): | 2.000 | 2.951 | 3.336 | 0.000 | 3.336 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Initiated operational concept generation. Validated the operational concepts through Table Top Exercises (TTXs) and operator in the loop command and control mockups. Developed risk management concepts and began cross domain security architecture. Finalized ATD acquisition strategy.<br><br>*FY 2010 Plans:*<br>Continue operational concept generation. Begin software development, operational and mockup development, and develop test plans and procedures. Execute initial laboratory-based technology demonstration.<br><br>*FY 2011 Base Plans:*<br>Continue operational concept generation, software development, operational prototype and mockup development. Continue development of test plans and procedures. Initiate integration planning and testing for field demonstration. | | | | | |
| 5) TT DEMO<br>EW-MARS (Rapid Area Surveillance/Reconnaissance (RASR)):<br><br>*FY 2009 Accomplishments:*<br>Initiated operational concept planning and exercises. Conducted pathfinder demonstrations to baseline current state of the art and determine critical path.<br><br>*FY 2010 Plans:*<br>Continue operational concept planning and exercises. Conduct pathfinder demonstrations to baseline current state of the art and determine critical path. Initiate competitive prototype industry awards and conduct technology readiness assessments. Initiate operational mockup, lesson plans and final development planning. | 3.000 | 3.935 | 11.847 | 0.000 | 11.847 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Continue operational concept planning and exercise planning; technology readiness assessments; initiate operational mockup, lesson plans and final development planning; downselect prototype industry awards; conduct and finalize surety testing; conduct several technical and operational demonstrations; conduct Military Utility Assessment (MUA) to assess value to Warfighter; recondition complete systems in preparation for transition to operational managers and combat developers. | | | | | |
| 6) TT DEMO<br>EW-MARS Thrust Area (Post Intercept Weapons of Mass Destruction Identification (PIWID)):<br><br>*FY 2009 Accomplishments:*<br>Initiated Joint Land Attack Cruise Missile Elevated Netted Sensor (JLENS) study. Leveraged a missile intercept event for information gathering and baseline study. Conducted table top exercise to evaluate current Techniques, Tactics, and Procedures (TTPs).<br><br>*FY 2010 Plans:*<br>Conduct post-intercept WMD simulant payload data collection while leveraging missile intercept event. Demonstrate sidecar re-processing of non-chemical and biological sensors to extract useful cue/ tipping information.<br><br>*FY 2011 Base Plans:*<br>Assess standoff data, chem/bio data, and current plan for Unmanned Aerial Vehicle (UAV) point-based, sensor approaches. Conduct standoff sensor and UAV CONOPS. Laboratory demonstration within cross domain environment. Transition data to JPM-NBC CA and JPM-BD. | 2.000 | 1.968 | 1.796 | 0.000 | 1.796 |
| 7) TT DEMO<br>CIP (Low Burden Individual Protection Demonstration (IP Demo)): | 0.000 | 3.050 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Perform and complete system level technical performance measure evaluations. Initiate and complete a system level user demonstration. Conduct and complete component level testing. Transition low burden individual protection overgarment to the advanced developer (Joint Program Manager for Individual Protection and the Program Manager for Soldier Equipment). Initiate risk reduction activities to demonstrate Catalytic Oxidation air purification prototypes, to include initial system and tank test bed designs. | | | | | |
| 8) TT DEMO<br>CIP (Joint Medical Distance Support and Evaluation (JMSDE)):<br>*FY 2009 Accomplishments:*<br>Initiated internal planning, program management, and documentation. Conducted overlay scenarios and initiated JMDSE to Joint Biological Tactical Detection System (JBTDS) interface evaluation.<br>*FY 2010 Plans:*<br>Complete JMDSE to JBTDS interface evaluation. Conduct field demonstrations and military utility assessments. Develop CONOPS, training, test and security plans. Initiate software development.<br>*FY 2011 Base Plans:*<br>Complete field demonstrations and military utility assessments; complete CONOPS and training, test, and security plans. Complete software development and integration. Transition to JPM-Bio Detection. | 0.738 | 0.984 | 1.505 | 0.000 | 1.505 |
| 9) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.322 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 17.065 | 26.649 | 26.466 | 0.000 | 26.466 |

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**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TE3: *TEST & EVALUATION (ATD)* | 25.761 | 13.307 | 11.875 | | 11.875 | 11.267 | 11.160 | 0.000 | 0.000 | Continuing | Continuing |
| • TT3: *TECHBASE TECHNOLOGY TRANSITION* | 8.127 | 7.357 | 4.504 | | 4.504 | 8.117 | 8.169 | 8.390 | 8.528 | Continuing | Continuing |

**D. Acquisition Strategy**

TT DEMO

The Advanced Technology Demonstrations (ATDs) and Advanced Concept Technology Demonstrations (ACTDs) exploit mature and maturing technologies to solve important military problems. ATDs and ACTDs emphasize technology assessment and integration rather than technology development. The goal is to provide a prototype capability to the Warfighter and to support in the evaluation of that capability. The Warfighters evaluate the capabilities in real military exercises and at a scale sufficient to fully assess military utility. When possible, the ATDs will leverage results from existing chemical and biological science and technology (S&T) efforts and prior ATDs. Market research/baselining is performed prior to ATD initiation to determine if a suitable solution exists or whether a solicitation/sole source is required to develop a solution. The ATDs are typically managed by DoD, Federally Funded Research Development Centers (FFRDCs) or University Affiliated Research Centers (UARCs). This is done through the Military Interdepartmental Purchase Request (MIPR) or the Interagency Cost Reimbursable Order (IACRO) in accordance with the Economy Act. The ATD manager, who is typically responsible for total system development, can subcontract industry, academia, or other government agencies to perform individual component development.

**E. Performance Metrics**

N/A

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**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** TT DEMO - HW S - (ART) IBRD System Design and Integration | PO | Pacific Northwest National Laboratory Seattle, WA | 0.375 | 0.791 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.187 | 1.353 | 0.000 |
| HW C - (ART) Auto Decon | MIPR | Army- ECBC Edgewood, MD | 0.000 | 0.300 | Oct 2009 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.300 | 0.000 |
| HW C - (ART) HaMMER Product Development | MIPR | Army- ECBC Edgewood, MD | 0.000 | 2.950 | Oct 2009 | 2.850 | Oct 2010 | 0.000 | | 2.850 | 0.000 | 5.800 | 0.000 |
| HW S - (ART) Hammer Product Development-SME | MIPR | Army- ECBC Edgewood, MD | 0.000 | 0.200 | Oct 2009 | 0.200 | Oct 2010 | 0.000 | | 0.200 | 0.000 | 0.400 | 0.000 |
| HW C - (EW) MARS JFP Product Development | PO | MITRE Bedford, MA | 0.000 | 0.200 | Jan 2010 | 0.200 | Jan 2011 | 0.000 | | 0.200 | 0.000 | 0.400 | 0.000 |
| HW C - (EW) MARS JFP Product Development #2 | PO | Johns Hopkins Univ/Applied Physics Lab (JHU-APL) Laurel, MD | 0.000 | 0.200 | Jan 2010 | 0.200 | Jan 2011 | 0.000 | | 0.200 | 0.000 | 0.400 | 0.000 |
| HW C - (EW) MARS JFP Product Development #3 | PO | MIT/Lincoln Labs Lexington, MA | 0.000 | 0.200 | Jan 2010 | 0.200 | Jan 2011 | 0.000 | | 0.200 | 0.000 | 0.400 | 0.000 |
| HW C - (EW) RASR Product Development | PO | MIT/Lincoln Labs Lexington, MA | 0.000 | 1.700 | Jan 2010 | 1.650 | Jan 2011 | 0.000 | | 1.650 | 0.000 | 3.350 | 0.000 |
| HW C - (EW) RASR Product Development #2 | PO | Georgia Tech Institute of Technology Atlanta, GA | 0.000 | 0.500 | Jan 2010 | 0.500 | Jan 2011 | 0.000 | | 0.500 | 0.000 | 1.000 | 0.000 |

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**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| HW C - (EW) RASR Product Development #3 | PO | MITRE Bedford, MA | 0.000 | 0.000 | | 1.150 | Jan 2011 | 0.000 | | 1.150 | 0.000 | 1.150 | 0.000 |
| HW C - (EW) RASR Product Development #4 | PO | John Hopkins University/ Applied Physics Laboratory Laurel, MD | 0.000 | 0.000 | | 1.150 | Jan 2011 | 0.000 | | 1.150 | 0.000 | 1.150 | 0.000 |
| HW C - (EW) RASR Product Development #5 | PO | Kansas City Plant (DOE) Kansas City, MO | 0.000 | 0.000 | | 1.150 | Jan 2011 | 0.000 | | 1.150 | 0.000 | 1.150 | 0.000 |
| HW C - (EW) RASR Product Development #6 | PO | Naval Postgraduate School Monterey, CA | 0.000 | 0.000 | | 1.150 | Jan 2011 | 0.000 | | 1.150 | 0.000 | 1.150 | 0.000 |
| HW C - (EW) PIWID Product Development | MIPR | JLENS Huntsville, AL | 0.000 | 0.500 | Oct 2009 | 0.500 | Oct 2010 | 0.000 | | 0.500 | 0.000 | 1.000 | 0.000 |
| HW C - (CIP) IP Demo Product Development | MIPR | US Army Natick Soldier RD&E Center Natick, MA | 0.000 | 0.300 | Oct 2009 | 0.200 | Oct 2010 | 0.000 | | 0.200 | 0.000 | 0.500 | 0.000 |
| HW C - (CIP) JMDSE Product Development | MIPR | US Army Natick Soldier RD&E Center Natick, MA | 0.000 | 0.150 | Oct 2009 | 0.150 | Oct 2010 | 0.000 | | 0.150 | 0.000 | 0.300 | 0.000 |
| | | **Subtotal** | 0.375 | 7.991 | | 11.250 | | 0.000 | | 11.250 | 0.187 | 19.803 | 0.000 |

**Remarks**

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**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** TT DEMO - ILS C - (ART) IBRD TTP and CONOPS Development | MIPR | SPAWAR San Diego, CA | 1.028 | 0.250 | Oct 2009 | 0.000 | | 0.000 | | 0.000 | 0.371 | 1.649 | 0.000 |
| ILS C - (ART) Auto Decon Support | MIPR | Edgewood Chemical and Biological Center (ECBC) Edgewood, MD | 0.000 | 0.800 | Oct 2009 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.800 | 0.000 |
| ILS S - (ART) HaMMER System Support | MIPR | Research Development & Engineering Cmd (RDECOM), Edgewood | 0.000 | 1.400 | Oct 2009 | 1.414 | Oct 2010 | 0.000 | | 1.414 | 0.000 | 2.814 | 0.000 |
| ILS S - (ART) Hammer OM Support | MIPR | US European Command (USEUCOM) Stuttgart, GE | 0.000 | 0.150 | Oct 2009 | 0.150 | Oct 2010 | 0.000 | | 0.150 | 0.000 | 0.300 | 0.000 |
| ILS S - (ART) HaMMER Support | MIPR | Edgewood Chemical and Biological Center Edgewood, MD | 0.000 | 0.500 | Oct 2009 | 0.500 | Oct 2010 | 0.000 | | 0.500 | 0.000 | 1.000 | 0.000 |
| ILS C - (EW) MARS JFP Support | MIPR | Edgewood Chemical and Biological Center Edgewood, MD | 0.000 | 0.465 | Oct 2009 | 0.965 | Oct 2010 | 0.000 | | 0.965 | 0.000 | 1.430 | 0.000 |
| ILS C - (EW) RASR OM Support | MIPR | 20th Support Command | 0.000 | 0.215 | Oct 2009 | 0.215 | Oct 2010 | 0.000 | | 0.215 | 0.000 | 0.430 | 0.000 |

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**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| | | Aberdeen Proving Ground, MD | | | | | | | | | | | |
| ILS C - (EW) RASR OM Support #2 | MIPR | MARFORPAC (PACOM) Camp Smith, HI | 0.000 | 0.220 | Oct 2009 | 0.220 | Oct 2010 | 0.000 | | 0.220 | 0.000 | 0.440 | 0.000 |
| ILS C - (EW) PIWID Support-Data Analysis | MIPR | Air Force Research Laboratory Wright Patterson AFB, OH | 0.000 | 0.200 | Oct 2009 | 0.200 | Oct 2010 | 0.000 | | 0.200 | 0.000 | 0.400 | 0.000 |
| ILS C - (EW) PIWID Support-Data Analysis #2 | MIPR | JLENS Huntsville, AL | 0.000 | 0.200 | Oct 2009 | 0.200 | Oct 2010 | 0.000 | | 0.200 | 0.000 | 0.400 | 0.000 |
| ILS C - (CIP) IP Demo Component Support | MIPR | US Army Natick Soldier RD&E Center Natick, MA | 0.000 | 0.275 | Oct 2009 | 0.110 | Oct 2010 | 0.000 | | 0.110 | 0.000 | 0.385 | 0.000 |
| ILS C - (CIP) JMDSE Support | MIPR | US Army Natick Soldier RD&E Center Natick, MA | 0.000 | 0.200 | Oct 2009 | 0.200 | Oct 2010 | 0.000 | | 0.200 | 0.000 | 0.400 | 0.000 |
| | | **Subtotal** | 1.028 | 4.875 | | 4.174 | | 0.000 | | 4.174 | 0.371 | 10.448 | 0.000 |

**Remarks**

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**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** TT DEMO - OTE C - (ART) IBRD Operational Test | Allot | DTRA Test and Evaluation (DTRA CXT) Albuquerque, NM | 1.500 | 0.809 | Oct 2009 | 0.000 | | 0.000 | | 0.000 | 0.590 | 2.899 | 0.000 |
| OTE S - (ART) Auto Decon System Testing | MIPR | Army- ECBC Edgewood, MD | 0.000 | 0.800 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.800 | 0.000 |
| OTE S - (ART) HaMMER System Testing | MIPR | Army- ECBC Edgewood, MD | 0.000 | 0.750 | Oct 2009 | 0.750 | Oct 2010 | 0.000 | | 0.750 | 0.000 | 1.500 | 0.000 |
| OTE S - (ART) HaMMER T&E Oversight | MIPR | Army- ECBC Edgewood, MD | 0.000 | 0.400 | Oct 2009 | 0.400 | Oct 2010 | 0.000 | | 0.400 | 0.000 | 0.800 | 0.000 |
| OTE C - (EW) MARS JFP Support | MIPR | US Army Environmental Command (AEC) Aberdeen, MD | 0.000 | 0.400 | Oct 2009 | 0.200 | Oct 2010 | 0.000 | | 0.200 | 0.000 | 0.600 | 0.000 |
| OTE C - (EW) MARS JFP Support #2 | MIPR | Dugway Proving Ground (DPG) DPG, UT | 0.000 | 0.500 | Oct 2009 | 0.300 | Oct 2010 | 0.000 | | 0.300 | 0.000 | 0.800 | 0.000 |
| OTE C - (EW) RASR Component Testing | MIPR | US Army Environmental Command (AEC) Aberdeen, MD | 0.000 | 0.225 | Oct 2009 | 0.675 | Oct 2010 | 0.000 | | 0.675 | 0.000 | 0.900 | 0.000 |
| OTE C - (EW) RASR Component Testing #2 | MIPR | DPG DPG, UT | 0.000 | 0.225 | Oct 2009 | 0.675 | Oct 2010 | 0.000 | | 0.675 | 0.000 | 0.900 | 0.000 |
| OTE C - (EW) RASR Component Testing #3 | MIPR | US Army Developmental Test Command | 0.000 | 0.226 | Oct 2009 | 0.729 | Oct 2010 | 0.000 | | 0.729 | 0.000 | 0.955 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)* |

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| | | Aberdeen, MD | | | | | | | | | | | |
| OTE C - (EW) PIWID Component Testing | MIPR | DPG<br>DPG, UT | 0.000 | 0.400 | Oct 2009 | 0.400 | Oct 2010 | 0.000 | | 0.400 | 0.000 | 0.800 | 0.000 |
| OTE C - (EW) PIWID Component Testing #2 | MIPR | JLENS<br>Huntsville, AL | 0.000 | 0.400 | Oct 2009 | 0.400 | Oct 2010 | 0.000 | | 0.400 | 0.000 | 0.800 | 0.000 |
| OTE C - (CIP) IP Demo T&E | MIPR | US Army Natick Soldier RD&E Center<br>Natick, MA | 0.000 | 1.745 | Oct 2009 | 1.200 | Oct 2010 | 0.000 | | 1.200 | 0.000 | 2.945 | 0.000 |
| OTE C - (CIP) JMDSE Demo and Evaluation | MIPR | US Army Natick Soldier RD&E Center<br>Natick, MA | 0.000 | 0.400 | Oct 2009 | 0.400 | Oct 2010 | 0.000 | | 0.400 | 0.000 | 0.800 | 0.000 |
| | | **Subtotal** | 1.500 | 7.280 | | 6.129 | | 0.000 | | 6.129 | 0.590 | 15.499 | 0.000 |

**Remarks**

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| | MIPR | Space and Naval Warfare Systems | 1.326 | 0.950 | Oct 2009 | 0.000 | | 0.000 | | 0.000 | 0.469 | 2.745 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)* | |

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** TT DEMO - PM/ MS S - IBRD Program Management | | Command (SPAWAR) San Diego, CA | | | | | | | | | | | |
| PM/MS S - Auto Decon Management Support | MIPR | Army - ECBC Edgewood, MD | 0.000 | 0.950 | Oct 2009 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.950 | 0.000 |
| PM/MS S - HaMMER System Management | MIPR | Army - ECBC Edgewood, MD | 0.000 | 0.700 | Oct 2009 | 0.740 | Oct 2010 | 0.000 | | 0.740 | 0.000 | 1.440 | 0.000 |
| PM/MS S - HaMMER System Program Management | MIPR | Army - ECBC Edgewood, MD | 0.000 | 0.875 | Oct 2009 | 0.940 | Oct 2010 | 0.000 | | 0.940 | 0.000 | 1.815 | 0.000 |
| PM/MS S - MARS JFP Program Management | MIPR | Army - ECBC Edgewood, MD | 0.000 | 0.950 | Oct 2009 | 0.985 | Oct 2010 | 0.000 | | 0.985 | 0.000 | 1.935 | 0.000 |
| PM/MS S - RASR Program Management | MIPR | Army - ECBC Edgewood, MD | 0.000 | 0.675 | Oct 2009 | 1.500 | Oct 2010 | 0.000 | | 1.500 | 0.000 | 2.175 | 0.000 |
| PM/MS S - PIWID System Program Management | MIPR | JLENS Huntsville, AL | 0.000 | 0.270 | Oct 2009 | 0.300 | Oct 2010 | 0.000 | | 0.300 | 0.000 | 0.570 | 0.000 |
| PM/MS C - IP Demo Program Management | MIPR | US Army Natick Soldier RD&E Center Natick, MA | 0.000 | 0.580 | Oct 2009 | 0.200 | Oct 2010 | 0.000 | | 0.200 | 0.000 | 0.780 | 0.000 |
| PM/MS C - JMDSE Program Management | MIPR | US Army Natick Soldier RD&E Center Natick, MA | 0.000 | 0.231 | Oct 2009 | 0.248 | Oct 2010 | 0.000 | | 0.248 | 0.000 | 0.479 | 0.000 |
| | MIPR | HQ | 0.000 | 0.322 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.322 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)* |

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | | AMC, Alexandria | | | | | | | | | | | |
| | | Subtotal | 1.326 | 6.503 | | 4.913 | | 0.000 | | 4.913 | 0.469 | 13.211 | 0.000 |

**Remarks**

Management service costs cover all ten ATDs described in the R2a of this project (TT4).

| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | 4.229 | 26.649 | | 26.466 | | 0.000 | | 26.466 | 1.617 | 58.961 | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)* | |

| | FY 2009 | | | | FY 2010 | | | | FY 2011 | | | | FY 2012 | | | | FY 2013 | | | | FY 2014 | | | | FY 2015 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| ** TT DEMO - (ART) Interagency Biological Restoration Demonstration (IBRD) | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | |
| (ART) Automated Detailed Equipment Decontamination for Land Vehicles (Auto Decon) | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | |
| (ART) Hazard Mitigation, Material and Equipment Restoration (HaMMER) | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | |
| (EW) Military Applications in Reconnaissance/ Support (MARS JFP) | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | |
| (EW) Rapid Area-Scan Sensitive-site Reconnaissance (RASR) | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | |
| (EW) Post Intercept WMD Identification (PIWID) | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | |
| (CIP) IP Demo | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | |
| (CIP) JMDSE | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 ITEM NOMENCLATURE**<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **PROJECT**<br>TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** TT DEMO - (ART) Interagency Biological Restoration Demonstration (IBRD) | 1 | 2007 | 4 | 2010 |
| (ART) Automated Detailed Equipment Decontamination for Land Vehicles (Auto Decon) | 1 | 2008 | 4 | 2010 |
| (ART) Hazard Mitigation, Material and Equipment Restoration (HaMMER) | 1 | 2009 | 4 | 2012 |
| (EW) Military Applications in Reconnaissance/Support (MARS JFP) | 1 | 2009 | 4 | 2013 |
| (EW) Rapid Area-Scan Sensitive-site Reconnaissance (RASR) | 1 | 2009 | 4 | 2012 |
| (EW) Post Intercept WMD Identification (PIWID) | 1 | 2009 | 4 | 2011 |
| (CIP) IP Demo | 1 | 2009 | 4 | 2011 |
| (CIP) JMDSE | 1 | 2009 | 4 | 2011 |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | | | | | | | | | | DATE: February 2010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | | | | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | | | | | | | |
| **COST ($ in Millions)** | **FY 2009 Actual** | **FY 2010 Estimate** | **FY 2011 Base Estimate** | **FY 2011 OCO Estimate** | **FY 2011 Total Estimate** | **FY 2012 Estimate** | **FY 2013 Estimate** | **FY 2014 Estimate** | **FY 2015 Estimate** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 286.529 | 300.317 | 407.162 | 0.000 | 407.162 | 413.610 | 368.621 | 308.708 | 228.651 | Continuing | Continuing |
| CA5: *CONTAMINATION AVOIDANCE (SDD)* | 46.316 | 78.042 | 124.936 | 0.000 | 124.936 | 117.729 | 110.250 | 89.493 | 58.830 | Continuing | Continuing |
| CM5: *HOMELAND DEFENSE (SDD)* | 3.897 | 8.638 | 1.166 | 0.000 | 1.166 | 3.822 | 0.000 | 2.361 | 2.413 | Continuing | Continuing |
| CO5: *COLLECTIVE PROTECTION (SDD)* | 13.323 | 12.002 | 18.459 | 0.000 | 18.459 | 11.671 | 10.267 | 7.835 | 0.000 | Continuing | Continuing |
| DE5: *DECONTAMINATION SYSTEMS (SDD)* | 16.611 | 36.786 | 28.499 | 0.000 | 28.499 | 23.944 | 25.770 | 14.701 | 5.928 | Continuing | Continuing |
| IP5: *INDIVIDUAL PROTECTION (SDD)* | 18.363 | 21.094 | 9.678 | 0.000 | 9.678 | 4.833 | 3.044 | 0.756 | 0.563 | Continuing | Continuing |
| IS5: *INFORMATION SYSTEMS (SDD)* | 45.694 | 27.301 | 13.844 | 0.000 | 13.844 | 24.984 | 24.872 | 25.345 | 25.775 | Continuing | Continuing |
| MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* | 87.676 | 57.558 | 141.680 | 0.000 | 141.680 | 161.732 | 159.144 | 141.481 | 111.671 | Continuing | Continuing |
| MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* | 14.203 | 14.027 | 51.856 | 0.000 | 51.856 | 47.835 | 28.771 | 12.122 | 8.171 | Continuing | Continuing |
| MR5: *MEDICAL RADIOLOGICAL DEFENSE (SDD)* | 3.002 | 8.276 | 1.143 | 0.000 | 1.143 | 4.817 | 2.265 | 0.000 | 0.000 | Continuing | Continuing |
| TE5: *TEST & EVALUATION (SDD)* | 37.444 | 36.593 | 15.901 | 0.000 | 15.901 | 12.243 | 4.238 | 14.614 | 15.300 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

Operational forces have an immediate need to survive, safely operate, and sustain operations in a chemical and biological agent threat environment across the continuum of global, contingency, special operations/low-intensity conflict, counter-narcotics, and other high risk missions. Operating forces have a critical need for defense against worldwide proliferation of Chemical and Biological (CB) warfare capabilities and for medical treatment of casualties in medical treatment facilities.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | **R-1 ITEM NOMENCLATURE**<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* |

Congress has directed centralized management of Department of Defense (DoD) CB Defense initiatives, both medical and non-medical. This program element supports the System Development and Demonstration (SDD) of CB defensive equipment, both medical and non-medical. These projects have been restructured to consolidate Joint and Service-unique tasks within four commodity areas: contamination avoidance, force protection (individual and collective), decontamination, and medical countermeasures. The consolidation will provide for development and operational testing of equipment for Joint Service as well as Service-unique requirements.

Contamination avoidance efforts under this system development program will provide U.S. forces with real-time hazard assessment capabilities. They include advanced multi-agent point and remote chemical detection systems for ground, aircraft, and shipboard applications; automated warning and reporting systems; integrated radiation detection and monitoring equipment; and enhanced battlefield reconnaissance capabilities. Force protection efforts will increase protection levels while decreasing physical and psychological burdens imposed by protective equipment. They include improved aircrew respiratory protection, lightweight integrated suit technology, and shipboard collective protection equipment.

Weapons of Mass Destruction Civil Support Team (WMD CST) efforts provide for testing and development of a Unified Command Suite (UCS) and an Analytical Laboratory Platform (ALS) for these teams.

The medical chemical defense system development program funds improved medical equipment and drugs essential to counteracting lethal and performance-degrading effects of chemical threats and medical equipment essential to meeting medical requirements on the integrated battlefield with emphasis on decreased size/weight and high mobility, yet supporting large numbers of combat casualties. Additionally, foreign medical materiel may be procured for exploitation of advanced technology and development to meet medical defense goals. This program element supports the development of prophylactic and therapeutic drugs and rapid identification and diagnostic systems. This program also funds development of a Transformational Rapid Drug Discovery and Development Capability (TRDDDC). Transformational Medical Technology Initiatives (TMTI) efforts in this area will include the continual build out of both a genomic sequencing and a bio-chemical informatics capability for the DoD.

DoD Biological Defense mission requires the detection of validated biological threat agents to provide early warning capabilities on mobile and fixed platforms. This program element will provide theater protection through the development of point and stand-off detection systems. The detection system concept will provide detection, identification, warning, and sample collection for verification that a biological agent attack has occurred. This program element also provides for the development of biological defense medical programs. DoD Biological Defense medical mission will address: (1) protective vaccines - vaccination capability against the most probable biological threat agents; (2) identification - clinical identification of biological threat agents through medical evaluation and laboratory analysis to augment early warning capabilities.

The projects in this program element support efforts in the system development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | **R-1 ITEM NOMENCLATURE**<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* |

**B. Program Change Summary ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 300.149 | 332.895 | 0.000 | 0.000 | 0.000 |
| Current President's Budget | 286.529 | 300.317 | 407.162 | 0.000 | 407.162 |
| Total Adjustments | -13.620 | -32.578 | 407.162 | 0.000 | 407.162 |
| • Congressional General Reductions | | -48.658 | | | |
| • Congressional Directed Reductions | | 0.000 | | | |
| • Congressional Rescissions | 0.000 | 0.000 | | | |
| • Congressional Adds | | 16.080 | | | |
| • Congressional Directed Transfers | | 0.000 | | | |
| • Reprogrammings | -5.116 | 0.000 | | | |
| • SBIR/STTR Transfer | -3.504 | 0.000 | | | |
| • Other Adjustments | -5.000 | 0.000 | 407.162 | 0.000 | 407.162 |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2009 | FY 2010 |
|---|---|---|
| **Project:** DE5: *DECONTAMINATION SYSTEMS (SDD)* | | |
| Congressional Add: *1) Chemical and Biological Threat Reduction Coating* | 0.000 | 2.390 |
| Congressional Add: *2) Self-Decontaminating Polymer System for Chemical and Biological Warfare Agents.* | 0.000 | 2.788 |
| Congressional Add: *3) Self Contained Automated Vehicle Washing Systems with microwave decontamination* | 0.000 | 1.593 |
| Congressional Add: *4) Protective Self-Decontaminating Surfaces* | 0.000 | 1.593 |
| Congressional Add Subtotals for Project: DE5 | 0.000 | 8.364 |
| **Project:** IP5: *INDIVIDUAL PROTECTION (SDD)* | | |
| Congressional Add: *1) JSAM* | 1.582 | 2.390 |
| Congressional Add Subtotals for Project: IP5 | 1.582 | 2.390 |
| **Project:** TE5: *TEST & EVALUATION (SDD)* | | |
| Congressional Add: *1) Real Time Monitoring of Chemical Agents* | 0.000 | 1.275 |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | **R-1 ITEM NOMENCLATURE**<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add Subtotals for Project: TE5 | 0.000 | 1.275 |
| Congressional Add Totals for all Projects | 1.582 | 12.029 |

**Change Summary Explanation**

Funding: N/A - Adjustments less than 10% of total program.

Schedule: N/A

Technical: N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | | | | | | | | DATE: February 2010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | | | | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | | | | PROJECT<br>CA5: *CONTAMINATION AVOIDANCE (SDD)* | | | |
| **COST ($ in Millions)** | **FY 2009 Actual** | **FY 2010 Estimate** | **FY 2011 Base Estimate** | **FY 2011 OCO Estimate** | **FY 2011 Total Estimate** | **FY 2012 Estimate** | **FY 2013 Estimate** | **FY 2014 Estimate** | **FY 2015 Estimate** | **Cost To Complete** | **Total Cost** |
| CA5: *CONTAMINATION AVOIDANCE (SDD)* | 46.316 | 78.042 | 124.936 | 0.000 | 124.936 | 117.729 | 110.250 | 89.493 | 58.830 | Continuing | Continuing |
| Quantity of RDT&E Articles | 89 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | |

**A. Mission Description and Budget Item Justification**

This funding supports Engineering and Manufacturing Development and Low Rate Initial Production (EMD/LRIP) of an array of reconnaissance, detection and identification equipment, and warning systems.

Efforts funded in this project are: (1) Chemical, Biological, Radiological, and Nuclear Dismounted Reconnaissance Systems (CBRN DRS, formerly JNBCRS Increment 2); (2) Joint Biological Point Detection System (JBPDS); (3) Joint Biological Stand-off Detection System (JBSDS); (4) Joint Biological Tactical Detection System (JBTDS); (5) Joint Chemical Agent Detector (JCAD); (6) Joint Service Chemical Biological and Chemical Reconnaissance Systems Increments 2 and 3 (JNBCRS 2 and 3); (7) Major Defense Acquisition Program (MDAP) Support; (8) Next Generation Chemical Standoff Detection (NGCSD); (9) Non-Traditional Agent (NTA) Detection Support; and (10) Non-Traditional Agent Detection Sensor Suite Integration for NBC Reconnaissance Systems (SSI NBCRS) (formerly JNBCRS Increment 3).

The CBRN Dismounted Reconnaissance Systems (CBRN DRS) program fills a mission critical need to enhance CBRN reconnaissance platoon capabilities. The program consists of two phases. Phase I is the Dismounted Reconnaissance (DR) Sets, Kits and Outfits (SKO) configuration which fulfills an immediate critical need consisting of Commercial Off-The-Shelf (COTS) and Government Off-The-Shelf (GOTS) equipment integrated into a modular, transportable container for dismounted operations. It will form the basis for Phase II which is the Monitoring and Survey (MS) SKO. The MS SKO will feature technology insertion, the addition of net-centric capability and tailoring to focus on the Service-specific needs, to include NTA detection. The term "JNBCRS Increment 2" is replaced by the term "CBRN DRS" in FY10.

The JBPDS is a Joint Service biological detector system for the Services. The Army platforms include the JBPDS on the Biological Integrated Detection System (BIDS) and the Stryker Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV). The Navy has identified select surface ships for installation of the JBPDS. The JBPDS is a fully automated system that increases the number of agents that can be identified by the current BIDS P3I and Interim Bio Agent Detector System (IBADS). Build 2, the JBPDS upgrade to Increment 1, will be developed. Build 2 will reduce lifecycle costs, improve reliability, and address system obsolescence concerns. The Build 2 program will incorporate one technology base transition of the Rapid Agent Aerosol Detector (RAAD) into a size, weight and power requirement to lower false alarms in the JBPDS which will help lower consumable use and reduce operations and support costs during its life cycle. Other JBPDS subsystem improvements are also focused on reductions to operational cost and obsolescence issues.

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | **R-1 ITEM NOMENCLATURE**<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | **PROJECT**<br>CA5: *CONTAMINATION AVOIDANCE (SDD)* |

The JBSDS is employing an incremental acquisition strategy. JBSDS Increment 1 is the first standoff early warning biological detection (BD) system for the Joint Services. The system will be capable of providing near real time detection of biological attacks/incidents and standoff early detection/warning (Detect to Warn) of biological Warfare (BW) agents at fixed sites or in static mode on vehicles. It will be capable of providing standoff detection, ranging, tracking, discrimination (man-made vs. natural occurring aerosols) of BW aerosol clouds for advanced warning, reporting, and protection. The JBSDS will augment and integrate with existing BD systems to provide a BD network capable of near real time detection and warning theater-wide to limit the effects of biological agent hazards against U.S. forces at the tactical and operational levels of war. The JBSDS can be employed in support of various areas (e.g., fixed sites, Air Ports of Debarkation/Sea Ports of Debarkation (APODs/SPODs), amphibious landing sites, etc.), or on platforms (ships, aircraft or ground vehicles).

The JBSDS Increment 2 builds on the capabilities demonstrated during the development of JBSDS Increment 1. The JBSDS Increment 2 system will focus on providing 24-hour operations (Increment 1 is night-time only), improving the false alarm rate and detection sensitivity, while decreasing size, weight and power. The JBSDS Increment 2 will also integrate with the global information network to provide near real time detection and warning theater-wide to limit the effect of biological agent hazards against U.S. forces at the tactical and operational levels of war. JBSDS Increment 3 will build on Increment 2 and focus on the development of a system that will operate on-the-move on mobile platforms as determined by the Warfighter.

The Joint Biological Tactical Detection System (JBTDS) Increment 1 will develop, integrate, test and produce a lightweight, low cost biological surveillance system that will detect, collect and identify biological warfare agent aerosols. JBTDS will provide warning through the Joint Warning And Reporting Network (JWARN) and an archive sample for follow-on analyses. JBTDS will provide near-real-time local audio and visual alarm. JBTDS components will be man portable and battery operable. JBTDS will be used organically at Brigade and below and at Forward Operating Bases (FOB) to provide notification of a hazard and enhanced battle space awareness to protect and preserve the force. When networked, JBTDS will augment existing biological detection systems to provide a theater-wide seamless array capable of biological detection, identification, and warning.

The JCAD program employs an incremental acquisition strategy to develop a miniaturized, rugged, and portable point chemical agent detector that automatically and simultaneously detects, identifies, quantifies, and alerts in the presence of nerve, blister, and blood chemical warfare agents. The M4 JCAD entered full rate production in September 2008 and will be produced through FY10. The attainable JCAD Increment 2 capabilities within the JCAD Increment 1 objectives were incorporated into a product improvement of the M4 JCAD (M4E1). Production of the M4E1 is scheduled to begin in FY11. JCAD will be used for wheeled vehicles, stand alone, and individual soldier applications. The M4 JCAD will replace the M8A1 and the M22 Automatic Chemical Agent Alarms (ACAA/ACADA). The M4E1 may additionally replace the Chemical Agent Monitor (CAM) and Improved Chemical Agent Monitor (ICAM) and other legacy systems currently used by the individual Services.

The JNBCRS Increment 2 (which has been renamed to CBRN Dismounted Reconnaissance Systems for FY10) fills a mission critical need to enhance CBRN reconnaissance platoon capabilities. The program consists of two Phases. Phase I is the dismounted reconnaissance (DR) sets, kits and outfits (SKO) configuration which provides an immediate critical need consisting of COTS and GOTS integrated into a modular, transportable container for dismounted operations. It will form the

basis for Phase II which is the Monitoring and Survey (MS) SKO. JNBCRS Increment 2 initiated as a Joint Urgent Operational Needs Statement (JUONS) system to support the DR mission. The MS SKO will feature technology insertion, the addition of net-centric capability, and tailoring to focus on the service-specific needs, to include NTA detection.

The JNBCRS Increment 3 will provide Chemical Biological Mass Spectrometer (CBMS) and Joint Contaminated Surface Detector (JCSD) capability to the Stryker Product Improvement Program and Future Mounted Armored Reconnaissance Platforms. The CBMS Bio effort will add the biological warfare agent detection and identification capability to the existing chemical liquid, and developmental Toxic Industrial Chemical (TIC) capabilities. The integration of liquid chemical and biological aerosol detection, within a single sensor; saves size, weight, and power on the platform. The JCSD will provide an improved mobile reconnaissance capability and on-the-move, non-contact, detection and identification of Chemical Warfare Agents (CWAs), TICs, and other Non-Traditional Agents (NTAs) using laser induced Raman Spectroscopy. Target surfaces are illuminated by laser light, and contaminants in the field of view are identified through analysis of their Raman backscatter signal against a wide library of Raman spectra. The JNBCRS Increment 3 supports transition to SSI NBCRS starting in FY10.

The Major Defense Acquisition Program (MDAP) Support program will integrate System of Systems (SoS) solutions across the Armed Services for (MDAP) having Chemical and Biological Radiological and Nuclear (CBRN) survivability requirements. The program will demonstrate modular, net-centric, "plug and play" capabilities for mounted and dismounted CBRN reconnaissance that will establish a common CBRN reconnaissance architecture across the services.

The Joint Science Lightweight Standoff Chemical Agent Detection (JSLSCAD) effort initiated the component improvements and the Technology Readiness Assessment (TRA) for the System of Systems (SoS) approach to address the CB early warning mission within the Next Generation Chemical Standoff Detection (NGCSD) program. The NGCSD SoS approach will increase the range of standoff detection and decrease detection time.

The NGCSD effort will provide early warning for both traditional and non-traditional chemical agent attacks at fixed sites, forward operating bases and on Service designated vehicles and ships. This effort will develop and integrate new standoff sensor technologies for future standoff systems. The detection system will interoperate with the Services and Joint Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) architectures.

The Non-Traditional Agent (NTA) Detection program will develop and procure detection system(s) through incremental evolution that will afford Warfighter's the ability to attain situational awareness and respond to emerging hazards. The program will provide a near term capability to detect priority emerging threat materials with common core technologies for detection and identification. The common technologies can be further exploited in future increments to address lab deployable, fixed site and handheld applications.

The SSI NBCRS will provide Chemical Biological Mass Spectrometer (CBMS) and Joint Contaminated Surface Detector (JCSD) capability to the Stryker Product Improvement Program and Future Mounted Armored Reconnaissance Platforms. The CBMS Bio effort will add the biological warfare agent detection and identification capability to the existing chemical liquid, and developmental Toxic Industrial Chemical (TIC) capabilities. The integration of liquid chemical and biological aerosol

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detection, within a single sensor; saves size, weight, and power on the platform. The JCSD will provide an improved mobile reconnaissance capability and on-the-move, non-contact, detection and identification of Chemical Warfare Agents (CWAs), TICs, and other Non-Traditional Agents (NTAs) using laser induced Raman Spectroscopy. Target surfaces are illuminated by laser light, and contaminants in the field of view are identified through analysis of their Raman backscatter signal against a wide library of Raman spectra. The SSI NBCRS was transitioned from JNBCRS Increment 3 in FY10.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) CBRN DRS | 0.000 | 0.718 | 1.407 | 0.000 | 1.407 |
| *FY 2010 Plans:*<br>Conduct engineering support (Govt).<br>*FY 2011 Base Plans:*<br>Continue engineering support (Govt). | | | | | |
| 2) CBRN DRS | 0.000 | 2.819 | 2.696 | 0.000 | 2.696 |
| *FY 2010 Plans:*<br>Initiate Developmental Testing to support Low Rate Initial Production (LRIP) decision.<br>*FY 2011 Base Plans:*<br>Complete Developmental Testing to support LRIP decision. | | | | | |
| 3) CBRN DRS | 0.000 | 2.300 | 2.800 | 0.000 | 2.800 |
| *FY 2010 Plans:*<br>Initiate Operational Assessment.<br>*FY 2011 Base Plans:*<br>Complete Operational Assessment. | | | | | |
| 4) CBRN DRS | 0.000 | 2.400 | 6.600 | 0.000 | 6.600 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Initiate development of sensor interface compliance.<br><br>*FY 2011 Base Plans:*<br>Complete development of sensor interface compliance. | | | | | |
| 5) CBRN DRS<br>*FY 2010 Plans:*<br>Initiate, design and develop NTA capability.<br><br>*FY 2011 Base Plans:*<br>Continue design and integration of NTA enhancements. Initiate testing for enhancements. | 0.000 | 2.200 | 31.883 | 0.000 | 31.883 |
| 6) CONGRESSIONAL ADD ITEM<br>*FY 2010 Plans:*<br>Congressional Add Item - Detection and Remediation of Biological/Chemical Weapons. | 0.000 | 1.992 | 0.000 | 0.000 | 0.000 |
| 7) JBPDS<br>*FY 2009 Accomplishments:*<br>Initiated strategic and tactical planning, government system engineering, program/financial management, costing, contracting, scheduling, acquisition oversight and technical support.<br><br>*FY 2010 Plans:*<br>Continue strategic and tactical planning, government system engineering, program/financial management, costing, contracting, scheduling, acquisition oversight and technical support. | 0.600 | 1.920 | 1.800 | 0.000 | 1.800 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Continue strategic and tactical planning, government system engineering, program/financial management, costing, contracting, scheduling, acquisition oversight and technical support. | | | | | |
| 8) JBPDS<br>*FY 2010 Plans:*<br>Initiate development of the new Identifier Line Replaceable Unit (LRU) for the JBPDS Build 2 system.<br>*FY 2011 Base Plans:*<br>Initiate integration of the new Identifier Line Replaceable Unit (LRU) into the JBPDS Build 2 system. | 0.000 | 6.099 | 7.582 | 0.000 | 7.582 |
| 9) JBPDS<br>*FY 2009 Accomplishments:*<br>Conducted engineering development, integration and testing of the JBPDS onto a new trailer platform with a 5kW generator. | 2.950 | 0.000 | 0.000 | 0.000 | 0.000 |
| 10) JBPDS<br>*FY 2010 Plans:*<br>Initiate the development and testing of new consumables for the JBPDS Build 2 Identifier LRU (transition from lateral flow assay to electro chemical luminescence (ECL) assay).<br>*FY 2011 Base Plans:*<br>Continue development and testing of consumables. | 0.000 | 2.000 | 3.800 | 0.000 | 3.800 |
| 11) JBPDS | 1.731 | 2.480 | 3.000 | 0.000 | 3.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Initiated a Form-Fit design version of the new Rapid Agent Aerosol Detector (RAAD) Line Replaceable Unit (LRU) for the JBPDS Build 2 system.<br><br>*FY 2010 Plans:*<br>Continue development of the new Detector (RAAD) Line Replaceable Unit (LRU) for the JBPDS Build 2 system.<br><br>*FY 2011 Base Plans:*<br>Continue development of the new Detector Line Replaceable Unit (LRU) for the JBPDS Build 2 system. | | | | | |
| 12) JBPDS<br>*FY 2011 Base Plans:*<br>Initiate the development and component level testing of the JBPDS Build 2 system. | 0.000 | 0.000 | 1.200 | 0.000 | 1.200 |
| 13) JBSDS Increment 2<br>*FY 2009 Accomplishments:*<br>Provided strategic and tactical planning, government system engineering, program/financial management, costing, contracting, scheduling, acquisition oversight and technical support. | 3.043 | 0.000 | 0.000 | 0.000 | 0.000 |
| 14) JBSDS Increment 2<br>*FY 2009 Accomplishments:*<br>Conducted Fluorescence System Development for Technology Demonstration V. | 0.796 | 0.000 | 0.000 | 0.000 | 0.000 |
| 15) JBSDS Increment 2 | 2.596 | 0.000 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued Modeling and Simulation. | | | | | |
| 16) JBSDS Increment 2<br>*FY 2009 Accomplishments:*<br>Conducted Agent Performance Assessment. | 2.186 | 0.000 | 0.000 | 0.000 | 0.000 |
| 17) JBSDS Increment 1<br>*FY 2009 Accomplishments:*<br>Provided Test Support. | 0.493 | 0.000 | 0.000 | 0.000 | 0.000 |
| 18) JBSDS Increment 2<br>*FY 2009 Accomplishments:*<br>Developed Test Equipment for Technology Demonstration V. | 1.056 | 0.000 | 0.000 | 0.000 | 0.000 |
| 19) JBTDS<br>*FY 2009 Accomplishments:*<br>Initiated strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. | 0.262 | 0.000 | 0.000 | 0.000 | 0.000 |
| 20) JCAD<br>*FY 2009 Accomplishments:*<br>Purchased M4E1 JCAD systems (Quantity of 89 at $6,820 each for a total cost of $707,000). | 0.607 | 0.000 | 0.000 | 0.000 | 0.000 |
| 21) JCAD | 5.631 | 3.360 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Conducted M4E1 JCAD Developmental Tests to include surety chamber ($3.2 million) and chamber upgrade testing ($782 thousand).<br>*FY 2010 Plans:*<br>Conduct M4E1 JCAD Developmental Tests to include surety chamber ($2.175 million), MIL-STD-810/ EMI ($490 thousand), and false alarm and other testing ($695 thousand). | | | | | |
| 22) JCAD<br>*FY 2009 Accomplishments:*<br>Provided Program Management Support.<br>*FY 2010 Plans:*<br>Provide Systems Engineering ($1.556 million), Program Management ($950 thousand), and T&E IPT Support ($700 thousand).<br>*FY 2011 Base Plans:*<br>Provide Program Management and Systems Engineering Support. | 1.062 | 3.206 | 1.733 | 0.000 | 1.733 |
| 23) JCAD<br>*FY 2010 Plans:*<br>Conduct M4E1 JCAD Operational Test and Evaluation. | 0.000 | 1.510 | 0.000 | 0.000 | 0.000 |
| 24) JCAD<br>*FY 2011 Base Plans:*<br>Conduct M4E1 JCAD Multi-Service Operational Test and Evaluation (MOT&E). | 0.000 | 0.000 | 8.000 | 0.000 | 8.000 |
| 25) JNBCRS INC 2 | 9.794 | 0.000 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued development of Joint Urgent Operational Needs (JUONS) and initiated development of program documentation, award contract for Integrated Logistics Support (ILS), design and test of DR-SKO. | | | | | |
| 26) JNBCRS INC 2<br>*FY 2009 Accomplishments:*<br>Continued DT/OT planning and other test agency support for JUONS. | 2.500 | 0.000 | 0.000 | 0.000 | 0.000 |
| 27) JNBCRS INC 2<br>*FY 2009 Accomplishments:*<br>Continued Systems Engineering Support (Govt) for JUONS and DR-SKO. | 0.459 | 0.000 | 0.000 | 0.000 | 0.000 |
| 28) JNBCRS INC 3<br>*FY 2009 Accomplishments:*<br>Completed design and development testing of Chemical Biological sensors. | 1.578 | 0.000 | 0.000 | 0.000 | 0.000 |
| 29) JNBCRS INC 3<br>*FY 2009 Accomplishments:*<br>Completed development of Common CBRN Sensor Interface (CCSI) prototype detectors. | 0.436 | 0.000 | 0.000 | 0.000 | 0.000 |
| 30) JNBCRS INC 3<br>*FY 2009 Accomplishments:*<br>Completed design of CCSI prototype detector housing (e.g. cradle). | 0.052 | 0.000 | 0.000 | 0.000 | 0.000 |
| 31) JNBCRS 3 | 0.433 | 0.000 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Completed engineering support. | | | | | |
| 32) JSLSCAD<br>*FY 2009 Accomplishments:*<br>Provided Test Site Support for Next Generation Chemical Standoff Detection (NGCSD). | 0.485 | 0.000 | 0.000 | 0.000 | 0.000 |
| 33) JSLSCAD<br>*FY 2009 Accomplishments:*<br>Conducted Sensor Hardware Development to Support the NGCSD Operational Demonstration. | 0.245 | 0.000 | 0.000 | 0.000 | 0.000 |
| 34) JSLSCAD<br>*FY 2009 Accomplishments:*<br>Conducted Integrated Sensor Development and Testing from multiple vendors to support the NGCSD Operational Demonstration. | 1.085 | 0.000 | 0.000 | 0.000 | 0.000 |
| 35) MDAP SPRT<br>*FY 2009 Accomplishments:*<br>Continued analysis and development of SoS architecture that supports MDAP operational CBRN requirements and provides Chemical Biological Radiological Nuclear (CBRN) defense capabilities. | 2.125 | 0.000 | 0.000 | 0.000 | 0.000 |
| 36) MDAP SPRT<br>*FY 2009 Accomplishments:*<br>Continued Developmental Test (DT) to validate and verify SoS concept prior to MDAP integration. | 3.410 | 0.000 | 0.000 | 0.000 | 0.000 |
| 37) MDAP SPRT | 0.701 | 3.095 | 2.155 | 0.000 | 2.155 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Provide strategic tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support.<br><br>*FY 2009 Accomplishments:*<br>Continued strategic/tactical planning, government systems engineering, financial management, technology assessment, contracting, scheduling, acquisition oversight and technical support.<br><br>*FY 2010 Plans:*<br>Continue strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, and technical support.<br><br>*FY 2011 Base Plans:*<br>Continue strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, and technical support. | | | | | |
| 38) MDAP SPRT<br>Development of modular CBRN sensing capabilities for the Small Unmanned Ground Vehicle (SUGV).<br><br>*FY 2010 Plans:*<br>Initiate development of modular CBRN sensing capabilities that will enable commander's to tailor their Chemical, Biological, Radiological and Nuclear (CBRN) detection efforts, while decreasing false positive readings.<br><br>*FY 2011 Base Plans:*<br>Continue development of modular CBRN sensing capabilities for the Small Unmanned Ground Vehicle (SUGV). | 0.000 | 1.528 | 1.100 | 0.000 | 1.100 |
| 39) MDAP SPRT | 0.000 | 1.683 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Perform Decision Support Software modeling and simulation and trade-off analysis. | | | | | |
| 40) MDAP SPRT<br>Collective protection/decontamination capabilities to meet Joint Strike Fighter (JSF) survivability requirements<br>*FY 2010 Plans:*<br>Continue the design and testing of collective protection/decontamination capabilities to meet Joint Strike Fighter (JSF) survivability requirements<br>*FY 2011 Base Plans:*<br>Transition and design SoS integration of collective protection/decontamination capabilities to meet Joint Strike Fighter (JSF) survivability requirements | 0.000 | 2.905 | 6.005 | 0.000 | 6.005 |
| 41) NGCSD<br>*FY 2011 Base Plans:*<br>Continue development and integration of multi-sensor detection system and algorithms. | 0.000 | 0.000 | 9.363 | 0.000 | 9.363 |
| 42) NGCSD<br>*FY 2010 Plans:*<br>Initiate multi-sensor system integration contract. | 0.000 | 1.500 | 0.000 | 0.000 | 0.000 |
| 43) NGCSD<br>*FY 2011 Base Plans:*<br>Initiate overarching Joint Service support for capability document development, CONOPS, Tactic, Techniques and Procedures (TTPs), etc. | 0.000 | 0.000 | 0.400 | 0.000 | 0.400 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 44) NGCSD<br>*FY 2011 Base Plans:*<br>Initiate engineering support for development of NGCSD. | 0.000 | 0.000 | 1.500 | 0.000 | 1.500 |
| 45) NGCSD<br>*FY 2011 Base Plans:*<br>Initiate logistics planning efforts for manuals, maintenance, sparing, etc. | 0.000 | 0.000 | 0.600 | 0.000 | 0.600 |
| 46) NGCSD<br>*FY 2010 Plans:*<br>Initiate JPEO-CBD Integrated Program Assistance Team (IPAT) support for Material Development Decision (MDD).<br>*FY 2011 Base Plans:*<br>Continue JPEO-CBD Integrated Program Assistance Team (IPAT) support for Material Development Decision (MDD). | 0.000 | 1.500 | 0.750 | 0.000 | 0.750 |
| 47) NGCSD<br>*FY 2010 Plans:*<br>Initiate and complete test methodology development. | 0.000 | 3.615 | 0.000 | 0.000 | 0.000 |
| 48) NTA DETECT<br>*FY 2010 Plans:*<br>Initiate Commercial Off-the-Shelf (COTS)/Government Off-the-Shelf (GOTS) evaluation for Installation Force Protection Mission Areas. | 0.000 | 1.350 | 2.912 | 0.000 | 2.912 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Continue DT and initiate OA of COTS/GOTS for application in the Force Protection, Sensitive Site Assessment and Consequence Management mission areas. | | | | | |
| 49) NTA DETECT<br>*FY 2010 Plans:*<br>Initiate integration of COTS components and library build for the Lab Deployable Mass Spectrometer.<br>*FY 2011 Base Plans:*<br>Continue integration and initiate DT for Lab Deployable DESI Mass Spectrometer for Consequence Management and Sensitive Site Assessment. | 0.000 | 1.683 | 2.087 | 0.000 | 2.087 |
| 50) NTA DETECT<br>*FY 2010 Plans:*<br>Initiate engineering to support reduced form factor for the Man Portable Mass Spectrometer.<br>*FY 2011 Base Plans:*<br>Continue engineering and integration for the Man Portable DESI Mass Spectrometer. | 0.000 | 3.075 | 2.338 | 0.000 | 2.338 |
| 51) NTA DETECT<br>*FY 2010 Plans:*<br>Initiate Developmental Testing (DT) and Operational Assessment (OA) to support initial capability of the mass spectrometer.<br>*FY 2011 Base Plans:*<br>Continue DT and OA of the DESI mass spectrometer. | 0.000 | 8.252 | 3.189 | 0.000 | 3.189 |
| 52) SSI NBCRS | 0.000 | 1.184 | 1.108 | 0.000 | 1.108 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>(CBMS) Initiate engineering support, leveraging efforts initiated under Joint NBC Reconnaissance System (JNBCRS) INC 3.<br><br>*FY 2011 Base Plans:*<br>(CBMS) Continue engineering support. | | | | | |
| 53) SSI NBCRS<br>*FY 2010 Plans:*<br>(CBMS) Initiate chemical biological capability sensor development using competitive prototyping.<br><br>*FY 2011 Base Plans:*<br>(CBMS) Continue chemical biological capability sensor development using competitive prototyping. | 0.000 | 8.000 | 4.200 | 0.000 | 4.200 |
| 54) SSI NBCRS<br>*FY 2010 Plans:*<br>(CBMS) Initiate Chemical Biological (CB) capability sensor Developmental Test and Evaluation (DT&E) planning.<br><br>*FY 2011 Base Plans:*<br>(CBMS) Continue CB capability sensor DT&E planning and initiate T&E efforts. | 0.000 | 0.224 | 0.955 | 0.000 | 0.955 |
| 55) SSI NBCRS<br>*FY 2010 Plans:*<br>(JCSD) Initiate engineering support, leveraging efforts performed under JNBCRS INC 3. | 0.000 | 1.000 | 1.107 | 0.000 | 1.107 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>(JCSD) Continue engineering support. | | | | | |
| 56) SSI NBCRS<br>*FY 2011 Base Plans:*<br>(JCSD) Initiate sensor system development and demonstration using competitive prototyping. | 0.000 | 0.000 | 8.080 | 0.000 | 8.080 |
| 57) SSI NBCRS<br>*FY 2011 Base Plans:*<br>(JCSD) Initiate sensor DT&E planning and initiate T&E efforts. | 0.000 | 0.000 | 1.086 | 0.000 | 1.086 |
| 58) SSI NBCRS<br>*FY 2011 Base Plans:*<br>(SSI NBCRS) Initiate platform integration and system support of improved CB capable sensors for competitive prototype evaluation. | 0.000 | 0.000 | 2.000 | 0.000 | 2.000 |
| 59) SSI NBCRS<br>*FY 2010 Plans:*<br>(SSI NBCRS) Initiate JPEO Integrated Program Assistance Team (IPAT) support for Stryker NBCRV path forward.<br>*FY 2011 Base Plans:*<br>(SSI NBCRS) Continue JPEO IPAT support for Stryker NBCRV path forward. | 0.000 | 1.500 | 1.500 | 0.000 | 1.500 |
| 60) SSI NBCRS<br>*FY 2010 Plans:*<br>Congressional add for development of Man Portable Sensors for Dismounted Reconnaissance. | 0.000 | 1.992 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 61) SBIR | 0.000 | 0.952 | 0.000 | 0.000 | 0.000 |
| *FY 2010 Plans:*<br>Small Business Innovative Research. | | | | | |
| Accomplishments/Planned Programs Subtotals | 46.316 | 78.042 | 124.936 | 0.000 | 124.936 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JC0100: *JOINT BIO POINT DETECTION SYSTEM (JBPDS)* | 75.545 | 41.976 | 43.555 | | 43.555 | 41.252 | 52.776 | 73.164 | 71.894 | Continuing | Continuing |
| • JC0101: *JS CHEM/BIO/RAD AGENT WATER MONITOR (JCBRAWM)* | 6.000 | 3.184 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • JC0250: *JOINT BIO STANDOFF DETECTOR SYSTEM (JBSDS)* | 4.000 | 0.000 | 0.000 | | 0.000 | 0.273 | 19.840 | 20.834 | 35.728 | Continuing | Continuing |
| • JC1500: *NBC RECON VEHICLE (NBCRV)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • JC4500: *NEXT GENERATION CHEMICAL STANDOFF DETECTION (NGCSD)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 9.840 | 12.120 | 21.799 | Continuing | Continuing |
| • JF0100: *JOINT CHEMICAL AGENT DETECTOR (JCAD)* | 58.406 | 27.694 | 40.071 | | 40.071 | 45.805 | 52.762 | 53.330 | 63.217 | Continuing | Continuing |
| • JN0900: *NON TRADITIONAL AGENT DETECTION (NTAD)* | 0.000 | 0.000 | 4.178 | | 4.178 | 4.075 | 3.376 | 6.745 | 8.918 | Continuing | Continuing |
| • MC0100: *JOINT NBC RECONNAISSANCE SYSTEM (JNBCRS)* | 32.699 | 32.421 | 22.511 | | 22.511 | 65.779 | 122.214 | 50.385 | 0.000 | Continuing | Continuing |

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**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • MC0101: *CBRN DISMOUNTED RECONNAISSANCE SYSTEMS (CBRN DRS)* | 0.000 | 11.415 | 15.414 | | 15.414 | 24.056 | 33.504 | 56.718 | 53.938 | Continuing | Continuing |
| • MC0102: *JOINT CONTAMINATED SURFACE DETECTOR (JCSD)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 5.288 | 40.072 | Continuing | Continuing |
| • MX0001: *JOINT BIO TACTICAL DETECTION SYSTEM (JBTDS)* | 0.000 | 0.000 | 0.000 | | 0.000 | 8.080 | 19.060 | 29.237 | 33.933 | Continuing | Continuing |

**D. Acquisition Strategy**

CBRN DRS

The Chemical Biological Radiological Nuclear Dismounted Reconnaissance Systems (CBRN DRS) program uses spiral development with an evolutionary component/ suite upgrade acquisition approach. Funding finalizes the design to provide the Services with enhanced full spectrum CBRN detection capability to support strategic, operational, and tactical objectives at lower life cycle costs. CBRN DRS will enhance the Situational Awareness (SA) by providing a dismounted ability to detect chemical, biological and radiological hazards across the Range of Military Operations (ROMO) and employ contamination avoidance activities to prevent disruption to operations and organizations.

JBPDS

The Joint Biological Point Detection System (JBPDS) uses an open systems approach to insert maturing and validated technologies as part of the overall acquisition strategy to expedite fielding of a credible force protection. The JBPDS Build 2 program will use results from a business case analysis to upgrade the system's line replaceable units (LRUs) to reduce life cycle costs, improve reliability, and address system obsolescence concerns. Per Director, Operational Test and Evaluation (DOT&E) Memorandum dated July 9, 2002, the program will continue to support the development of a Whole System Live Agent Test (WSLAT) capability.

JBSDS

The Joint Bio Stand-off Detector System (JBSDS) is employing an incremental acquisition strategy. JBSDS Increment 1 is the first standoff early warning biological detection (BD) system for the Joint Services. The JBSDS Increment 2 system will focus on providing 24-hour operations (Increment 1 is night-time only), improving

the false alarm rate and detection sensitivity, while decreasing size, weight and power. The JBSDS Increment 2 will also integrate with the global information network to provide near real time detection and warning theater-wide to limit the effect of biological agent hazards against U.S. forces at the tactical and operational levels of war. JBSDS Increment 3 will build on Increment 2 and focus on the development of a system that will operate on-the-move on mobile platforms as determined by the Warfighter.

JBTDS

The Joint Biological Tactical Detection (JBTDS) program will pursue an evolutionary incremental approach to provide capability to the Warfighter. The JBTDS program will develop, integrate, test, procure and field systems that improve biological aerosol detection, identification, and sampling capabilities. The JBTDS program will also reduce size, weight, power consumption, and logistic footprint over current systems. Test Readiness Evaluations (TRE) and Competitive Prototyping will support the JBTDS Engineering and Manufacturing Development (EMD) phase by identifying mature technologies and reducing overall risk. Modeling and simulation tools will be used in order to lower program risks, reduce costs and ensure a higher confidence in selected technologies.

JCAD

The current strategy employs a product improvement of the M4 JCAD to reduce Life Cycle costs, transition to a competitive procurement contract, and attain objective capability. Three competitive fixed-price contracts for the M4E1 were awarded in Sep 2007 for prototypes and options for full rate production. Competitive prototype testing was conducted and one system was selected for continued development. The production options will be exercised in FY11 following a successful production cut-in decision.

JNBCRS 2

The CBRN DRS (formerly JNBCRS Inc 2) fills a mission critical need to enhance Chemical, Biological, Radiological and Nuclear (CBRN) dismounted reconnaissance platoon capabilities. The program consists of two Phases. Phase I is the dismounted reconnaissance (DR) sets kits and outfits (SKO) configuration which provides an immediate critical need consisting of COTS and GOTS integrated into a modular, transportable container for dismounted operations. It will form the basis for Phase II which is the Monitoring and Survey (MS) SKO. The MS SKO will feature technology insertion, the addition of net-centric capability, and tailoring to focus on the service-specific needs, to include NTA detection.

JNBCRS 3

The JNBCRS Increment 3 program will develop and test system improvements to increase the military utility of the Stryker Product Improvement Program and Future Mounted Armored Reconnaissance Platforms. Separate Full and Open contracts will be awarded for both the CBMS Chem/Bio sensor and JCSD capabilities.

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Competitively awarding these contracts will reduce the acquisition life cycle costs, weight, power requirements, and size for the reconnaissance platforms. The JCSD program transitioned from the CBRN Unmanned Ground Reconnaissance (CUGR) Advanced Concept Technology Demonstration (ACTD) into the Technology Development phase in FY09. The JNBCRS Increment 3 program supports transition to SSI NBCRS starting in FY10.

JSLSCAD

The acquisition strategy for the Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD) production phase focused upon a dual path to procure required systems and concurrently develop and test system improvements to increase the military utility. The Milestone Decision Authority (MDA) approved procurement of additional JSLSCAD LRIP systems in February 2008. The Government awarded a Fixed Price Incentive contract to GD-ATP in July 2008 for production of systems to fulfill the Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Extended LRIP requirements and additional delivery orders will be exercised for full rate production of systems to fulfill the remaining NBCRV requirements. The JSLSCAD program office awarded multiple contracts to support system engineering, software development, test and evaluation, and system support efforts to increase standoff detection capabilities to rapidly respond to evolving system integration requirements with minimal contractual lead time. All these efforts are being integrated into the Next Generation Chemical Standoff Detection (NGCSD) program.

MDAP SPRT

Major Defense Acquisition Program (MDAP) Support program will integrate System of Systems (SoS) solutions across the Armed Service's for Major Defense Acquisition Programs (MDAP) having Chemical and Biological Radiological and Nuclear (CBRN) survivability requirements. The MDAP program will achieve these SoS solutions by: (1) leading CBRN architecture development and System Engineering efforts that result in enterprise concepts that address requirements; (2) establishing agreements with the MDAPs on roles and responsibilities with respect to funding deliverables and integration; (3) demonstrating modular, net-centric, "plug and play" capabilities for mounted and dismounted CBRN reconnaissance requirements; (4) developing design and test schedules which synchronize support for CBRN capability integration with MDAPs' schedules; and (5) providing integrated program management across the CBRN commodity areas to deliver capabilities on time that support MDAP goals.

NGCSD

The Next Generation Chemical Standoff Detection (NGCSD) program, which was initiated under the JSLSCAD program, will award Indefinite Delivery/Indefinite Quantity contract(s) to support system engineering, software development, test and evaluation, and system support efforts to increase standoff detection capabilities. This contract type will allow the program office to rapidly respond to evolving system integration requirements and emerging test results with minimal contractual lead time. This will optimize the program goal of inserting the latest software and standoff detection technology into the host platforms in the shortest possible time.

NTA DETECT

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The Non-Traditional Agent (NTA) program will provide a detection capability through spiral evolutionary that will afford the Warfighter ability to attain situational awareness and respond to unknown and emerging hazards. The program provide a near term capability to detect priority emerging threat materials with common core technologies to detect and identify threats that can further be explored for lab deployable, fixed site and handheld applications. Leveraging COTS/GOTS assessments will be used in order to lower program risks, reduce costs, and ensure a higher confidence in selected technologies. The program will continue to address next priority mission areas and threats by continuing to qualify identified detection equipment.

SSI NBCRS

The Sensor Suite and Integration for Nuclear Biological Chemical Reconnaissance System (SSI NBCRS) program, transitioned from Joint Nuclear Biological Chemical Reconnaissance System (JNBCRS) Increment 3 in FY10, will develop and test platform specific prototype Chemical Biological Mass Spectrometer (CBMS) and Joint Contaminated Surface Detector (JCSD) capabilities. System development will be performed by separate full and open contract solicitations for CBMS and JCSD respectively, and will demonstrate a technology readiness level (TRL) of seven in laboratory and field testing. The contract efforts will finalize the technical approach and produce at least three prototypes of each system. Extensive laboratory and early user testing will be conducted prior to integration, test and evaluation into the JNBCRS. Upon successful completion of the JNBCRS integration, test and evaluation, a Milestone C In-Process Review (IPR) will be held to approve low-rate initial production of the CBMS and JCSD. The CBMS and JCSD will be introduced to the Stryker Fleets via Sensor Suite Improvements starting in FY15.

**E. Performance Metrics**

N/A

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**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CBRN DRS - DR SKO Program Development | C/CPIF | ICX Pittsburgh, PA | 0.000 | 1.000 | Jan 2010 | 4.500 | Jan 2011 | 0.000 | | 4.500 | 0.000 | 5.500 | 0.000 |
| DR SKO Program Development | C/CPIF | ICX Pittsburgh, PA | 0.000 | 1.400 | Jan 2010 | 2.100 | Jan 2011 | 0.000 | | 2.100 | 0.000 | 3.500 | 0.000 |
| DR SKO NTA Enhancements | C/FP | TBD | 0.000 | 2.200 | Jan 2010 | 15.023 | Jul 2011 | 0.000 | | 15.023 | 0.000 | 17.223 | 0.000 |
| ** CONG - Congressional Interest Item - Add Detection and Remediation of Bio/ Chem Weapons | C/CPFF | TBD | 0.000 | 1.992 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.992 | 0.000 |
| ** JBPDS - HW SB - Identifier development, modification and integration | C/CPFF | General Dynamics-Armament and Technical Charlotte, NC | 0.000 | 2.740 | Apr 2010 | 1.460 | Jan 2011 | 0.000 | | 1.460 | 0.000 | 4.200 | 0.000 |
| HW SB - JBPDS Build II development, modification and integration | C/CPFF | General Dynamics-Armament and Technical Charlotte, NC | 0.000 | 2.577 | Apr 2010 | 0.905 | Jan 2011 | 0.000 | | 0.905 | 0.000 | 3.482 | 0.000 |
| HW C - Development of new consumables for new Identifier | MIPR | JPM CBMS Ft. Detrick, MD | 0.000 | 0.911 | Oct 2009 | 1.229 | Oct 2010 | 0.000 | | 1.229 | 0.000 | 2.140 | 0.000 |
| HW S - Hardware Cost - Purchase Build II Hardware for test | C/FFP | General Dynamics - | 0.000 | 0.000 | | 3.923 | Jan 2011 | 0.000 | | 3.923 | 0.000 | 3.923 | 0.000 |

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**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| | | Armament and Technical Charlotte, NC | | | | | | | | | | | |
| HW SB - New Detector (RAAD) development, modification and integration | C/CPFF | General Dynamics - Armament & Technical Charlotte, NC | 0.000 | 1.541 | Jan 2010 | 1.389 | Jan 2011 | 0.000 | | 1.389 | 0.000 | 2.930 | 0.000 |
| ** MDAP SPRT - SW S - Develop Modular CBRN Sensing Capability | C/CPAF | TBD | 0.000 | 1.528 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.528 | 0.000 |
| SW S - Decision Support Software Modeling and Simulation and Trade-Off Analysis | C/CPAF | TBD | 0.000 | 1.683 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.683 | 0.000 |
| HW S - JSF Decon Shelter | MIPR | Various | 0.000 | 1.800 | Jan 2010 | 2.200 | Jan 2011 | 0.000 | | 2.200 | 0.000 | 4.000 | 0.000 |
| HW S - JSF Decon | MIPR | Various | 0.000 | 1.000 | Jan 2010 | 3.805 | Jan 2011 | 0.000 | | 3.805 | 0.000 | 4.805 | 0.000 |
| HW S - CBRN Sensor for SUGV | MIPR | Various | 0.000 | 0.000 | | 1.100 | Jan 2011 | 0.000 | | 1.100 | 0.000 | 1.100 | 0.000 |
| ** NGCSD - SW SB - Prototype System Development & Integration | C/CPFF | TBD | 0.000 | 0.000 | | 9.363 | Jan 2011 | 0.000 | | 9.363 | 0.000 | 9.363 | 0.000 |
| SW C - System Integration Contract | C/CPFF | TBD | 0.000 | 1.500 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.500 | 0.000 |

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**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** NTA DETECT - HW S - DESI Mass Spec | C/CPAF | ICX Arlington, VA | 0.000 | 2.475 | Jan 2010 | 1.474 | Jan 2011 | 0.000 | | 1.474 | 0.000 | 3.949 | 0.000 |
| HW S - GOTS/COTS Dual Use Assessment | C/CPAF | Battelle Crystal City, VA | 0.000 | 1.104 | Jan 2010 | 1.000 | Jan 2011 | 0.000 | | 1.000 | 0.000 | 2.104 | 0.000 |
| SW S - DESI Mass Spec Library Development | MIPR | RDECOM Aberdeen Proving Ground, MD | 0.000 | 0.950 | Oct 2009 | 0.370 | Oct 2010 | 0.000 | | 0.370 | 0.000 | 1.320 | 0.000 |
| HW S - COTS Enzyme based technologies | C/CPAF | Agentase - ICX Pittsburgh, PA | 0.000 | 0.000 | | 1.100 | Jan 2011 | 0.000 | | 1.100 | 0.000 | 1.100 | 0.000 |
| ** SSI NBCRS - SW SB - (CBMS) Chemical Biological Sensor Capability Development | C/CPIF | TBD | 0.000 | 8.000 | Apr 2010 | 4.200 | Jan 2011 | 0.000 | | 4.200 | 0.000 | 12.200 | 0.000 |
| HW C - (JSCD) Sensor System Development and Demonstration | C/CPIF | TBD | 0.000 | 0.000 | | 8.080 | Jan 2011 | 0.000 | | 8.080 | 0.000 | 8.080 | 0.000 |
| HW S - (SSI NBCRS) Sensor Platform Integration | C/CPIF | TBD | 0.000 | 0.000 | | 2.000 | Jan 2011 | 0.000 | | 2.000 | 0.000 | 2.000 | 0.000 |
| HW C - Develop Man Portable Sensors for Dismounted Reconnaissance | C/CPIF | TBD | 0.000 | 1.992 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.992 | 0.000 |
| | | Subtotal | 0.000 | 36.393 | | 65.221 | | 0.000 | | 65.221 | 0.000 | 101.614 | 0.000 |

**Remarks**

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**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CBRN DRS - ES S - NTA Enhancements | C/CPIF | Various TBD | 0.000 | 0.000 | | 3.860 | Jan 2011 | 0.000 | | 3.860 | 0.000 | 3.860 | 0.000 |
| ** JBPDS - ILS SB - New Identifier/Collector/ Detector logistics and support documentation | C/CPFF | General Dynamics - Armament and Technical Charlotte, NC | 0.000 | 0.671 | Jan 2010 | 2.213 | Jan 2011 | 0.000 | | 2.213 | 0.000 | 2.884 | 0.000 |
| ** NGCSD - TD/D SB - Logistics Planning and Development | MIPR | Various | 0.000 | 0.000 | | 0.600 | Jan 2011 | 0.000 | | 0.600 | 0.000 | 0.600 | 0.000 |
| ** NTA DETECT - ES SB - Mass Spectrometer Analysis and Evaluation | PO | TBD | 0.000 | 0.675 | Oct 2009 | 0.325 | Oct 2010 | 0.000 | | 0.325 | 0.000 | 1.000 | 0.000 |
| | | Subtotal | 0.000 | 1.346 | | 6.998 | | 0.000 | | 6.998 | 0.000 | 8.344 | 0.000 |

**Remarks**

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CBRN DRS - DTE S - DR SKO | MIPR | ATEC Alexandria, VA | 0.000 | 2.300 | Jan 2010 | 2.696 | Jan 2011 | 0.000 | | 2.696 | 0.000 | 4.996 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CA5: *CONTAMINATION AVOIDANCE (SDD)* |

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| DTE S - DR SKO Developmental Testing | MIPR | ATEC Alexandria, VA | 0.000 | 2.819 | Jan 2010 | 2.800 | Jan 2011 | 0.000 | | 2.800 | 0.000 | 5.619 | 0.000 |
| DTE S - NTA Enhancements | MIPR | ATEC Alexandria, VA | 0.000 | 0.000 | | 11.800 | Jan 2011 | 0.000 | | 11.800 | 0.000 | 11.800 | 0.000 |
| ** JBPDS - DTE SB - New Identifier/Collector/ Detector developmental testing | C/CPFF | General Dynamics - Armament and Technical Charlotte, NC | 0.000 | 1.689 | Jan 2010 | 3.513 | Jan 2011 | 0.000 | | 3.513 | 0.000 | 5.202 | 0.000 |
| OTE C - Identifier consumable testing | MIPR | JPM CBMS Ft Detrick, MD | 0.000 | 0.450 | Oct 2009 | 0.950 | Oct 2010 | 0.000 | | 0.950 | 0.000 | 1.400 | 0.000 |
| ** JCAD - DTE S - M4E1 JCAD Developmental Test | MIPR | Various | 34.815 | 3.360 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 38.175 | 0.000 |
| OTE S - M4E1 JCAD Operational Test and Evaluation | MIPR | Various | 4.980 | 1.510 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 6.490 | 0.000 |
| OTE S - M4E1 Multi-Service Operational Test and Evaluation | MIPR | Various | 0.000 | 0.000 | | 8.000 | Jan 2011 | 0.000 | | 8.000 | 0.000 | 8.000 | 0.000 |
| ** NGCSD - OTHT S - Test Methodology Development | MIPR | Various | 0.000 | 3.615 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 3.615 | 0.000 |
| ** NTA DETECT - DTE S - Developmental Test Mass Spectrometer | MIPR | ECBC APG, MD | 0.000 | 8.252 | Oct 2009 | 2.400 | Oct 2010 | 0.000 | | 2.400 | 0.000 | 10.652 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CA5: *CONTAMINATION AVOIDANCE (SDD)* |

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** SSI NBCRS - OTHT SB - (CBMS) Developmental Testing | MIPR | Various | 0.000 | 0.224 | Jan 2010 | 0.955 | Jan 2011 | 0.000 | | 0.955 | 0.000 | 1.179 | 0.000 |
| DTE C - (JCSD) Developmental Testing | MIPR | Various | 0.000 | 0.000 | | 1.086 | Jan 2011 | 0.000 | | 1.086 | 0.000 | 1.086 | 0.000 |
| | | Subtotal | 39.795 | 24.219 | | 34.200 | | 0.000 | | 34.200 | 0.000 | 98.214 | 0.000 |

**Remarks**

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CBRN DRS - PM/ MS-S - Program Management and System Engineering Support | PO | JPM NBC CA APG, MD | 0.000 | 0.718 | Oct 2009 | 1.407 | Oct 2010 | 0.000 | | 1.407 | 0.000 | 2.125 | 0.000 |
| PM/MS S - NTA Enhancements Program Management and System Engineering Support | PO | JPM NBC CA APG, MD | 0.000 | 0.000 | | 1.200 | Oct 2010 | 0.000 | | 1.200 | 0.000 | 1.200 | 0.000 |
| | MIPR | JPM BD | 2.446 | 0.938 | Oct 2009 | 0.886 | Oct 2010 | 0.000 | | 0.886 | 0.000 | 4.270 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CA5: *CONTAMINATION AVOIDANCE (SDD)* |

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JBPDS - PM/MS S - Project Management | | APG, MD | | | | | | | | | | | |
| PM/MS S - Project Management, JPEO MGMT | PO | JPEO CBD<br>Falls Church, VA | 0.000 | 0.982 | Jan 2010 | 0.914 | Jan 2011 | 0.000 | | 0.914 | 0.000 | 1.896 | 0.000 |
| ** JCAD - PM/MS S - Joint Service Support | MIPR | Various | 2.998 | 3.206 | Jan 2010 | 1.733 | Jan 2011 | 0.000 | | 1.733 | 0.000 | 7.937 | 0.000 |
| ** MDAP SPRT - PM/MS SB - Management & Oversight | MIPR | Various | 0.000 | 3.200 | Jan 2010 | 2.155 | Jan 2011 | 0.000 | | 2.155 | 0.000 | 5.355 | 0.000 |
| ** NGCSD - PM/MS S - Program Management and Systems Engineering Support | MIPR | JPM NBC CA<br>APG, MD | 0.000 | 0.000 | | 1.500 | Oct 2010 | 0.000 | | 1.500 | 0.000 | 1.500 | 0.000 |
| PM/MS SB - Joint Service Combat Developer Support | MIPR | Various | 0.000 | 0.000 | | 0.400 | Jan 2011 | 0.000 | | 0.400 | 0.000 | 0.400 | 0.000 |
| PM/MS S - Program Management and Systems Engineering Support | MIPR | JPEO-CBD<br>Falls Church, VA | 0.000 | 1.500 | Jan 2010 | 0.750 | Oct 2009 | 0.000 | | 0.750 | 0.000 | 2.250 | 0.000 |
| ** NTA DETECT - PM/MS S - Program Management support | PO | JPEO<br>Falls Church, VA | 0.000 | 0.904 | Jul 2010 | 3.857 | Jul 2011 | 0.000 | | 3.857 | 0.000 | 4.761 | 0.000 |
| ** SSI NBCRS - PM/MS S - (CBMS) Program | MIPR | JPM NBC CA<br>APG, MD | 0.000 | 1.184 | Oct 2009 | 1.108 | Oct 2010 | 0.000 | | 1.108 | 0.000 | 2.292 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CA5: *CONTAMINATION AVOIDANCE (SDD)* |

**Management Services ($ in Millions)**

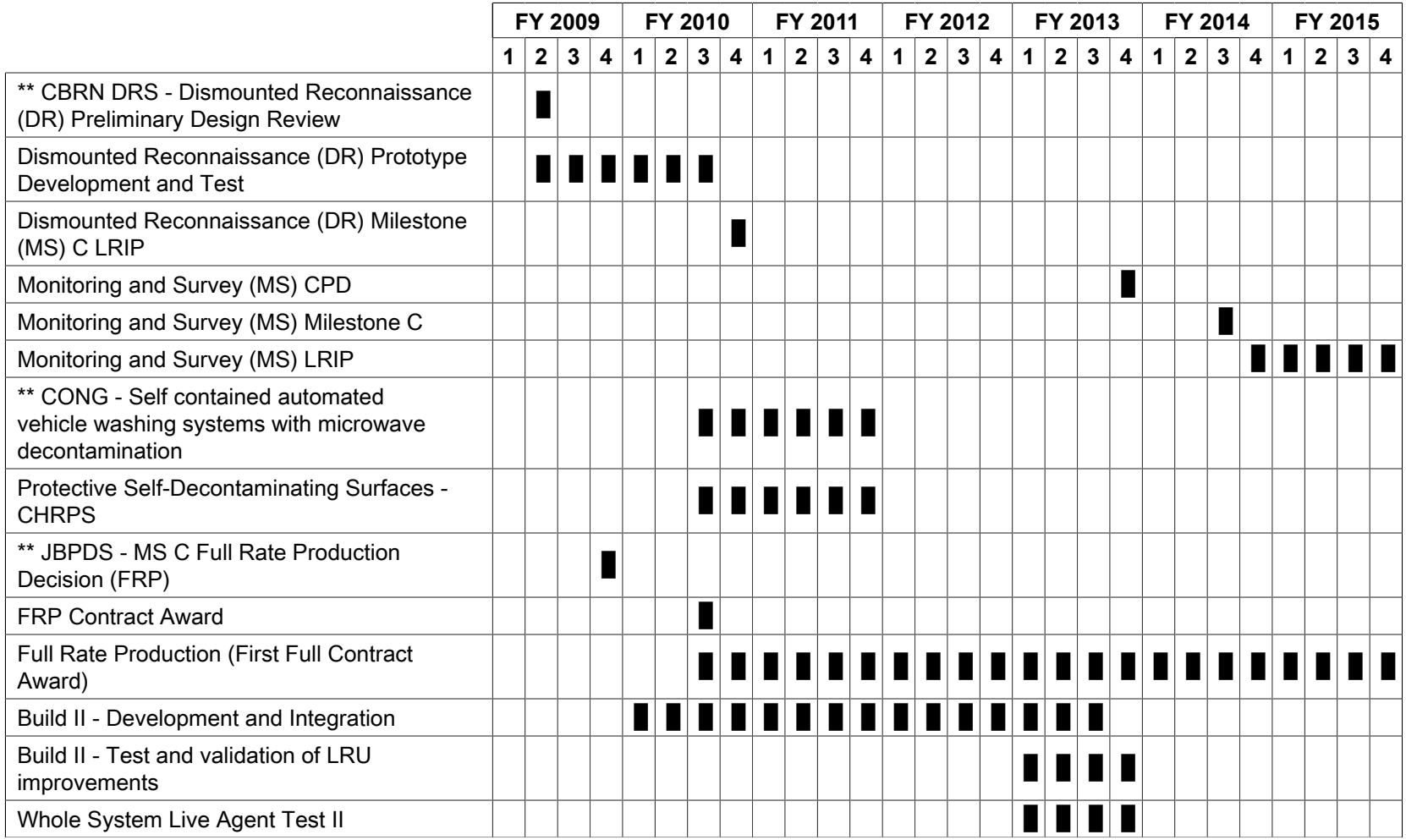
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2010 Cost | FY 2010 Award Date | FY 2011 Base Cost | FY 2011 Base Award Date | FY 2011 OCO Cost | FY 2011 OCO Award Date | FY 2011 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Management and Systems Engineering Support | | | | | | | | | | | | | |
| PM/MS S - (JCSD) Program Management and Systems Engineering Support | MIPR | JPM NBC CA APG, MD | 0.000 | 1.000 | Oct 2009 | 1.107 | Oct 2010 | 0.000 | | 1.107 | 0.000 | 2.107 | 0.000 |
| PM/MS S - (SSI NBCRS) Program Management and Systems Engineering Support | MIPR | JPEO-CBD Falls Church, VA | 0.000 | 1.500 | Jan 2010 | 1.500 | Oct 2010 | 0.000 | | 1.500 | 0.000 | 3.000 | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | MIPR | HQ AMC, Alexandria | 0.000 | 0.952 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.952 | 0.000 |
| | | **Subtotal** | 5.444 | 16.084 | | 18.517 | | 0.000 | | 18.517 | 0.000 | 40.045 | 0.000 |

**Remarks**

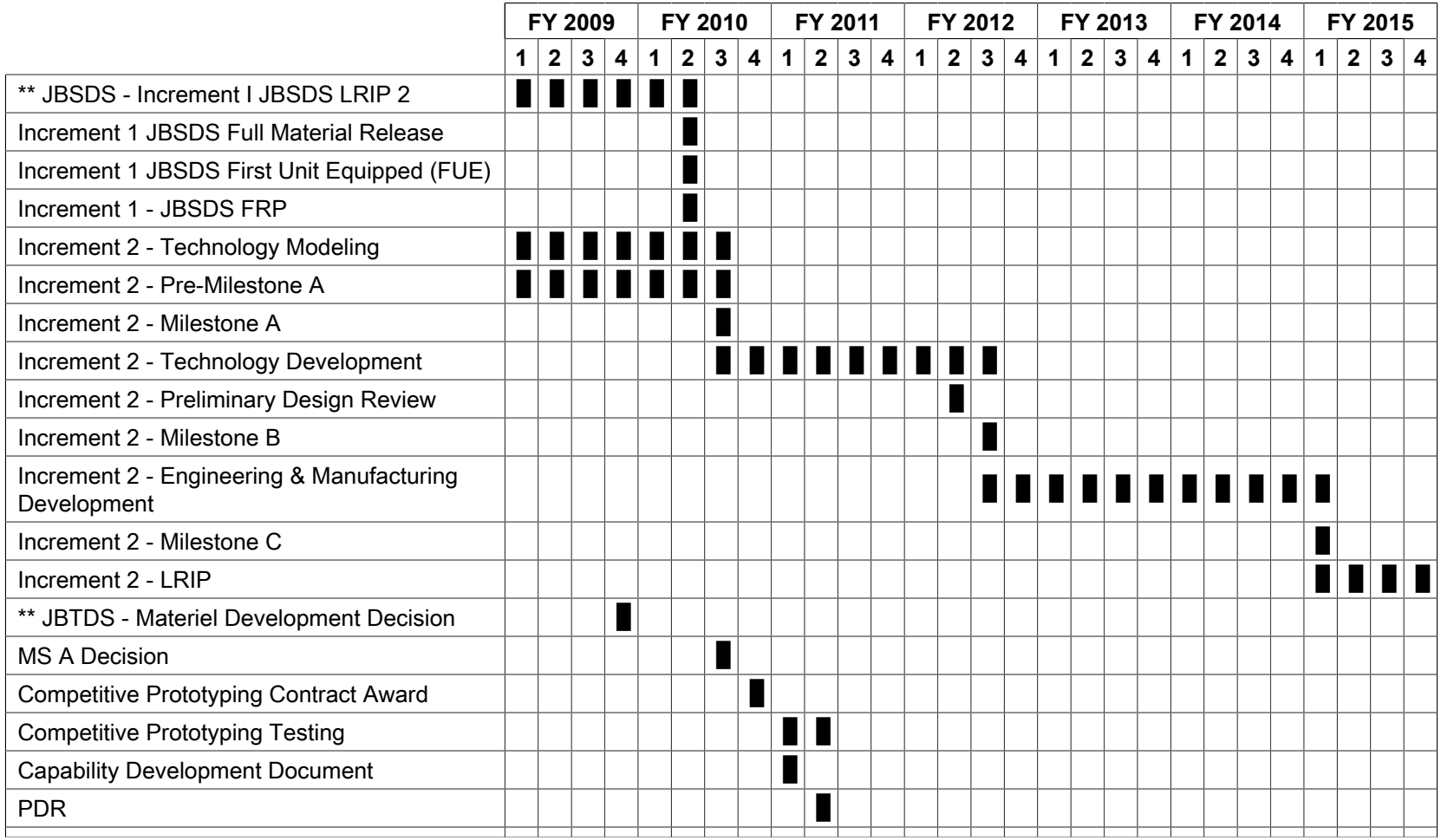
| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 45.239 | 78.042 | | 124.936 | | 0.000 | | 124.936 | 0.000 | 248.217 | 0.000 |

**Remarks**

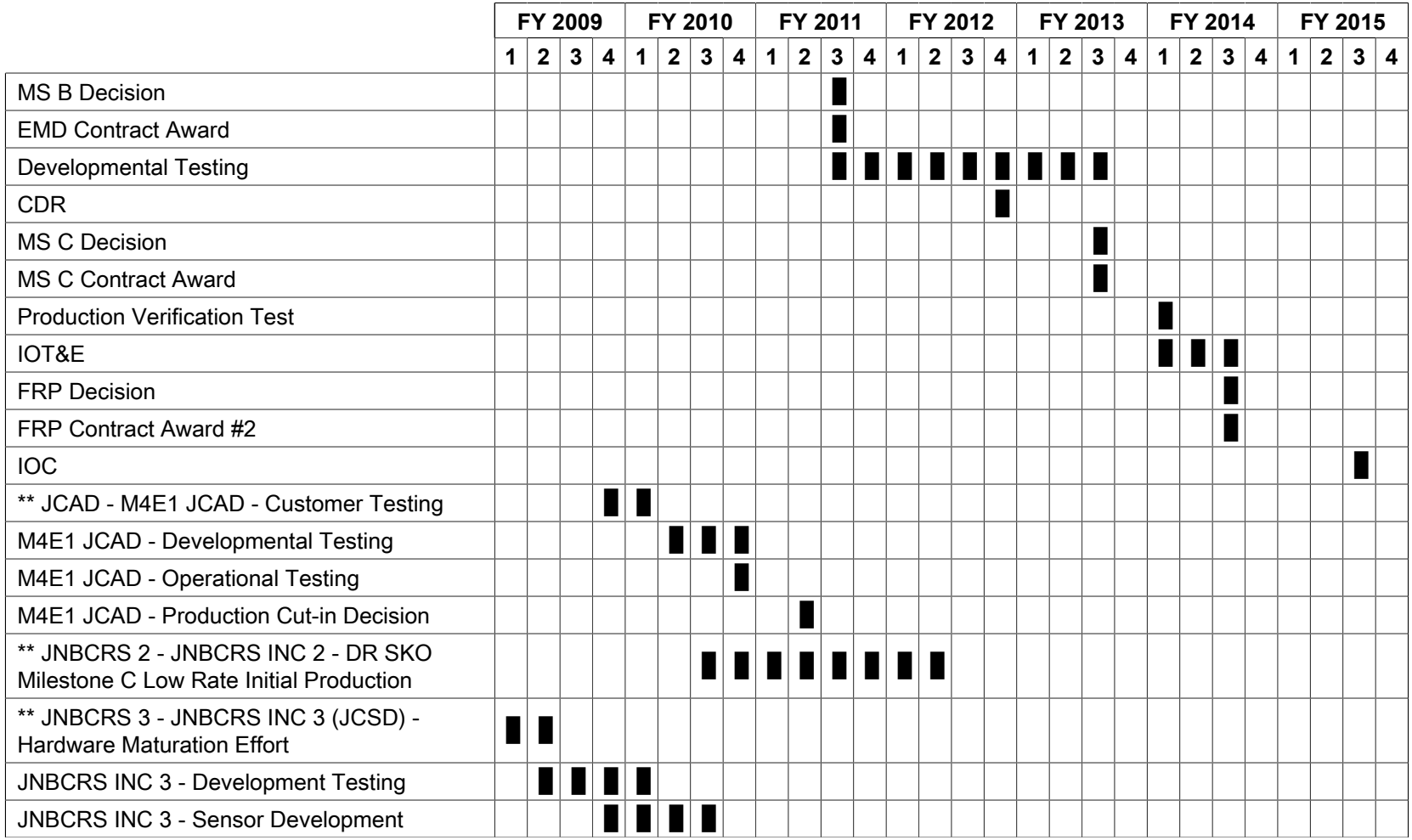
| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | | PROJECT<br>CA5: *CONTAMINATION AVOIDANCE (SDD)* |



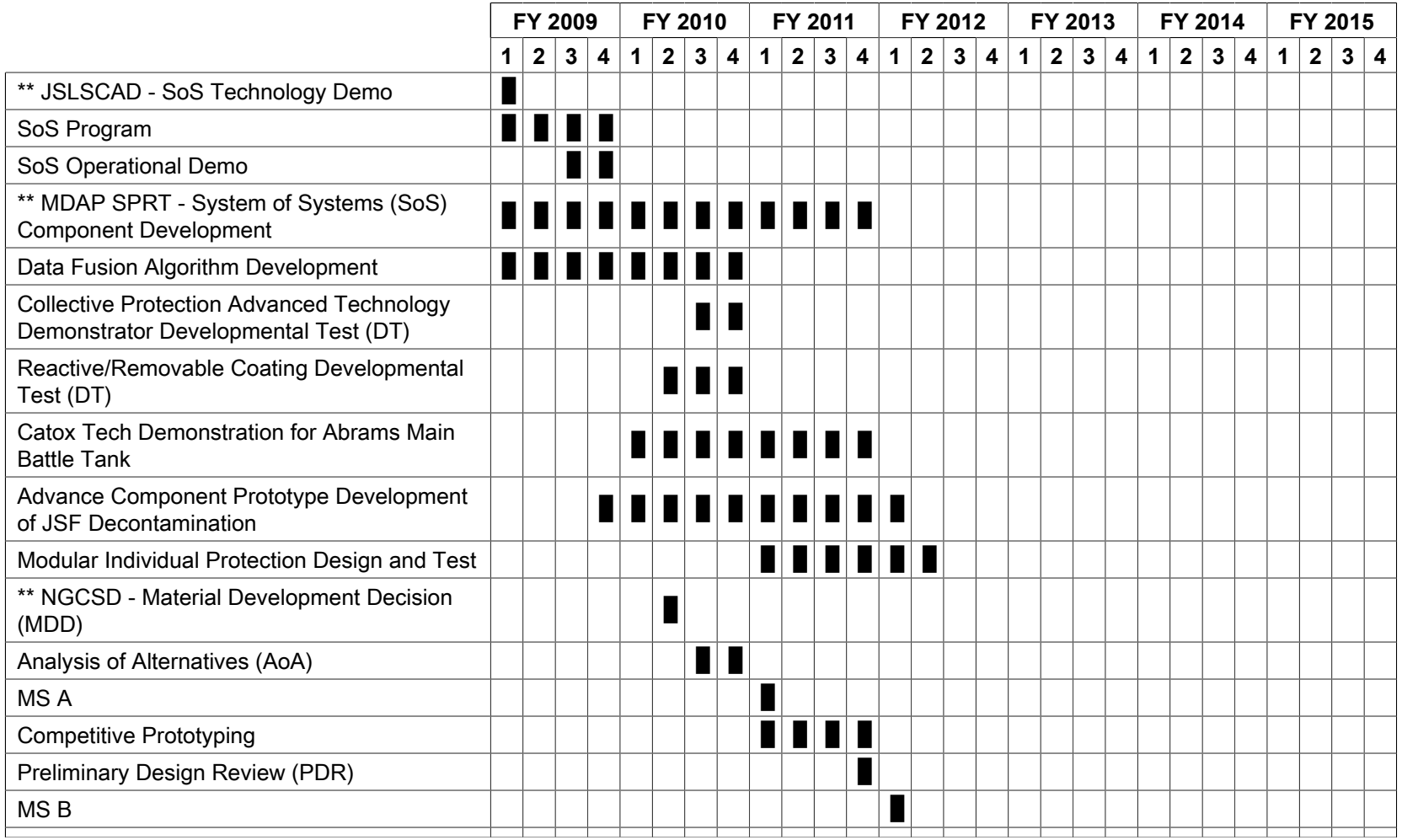
| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | | PROJECT<br>CA5: *CONTAMINATION AVOIDANCE (SDD)* |



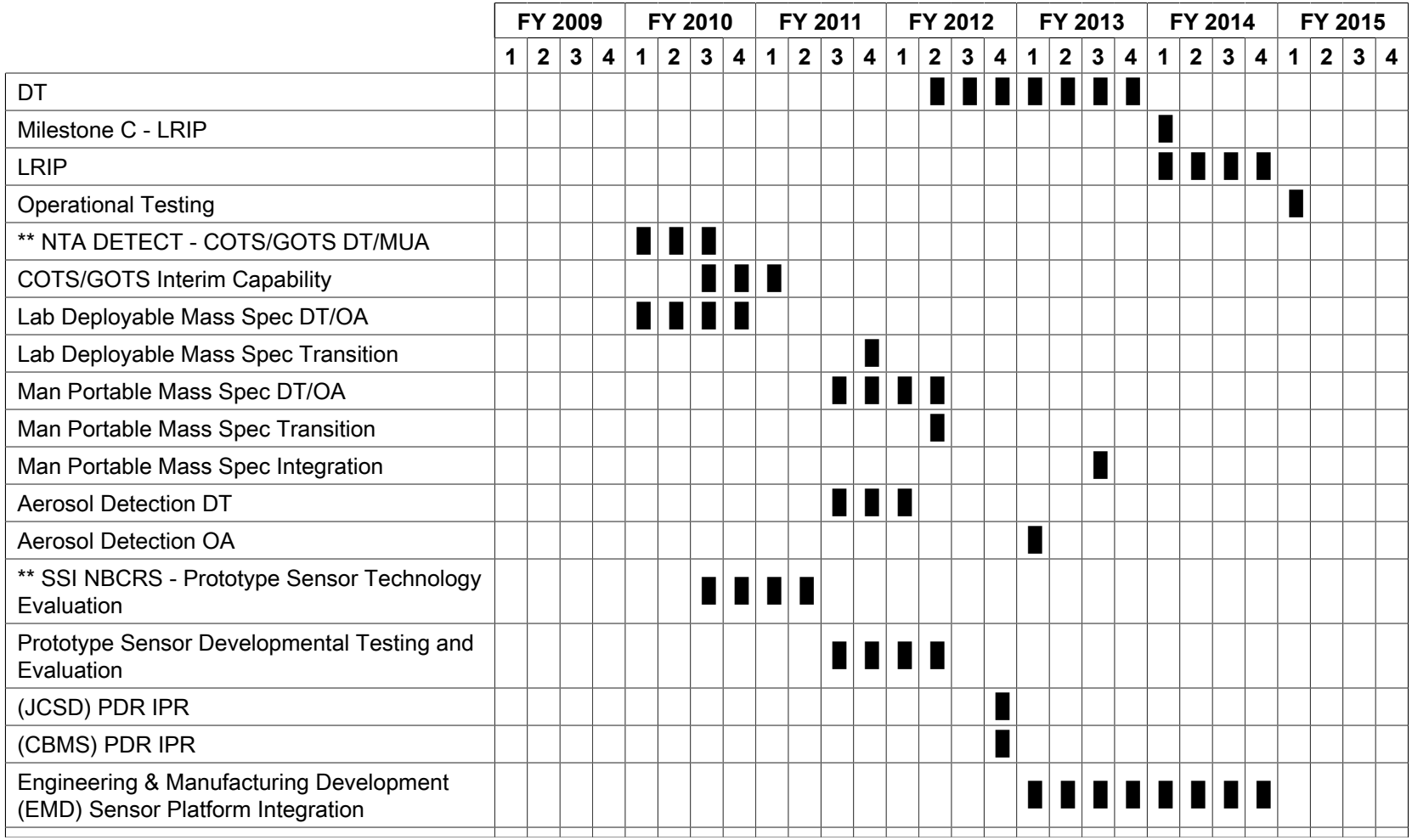
| **Exhibit R-4**, **RDT&E Schedule Profile:** PB 2011 Chemical and Biological Defense Program | | **DATE:** February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | **R-1 ITEM NOMENCLATURE**<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | **PROJECT**<br>CA5: *CONTAMINATION AVOIDANCE (SDD)* |



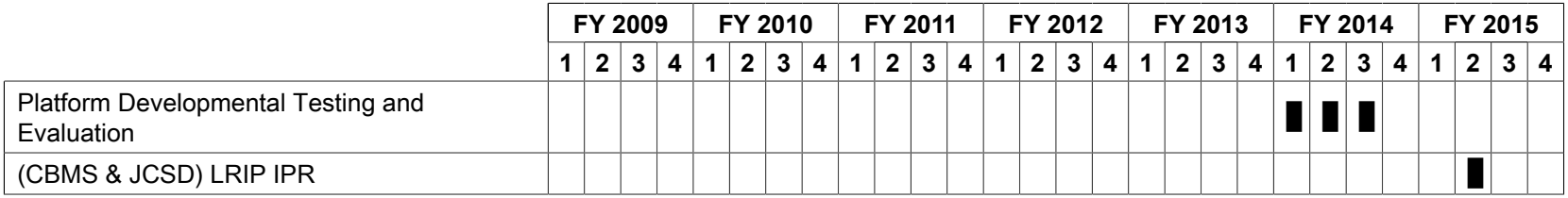
| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | | PROJECT<br>CA5: *CONTAMINATION AVOIDANCE (SDD)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | | PROJECT<br>CA5: *CONTAMINATION AVOIDANCE (SDD)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CA5: *CONTAMINATION AVOIDANCE (SDD)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | **R-1 ITEM NOMENCLATURE**<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | **PROJECT**<br>CA5: *CONTAMINATION AVOIDANCE (SDD)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** CBRN DRS - Dismounted Reconnaissance (DR) Preliminary Design Review | 2 | 2009 | 2 | 2009 |
| Dismounted Reconnaissance (DR) Prototype Development and Test | 2 | 2009 | 3 | 2010 |
| Dismounted Reconnaissance (DR) Milestone (MS) C LRIP | 4 | 2010 | 4 | 2010 |
| Monitoring and Survey (MS) CPD | 4 | 2013 | 4 | 2013 |
| Monitoring and Survey (MS) Milestone C | 3 | 2014 | 3 | 2014 |
| Monitoring and Survey (MS) LRIP | 4 | 2014 | 2 | 2016 |
| ** CONG - Self contained automated vehicle washing systems with microwave decontamination | 3 | 2010 | 4 | 2011 |
| Protective Self-Decontaminating Surfaces - CHRPS | 3 | 2010 | 4 | 2011 |
| ** JBPDS - MS C Full Rate Production Decision (FRP) | 4 | 2009 | 4 | 2009 |
| FRP Contract Award | 3 | 2010 | 3 | 2010 |
| Full Rate Production (First Full Contract Award) | 3 | 2010 | 4 | 2016 |
| Build II - Development and Integration | 1 | 2010 | 3 | 2013 |
| Build II - Test and validation of LRU improvements | 1 | 2013 | 4 | 2013 |
| Whole System Live Agent Test II | 1 | 2013 | 4 | 2013 |
| ** JBSDS - Increment I JBSDS LRIP 2 | 2 | 2008 | 2 | 2010 |
| Increment 1 JBSDS Full Material Release | 2 | 2010 | 2 | 2010 |
| Increment 1 JBSDS First Unit Equipped (FUE) | 2 | 2010 | 2 | 2010 |
| Increment 1 - JBSDS FRP | 2 | 2010 | 2 | 2010 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CA5: *CONTAMINATION AVOIDANCE (SDD)* |

| | Start | | End | |
|---|---|---|---|---|
| Event | Quarter | Year | Quarter | Year |
| Increment 2 - Technology Modeling | 4 | 2004 | 3 | 2010 |
| Increment 2 - Pre-Milestone A | 1 | 2008 | 3 | 2010 |
| Increment 2 - Milestone A | 3 | 2010 | 3 | 2010 |
| Increment 2 - Technology Development | 3 | 2010 | 3 | 2012 |
| Increment 2 - Preliminary Design Review | 2 | 2012 | 2 | 2012 |
| Increment 2 - Milestone B | 3 | 2012 | 3 | 2012 |
| Increment 2 - Engineering & Manufacturing Development | 3 | 2012 | 1 | 2015 |
| Increment 2 - Milestone C | 1 | 2015 | 1 | 2015 |
| Increment 2 - LRIP | 1 | 2015 | 2 | 2017 |
| ** JBTDS - Materiel Development Decision | 4 | 2009 | 4 | 2009 |
| MS A Decision | 3 | 2010 | 3 | 2010 |
| Competitive Prototyping Contract Award | 4 | 2010 | 4 | 2010 |
| Competitive Prototyping Testing | 1 | 2011 | 2 | 2011 |
| Capability Development Document | 1 | 2011 | 1 | 2011 |
| PDR | 2 | 2011 | 2 | 2011 |
| MS B Decision | 3 | 2011 | 3 | 2011 |
| EMD Contract Award | 3 | 2011 | 3 | 2011 |
| Developmental Testing | 3 | 2011 | 3 | 2013 |
| CDR | 4 | 2012 | 4 | 2012 |
| MS C Decision | 3 | 2013 | 3 | 2013 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
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| | Start | | End | |
|---|---|---|---|---|
| Event | Quarter | Year | Quarter | Year |
| MS C Contract Award | 3 | 2013 | 3 | 2013 |
| Production Verification Test | 1 | 2014 | 1 | 2014 |
| IOT&E | 1 | 2014 | 3 | 2014 |
| FRP Decision | 3 | 2014 | 3 | 2014 |
| FRP Contract Award #2 | 3 | 2014 | 3 | 2014 |
| IOC | 3 | 2015 | 3 | 2015 |
| ** JCAD - M4E1 JCAD - Customer Testing | 4 | 2009 | 1 | 2010 |
| M4E1 JCAD - Developmental Testing | 2 | 2010 | 4 | 2010 |
| M4E1 JCAD - Operational Testing | 4 | 2010 | 4 | 2010 |
| M4E1 JCAD - Production Cut-in Decision | 2 | 2011 | 2 | 2011 |
| ** JNBCRS 2 - JNBCRS INC 2 - DR SKO Milestone C Low Rate Initial Production | 3 | 2010 | 2 | 2012 |
| ** JNBCRS 3 - JNBCRS INC 3 (JCSD) - Hardware Maturation Effort | 1 | 2008 | 2 | 2009 |
| JNBCRS INC 3 - Development Testing | 2 | 2009 | 1 | 2010 |
| JNBCRS INC 3 - Sensor Development | 4 | 2009 | 3 | 2010 |
| ** JSLSCAD - SoS Technology Demo | 4 | 2008 | 1 | 2009 |
| SoS Program | 4 | 2008 | 4 | 2009 |
| SoS Operational Demo | 3 | 2009 | 4 | 2009 |
| ** MDAP SPRT - System of Systems (SoS) Component Development | 2 | 2007 | 4 | 2011 |
| Data Fusion Algorithm Development | 2 | 2007 | 4 | 2010 |
| Collective Protection Advanced Technology Demonstrator Developmental Test (DT) | 3 | 2010 | 4 | 2010 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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| | Start | | End | |
|---|---|---|---|---|
| Event | Quarter | Year | Quarter | Year |
| Reactive/Removable Coating Developmental Test (DT) | 2 | 2010 | 4 | 2010 |
| Catox Tech Demonstration for Abrams Main Battle Tank | 1 | 2010 | 4 | 2011 |
| Advance Component Prototype Development of JSF Decontamination | 4 | 2009 | 1 | 2012 |
| Modular Individual Protection Design and Test | 1 | 2011 | 2 | 2012 |
| ** NGCSD - Material Development Decision (MDD) | 2 | 2010 | 2 | 2010 |
| Analysis of Alternatives (AoA) | 3 | 2010 | 4 | 2010 |
| MS A | 1 | 2011 | 1 | 2011 |
| Competitive Prototyping | 1 | 2011 | 4 | 2011 |
| Preliminary Design Review (PDR) | 4 | 2011 | 4 | 2011 |
| MS B | 1 | 2012 | 1 | 2012 |
| DT | 2 | 2012 | 4 | 2013 |
| Milestone C - LRIP | 1 | 2014 | 1 | 2014 |
| LRIP | 1 | 2014 | 4 | 2014 |
| Operational Testing | 1 | 2015 | 1 | 2015 |
| ** NTA DETECT - COTS/GOTS DT/MUA | 1 | 2010 | 3 | 2010 |
| COTS/GOTS Interim Capability | 3 | 2010 | 1 | 2011 |
| Lab Deployable Mass Spec DT/OA | 1 | 2010 | 4 | 2010 |
| Lab Deployable Mass Spec Transition | 4 | 2011 | 4 | 2011 |
| Man Portable Mass Spec DT/OA | 3 | 2011 | 2 | 2012 |
| Man Portable Mass Spec Transition | 2 | 2012 | 2 | 2012 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
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| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| Man Portable Mass Spec Integration | 3 | 2013 | 3 | 2013 |
| Aerosol Detection DT | 3 | 2011 | 1 | 2012 |
| Aerosol Detection OA | 1 | 2013 | 1 | 2013 |
| ** SSI NBCRS - Prototype Sensor Technology Evaluation | 3 | 2010 | 2 | 2011 |
| Prototype Sensor Developmental Testing and Evaluation | 3 | 2011 | 2 | 2012 |
| (JCSD) PDR IPR | 4 | 2012 | 4 | 2012 |
| (CBMS) PDR IPR | 4 | 2012 | 4 | 2012 |
| Engineering & Manufacturing Development (EMD) Sensor Platform Integration | 1 | 2013 | 4 | 2014 |
| Platform Developmental Testing and Evaluation | 1 | 2014 | 3 | 2014 |
| (CBMS & JCSD) LRIP IPR | 2 | 2015 | 2 | 2015 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CM5: *HOMELAND DEFENSE (SDD)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CM5: *HOMELAND DEFENSE (SDD)* | 3.897 | 8.638 | 1.166 | 0.000 | 1.166 | 3.822 | 0.000 | 2.361 | 2.413 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 3 | | 3 | 0 | 0 | 0 | 0 | | |

**A. Mission Description and Budget Item Justification**

The PM Consequence Management program supports the development of a Common Analytical Laboratory System capability (CALS) that will be modular, scalable and adaptable to a variety of CONOPS and environmental conditions. Currently, fielded systems have been designed independently by various agencies with the intent of meeting a specific units requirements. As a result, multiple mobile lab configurations exist with differing sustainment tails and lacking in commonality. The system under development will incorporate an open architecture that can accommodate quick installation or removal of equipment as mission requirements dictate. As well, it will provide the ability to rapidly develop a common operating picture allowing first responders and DoD officials to determine the appropriate course of action. The analytical detection package fielded will be fitted to the specific mission and CONOPS of the gaining unit and be able to detect and identify Chemical Warfare Agents (CWAs), Toxic Industrial Chemicals (TICs), Toxic Industrial Materials (TIMs), Biological Warfare Agents (BWAs), Lower Explosive Limits (LEL), and radioactive particles in all sample types.

The CB Installation Protection Program (CBIPP) supports the development of analytical methodologies to expand/enhance the operational capabilities of currently fielded CBRN detection, identification and protection technologies against emerging threats to include Toxic Industrial Chemicals (TICs), Chemical Warfare Agents (CWAs), and Biological Warfare Agents (BWAs). Detection and identification of these substances is currently difficult and time-consuming. Current systems lack extensive libraries to support rapid identification. Identification may also involve multiple, expensive technologies. The ability to rapidly detect and identify a TIC is essential to effectively control and mitigate its effects, thus protecting personnel. This program also supports the evaluation of emerging CBRN detection, identification, information management and decision support technologies to DoD response units to maintain required state of the art capabilities.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) CALS | 0.000 | 0.499 | 0.150 | 0.000 | 0.150 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CM5: *HOMELAND DEFENSE (SDD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Initiate Program Office planning and programming.<br><br>*FY 2011 Base Plans:*<br>Continue Program Office planning and programming. | | | | | |
| 2) CALS<br>*FY 2010 Plans:*<br>Initiate System Engineering and Logistics Support.<br><br>*FY 2011 Base Plans:*<br>Continue System Engineering and Logistics Support. | 0.000 | 0.971 | 0.150 | 0.000 | 0.150 |
| 3) CALS<br>*FY 2010 Plans:*<br>Initiate Subsystem Design and Development - Open Architecture Design Analytics and Laboratory Information Management.<br><br>*FY 2011 Base Plans:*<br>Complete Subsystem Design and Development - Open Architecture Design Analytics and Laboratory Information Management. | 0.000 | 3.464 | 0.000 | 0.000 | 0.000 |
| 4) CALS<br>*FY 2010 Plans:*<br>Initiate/conduct Developmental Testing. | 0.000 | 0.732 | 0.566 | 0.000 | 0.566 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Conduct Developmental Testing. | | | | | |
| 5) CALS<br>*FY 2011 Base Plans:*<br>Conduct system prototype refurbishment and refinement. | 0.000 | 0.000 | 0.300 | 0.000 | 0.300 |
| 6) CBIPP<br>*FY 2009 Accomplishments:*<br>Supported development of analytical methodologies to expand CBRN detection, identification, and protection capabilities. | 0.750 | 0.000 | 0.000 | 0.000 | 0.000 |
| 7) CBIPP<br>*FY 2010 Plans:*<br>Supports the development of methodologies used to perform CBRN detection and evaluation under various environmental conditions. | 0.000 | 1.091 | 0.000 | 0.000 | 0.000 |
| 8) CBIPP<br>*FY 2010 Plans:*<br>Supports the evaluation of CBRN detection, identification, information management and decision support technologies. | 0.000 | 1.770 | 0.000 | 0.000 | 0.000 |
| 9) CBIPP<br>*FY 2009 Accomplishments:*<br>Supported the evaluation of CBRN detection, identification, information management, and decision support technologies. | 1.697 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 10) WMD CST<br>*FY 2009 Accomplishments:*<br>Conducted Program Office planning and programming. | 0.450 | 0.000 | 0.000 | 0.000 | 0.000 |
| 11) WMD CST<br>*FY 2009 Accomplishments:*<br>Conducted Systems Engineering and Logistics Support. | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 12) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.111 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 3.897 | 8.638 | 1.166 | 0.000 | 1.166 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JS0004: *WMD - CIVIL SUPPORT TEAMS (WMD CST)* | 8.300 | 11.765 | 39.862 | | 39.862 | 33.402 | 37.398 | 44.817 | 47.159 | Continuing | Continuing |
| • JS0500: *CB INSTALLATION/ FORCE PROTECTION PROGRAM (FORCE PROT)* | 80.103 | 53.623 | 50.773 | | 50.773 | 60.324 | 59.836 | 57.840 | 54.455 | Continuing | Continuing |

**D. Acquisition Strategy**

CALS

The Common Analytical Laboratory System (CALS) will follow an incremental approach designed to address known joint force capability requirements for Chemical, Biological, Radiological and Nuclear (CBRN) detection which includes Toxic Industrial Chemicals (TICs), Toxic Industrial Materials (TIMs), Chemical Warfare Agents

(CWAs), Biological Warfare Agents (BWAs). CALS will address situational awareness by leveraging efforts underway with JPEO-CBD to the extent possible. CALS will accommodate these component requirements within a modular and scalable concept framework.

FORCE PROT

The Special Study for System Methodology Development will support the development of analytical methodologies to expand/enhance the operational capabilities of currently fielded CBRN detection, identification and protection technologies against emerging threats to include TIC, CWA, and BWA threats.

The Special Study for CBRN Defense Technology Evaluation will support the evaluation of emerging CBRN detection, identification, information management and decision support technologies to DoD response units to maintain required state-of-the-art capabilities.

WMD CST

This program utilizes multiple acquisition vehicles to deliver a CBRN capability to the WMD response units. The CALS program will upgrade the analytical capability with the objective of improving chemical and biological detection sensitivity and selectivity of the WMD CST Analytical Laboratory System Increment 1 and the 20th SUPCOM heavy and light tactical lab variants. Additionally, the CALS will integrate the communications and reachback capability for mobile CBRN homeland defense capability as required by the JROC.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CM5: *HOMELAND DEFENSE (SDD)* | |

**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CALS - HW SB - Analytical Subsystem Design and Development | C/CPIF | TBD | 0.000 | 2.252 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 2.252 | 0.000 |
| SW SB - Information Technology Subsystem Development | C/CPIF | TBD | 0.000 | 1.042 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.042 | 0.000 |
| HW S - Analytical Protocol Development | MIPR | TBD | 0.000 | 0.170 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.170 | 0.000 |
| HW S - CALS Prototype Systems | C/CPIF | TBD | 0.000 | 0.000 | | 0.300 | Jul 2011 | 0.000 | | 0.300 | 0.000 | 0.300 | 0.000 |
| ** FORCE PROT - HW S - System Protocol Development | C/FP | TBD | 0.000 | 1.091 | Oct 2009 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.091 | 0.000 |
| | | **Subtotal** | 0.000 | 4.555 | | 0.300 | | 0.000 | | 0.300 | 0.000 | 4.855 | 0.000 |

**Remarks**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CM5: *HOMELAND DEFENSE (SDD)* | |

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CALS - ES S - Engineering Support | MIPR | Edgewood Chemical and Biological Center Edgewood. MD | 0.000 | 0.499 | Oct 2009 | 0.150 | Jan 2011 | 0.000 | | 0.150 | 0.000 | 0.649 | 0.000 |
| | | **Subtotal** | 0.000 | 0.499 | | 0.150 | | 0.000 | | 0.150 | 0.000 | 0.649 | 0.000 |

**Remarks**

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CALS - DTE SB - Analytical System Developmental Testing | MIPR | TBD | 0.000 | 0.732 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.732 | 0.000 |
| DTE S - System Developmental Testing | MIPR | TBD | 0.000 | 0.000 | | 0.566 | Jul 2011 | 0.000 | | 0.566 | 0.000 | 0.566 | 0.000 |
| ** FORCE PROT - OTHT C - System Component Testing | C/FP | TBD | 0.000 | 1.770 | Oct 2009 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.770 | 0.000 |
| | | **Subtotal** | 0.000 | 2.502 | | 0.566 | | 0.000 | | 0.566 | 0.000 | 3.068 | 0.000 |

**Remarks**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CM5: *HOMELAND DEFENSE (SDD)* |

**Management Services ($ in Millions)**

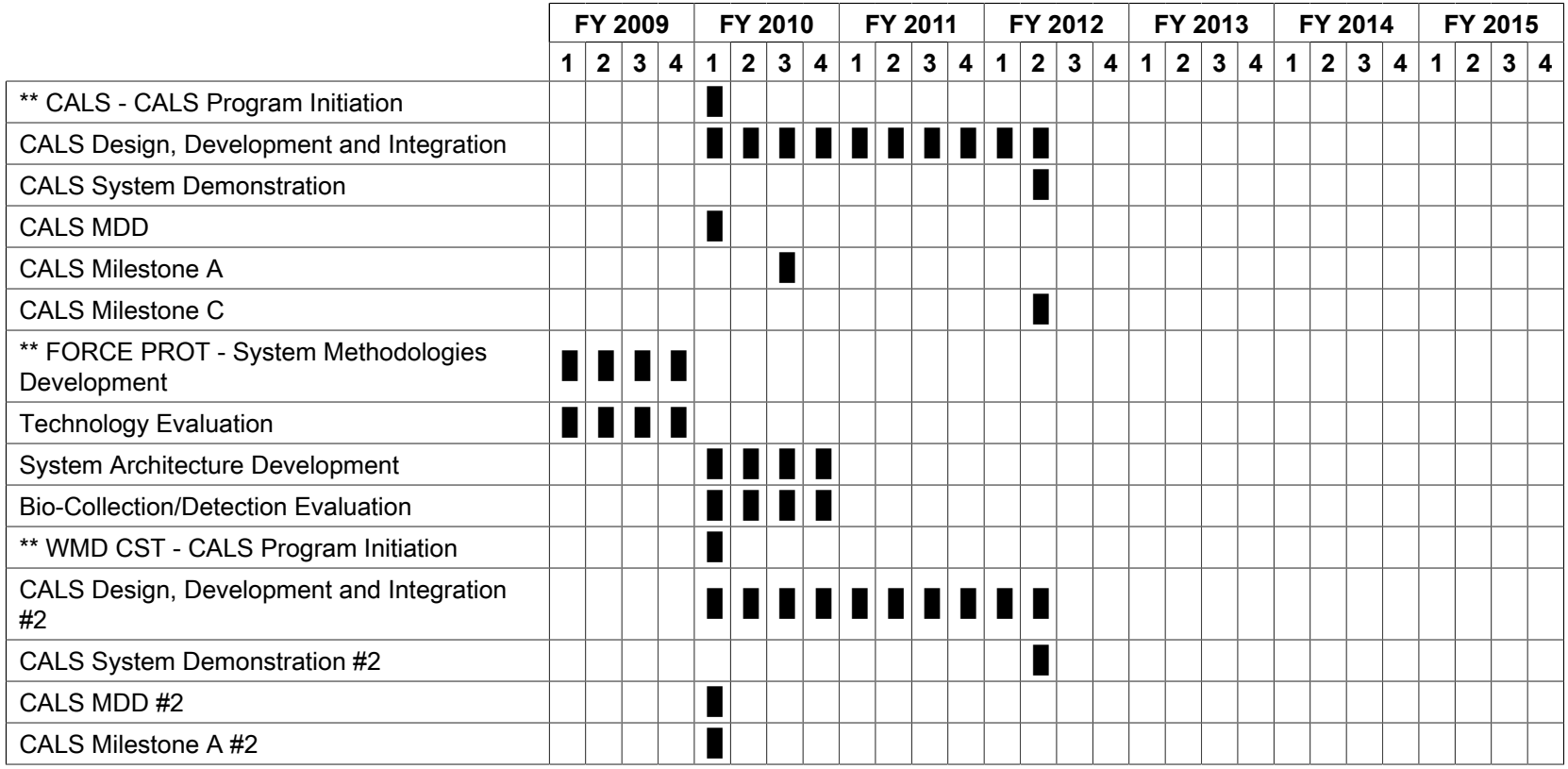
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2010 Cost | FY 2010 Award Date | FY 2011 Base Cost | FY 2011 Base Award Date | FY 2011 OCO Cost | FY 2011 OCO Award Date | FY 2011 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CALS - PM/MS HW - Program Office - Planning and Programming | MIPR | Edgewood Chemical Biological Center Edgewood, MD | 0.000 | 0.971 | Oct 2009 | 0.150 | Jan 2011 | 0.000 | | 0.150 | 0.000 | 1.121 | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | MIPR | HQ AMC, Alexandria | 0.000 | 0.111 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.111 | 0.000 |
| | | **Subtotal** | 0.000 | 1.082 | | 0.150 | | 0.000 | | 0.150 | 0.000 | 1.232 | 0.000 |

**Remarks**

| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 0.000 | 8.638 | | 1.166 | | 0.000 | | 1.166 | 0.000 | 9.804 | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CM5: *HOMELAND DEFENSE (SDD)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CM5: *HOMELAND DEFENSE (SDD)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| Event | Quarter | Year | Quarter | Year |
| ** CALS - CALS Program Initiation | 1 | 2010 | 1 | 2010 |
| CALS Design, Development and Integration | 1 | 2010 | 2 | 2012 |
| CALS System Demonstration | 2 | 2012 | 2 | 2012 |
| CALS MDD | 1 | 2010 | 1 | 2010 |
| CALS Milestone A | 3 | 2010 | 3 | 2010 |
| CALS Milestone C | 2 | 2012 | 2 | 2012 |
| ** FORCE PROT - System Methodologies Development | 1 | 2009 | 4 | 2009 |
| Technology Evaluation | 1 | 2009 | 4 | 2009 |
| System Architecture Development | 1 | 2010 | 4 | 2010 |
| Bio-Collection/Detection Evaluation | 1 | 2010 | 4 | 2010 |
| ** WMD CST - CALS Program Initiation | 1 | 2010 | 1 | 2010 |
| CALS Design, Development and Integration #2 | 1 | 2010 | 2 | 2012 |
| CALS System Demonstration #2 | 2 | 2012 | 2 | 2012 |
| CALS MDD #2 | 1 | 2010 | 1 | 2010 |
| CALS Milestone A #2 | 1 | 2010 | 1 | 2010 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CO5: *COLLECTIVE PROTECTION (SDD)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CO5: *COLLECTIVE PROTECTION (SDD)* | 13.323 | 12.002 | 18.459 | 0.000 | 18.459 | 11.671 | 10.267 | 7.835 | 0.000 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 72 | 0 | | 0 | 0 | 72 | 0 | 0 | | |

**A. Mission Description and Budget Item Justification**

Funding supports System Development and Demonstration and Low Rate Initial Production (SDD/LRIP) of Joint Service Chemical, Biological, and Radiological (CBR) Collective Protection (CP) systems that are smaller, lighter, less costly to produce and maintain, and more logistically supportable enabling mission accomplishment in CBR environments. CP systems can be installed on any type of platform, such as, hard and soft shelters, vehicles, ships, aircraft, and buildings. CP systems provide spaces safe from the effects of CBR contamination.

Systems funded under this project are: Joint Expeditionary Collective Protection (JECP).

JECP provides the Joint Expeditionary Forces a CP capability which is lightweight, compact, modular, and affordable. A family of systems is planned that will allow the application of CP to transportable soft-side shelters, enclosed spaces of opportunity, and in remote austere locations as a standalone resource. JECP will be capable of protecting personnel groups of varying size, unencumbered by Individual Protective Equipment (IPE), from the effects of CB agents, Toxic Industrial Materials (TIMs), radiological particles, heat, dust, and sand. The employment of JECP is a strategic deterrence against enemy use of CBR agents or TIMs, and will reduce the need for personnel and equipment decontamination.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) JECP - Engineering and Manufacturing Development (EMD) Contract | 3.630 | 3.212 | 1.330 | 0.000 | 1.330 |
| Engineering and Manufacturing Development Contract to design, develop, integrate and test the prototype Joint Expeditionary Collective Protection (JECP) Family of Systems (FoS) that meet the requirements of the Capability Development Document (CDD) and System Performance Specification (SPS). | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Completed preliminary design activities including updates to trade studies based on the outcome of the System Requirements Review (SRR). Developed preliminary drawings and 3D models of components and subsystems. Finalized the allocated baseline comprised of the Requirements Allocation Matrix, Physical Interfaces Document (which graphically depicted each system's physical interfaces), system and component diagrams (which provided functional and physical characteristics) and Configuration Items (CI) list (which defined each distinct CI and its components). Conducted Preliminary Design Review (PDR) and initiated detailed design activities. Conducted Contractor component level testing for risk reduction and component down-select. Manufactured test items for Government agent and simulant component level Developmental Test (DT).<br><br>*FY 2010 Plans:*<br>Continue detailed design activities; conduct Critical Design Review (CDR). Manufacture prototype systems for Contractor system level DT. Begin Contractor system level DT (including environmental and electromagnetic interference testing). Begin manufacture of prototypes for Government system level DT. Prototypes consist of: 24 tent kits (4 configurations, 6 units each) at approximately $75 thousand each; 12 structure kits at approximately $56 thousand each; 6 stand alone (SA) man-portable at approximately $7 thousand each; 6 SA small at approximately $22 thousand each; 6 SA medium at approximately $67 thousand each; 6 SA large at approximately $167 thousand each; 9 single person airlocks at approximately $5 thousand each; and 9 multi-person airlocks at approximately $30 thousand each. Estimated total cost of all prototypes: $4.365 million.<br><br>*FY 2011 Base Plans:*<br>Complete manufacture of prototypes for Government system level DT. Provide support for Government system level DT of all 9 configurations of the FoS including training, maintenance, troubleshooting and repair. | | | | | |
| 2) JECP - Simulant Select and Test Fixture Validation | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Identify simulants to be used during Government system level developmental testing (DT).<br><br>*FY 2009 Accomplishments:*<br>Completed testing with selected simulants, Verification & Validation (V&V) of the Near Real Time (NRT) fixtures and started the development of the final report. | | | | | |
| 3) JECP - Government Component Level Developmental Testing<br><br>Conduct Government component level developmental testing (DT) using agent and simulant to determine compliance with SPS protection requirements. Used test data from agent and simulant testing to establish a defendable agent to simulant relationship (ASR). Develop component level empirical models to provide to the JECP System Performance Model (SPM).<br><br>*FY 2009 Accomplishments:*<br>Developed Design of Experiment (DoE) to ensure optimum results are achieved from the Government component level DT that is conducted. Began Government component level DT consisting of Barrier Materials Swatch Testing, Air-Purification System Testing and Chemical/Biological (CB) Closures Testing.<br><br>*FY 2010 Plans:*<br>Complete Barrier Materials Swatch Testing, Air-Purification System Testing and CB Closures Testing. Establish the ASR and develop component level empirical models to provide to the JECP SPM team. | 2.616 | 2.216 | 0.000 | 0.000 | 0.000 |
| 4) JECP - Test Support Equipment<br><br>Procure test support equipment.<br><br>*FY 2009 Accomplishments:*<br>Procured various fielded tents needed to test the tent kits. Tents procured included the Alaska Small Shelter System, the Modular Command Post System, the TEMPER Tent and the Base-X 305 tent. | 1.100 | 0.000 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 5) JECP - Government System Level Testing<br>Conduct Government system level Developmental Testing (DT) and combined DT/Operational Testing (OT) of the Family of Systems (FoS) to be conducted both in the chamber and in the field (littoral and desert environments).<br>*FY 2010 Plans:*<br>Develop Design of Experiment (DoE) to ensure optimum results are achieved from the Government system level Developmental Testing (DT) that is conducted. Begin Non-CB mode Operational Testing (OT) of the Family of Systems (FoS) in littoral and desert environments.<br>*FY 2011 Base Plans:*<br>Finish Non-CB mode OT. Begin Reliability and Maintainability Analysis, static and dynamic system verification testing, and combined DT/OT system field challenge on the FoS. | 0.000 | 1.345 | 9.310 | 0.000 | 9.310 |
| 6) JECP - Enhanced M98 Filter Set Testing<br>Enhanced M98 Filter Set testing is an effort to validate and test improved filtration technology.<br>*FY 2011 Base Plans:*<br>Enhanced M98 Filter Set testing is an effort to validate and test improved filtration technology. New sorbent materials have been identified as potential alternate sources to the currently fielded ASZM-T that is used in the gas filter of the M98. Tests will be performed to compare the baseline sorbent and the new sorbents. | 0.000 | 0.000 | 2.350 | 0.000 | 2.350 |
| 7) JECP - Systems Engineering IPT<br>Provide technical direction to the Contractor team. Establish and maintain a robust and disciplined Systems Engineering process IAW DoD and JPEO-CBD policy and guidance. | 0.942 | 1.061 | 0.750 | 0.000 | 0.750 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Established the Functional baseline by developing and placing the System Performance Specification (SPS) and the Requirements Traceability Management (RTM) under configuration control. Planned and conducted the System Functional Review. Identified new risks and managed existing risks as delegated. Identified Environmental Safety Occupational Health (ESOH) hazards and managed corresponding ESOH hazard risks. Assisted in HSI assessments and reviews.<br><br>*FY 2010 Plans:*<br>Update and maintain the RTM to track when requirements have been verified as test results become available. Participate in Configuration Control Board as the detailed design evolves and drawings are developed and updated.<br><br>*FY 2011 Base Plans:*<br>Develop, update and/or review program documentation in preparation for MS C (as documented above for MS B). | | | | | |
| 8) JECP - Test and Evaluation IPT<br>Lead and oversee all aspects of the JECP Integrated Test (IT) program<br><br>*FY 2009 Accomplishments:*<br>Identified requirements for a System Performance Model (SPM) through development of the JECP SPM Software Requirement Spec. Coordinated model development. Conducted integrated test planning, coordination, and test readiness reviews associated with contractor and government component level testing. Developed and/or reviewed test plans, procedures and reports and participated in test events as needed. Developed and/or reviewed Design of Experiment and associated Test Matrices in support of government component level DT and models as necessary. Reviewed contractor component level test data and reports (including reliability test results and KPP failures). | 1.100 | 0.940 | 1.000 | 0.000 | 1.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CO5: *COLLECTIVE PROTECTION (SDD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Conduct integrated test planning, coordination, and test readiness reviews associated with government component level testing and contractor and government system level testing. Develop test plans, procedures and reports and participate in test events as needed. Develop Design of Experiment and associated Test Matrices in support of government system level testing. Review component level test data and reports (including reliability test results and KPP failures).<br><br>*FY 2011 Base Plans:*<br>Develop and/or review test plans, procedures and reports and participate in government system level DT and combined DT/OT events as needed. Develop, update and/or review program documentation in preparation for MS C (as documented above for MS B). | | | | | |
| 9) JECP - Integrated Logistics Support IPT<br>Oversee and provide supportability planning guidance to the EMD contractor in addressing logistic support elements including maintenance philosophy, manpower & personnel, supply support, Tech Data, support & test equipment, training and training support.<br><br>*FY 2009 Accomplishments:*<br>Initiated a Business Case Analysis (BCA) to determine the scope of implementing Performance Based Logistics (PBL) and evaluate whether organic or Contractor Logistics Support is the most effective approach.<br><br>*FY 2010 Plans:*<br>Continue the Business Case Analysis (BCA) to determine the scope of implementing PBL. Continue evaluation as to whether organic or Contractor Logistics Support is the most effective approach. Begin an analysis to identify surge requirements and industries ability to support. | 0.469 | 0.650 | 0.500 | 0.000 | 0.500 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Complete the analysis to identify surge requirements and industries ability to support. Report out at MS C the results of the BCA and surge requirements analysis. Develop, update and/or review program documentation in preparation for MS C (as documented above for MS B). | | | | | |
| 10) JECP - Program Management and Contract Administration<br>Oversee the day-to-day program execution including guidance and direction to the JECP IPTs, financial management and tracking, budget preparation, schedule planning and monitoring, and JPEO-CBD/ JPM-ColPro reporting requirements including but not limited to weekly highlight reports, monthly Acquisition Status Reports and quarterly program review briefs. Perform EMD contract management and administration.<br>*FY 2009 Accomplishments:*<br>Planned and prepared for SRR, SFR and PDR.<br>*FY 2010 Plans:*<br>Focus on CDR and Post-CQT review planning and preparation.<br>*FY 2011 Base Plans:*<br>Focus on MS C planning and preparation. | 1.501 | 1.180 | 1.132 | 0.000 | 1.132 |
| 11) JECP - Management Oversight<br>Provide strategic tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support.<br>*FY 2009 Accomplishments:*<br>Provided strategic tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. | 1.665 | 1.243 | 2.087 | 0.000 | 2.087 |

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|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CO5: *COLLECTIVE PROTECTION (SDD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Provide strategic tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support.<br><br>*FY 2011 Base Plans:*<br>Provide strategic tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. | | | | | |
| 12) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.155 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 13.323 | 12.002 | 18.459 | 0.000 | 18.459 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JN0014: *COLLECTIVE PROT SYS AMPHIB BACKFIT (CPS BKFT)* | 18.219 | 11.963 | 5.869 | | 5.869 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • JP0911: *CP FIELD HOSPITALS (CPFH)* | 5.333 | 3.435 | 1.929 | | 1.929 | 3.498 | 1.539 | 0.000 | 0.000 | Continuing | Continuing |
| • JP1111: *JOINT EXPEDITIONARY COLLECTIVE PROTECTION (JECP)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 4.714 | 20.863 | 44.885 | Continuing | Continuing |
| | 14.121 | 17.438 | 19.744 | | 19.744 | 20.241 | 20.683 | 29.265 | 29.478 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CO5: *COLLECTIVE PROTECTION (SDD)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • R12301: *CB PROTECTIVE SHELTER (CBPS)* | | | | | | | | | | | |

**D. Acquisition Strategy**

JECP

Strategy based on evolutionary development in consonance with the JRO/User developed capability documents. During the Pre-MS A Concept Refinement Phase, conduct a tailored Analysis of Alternatives (AoA) leveraging the market survey, test results and lessons learned from the FY05 ColPro Technology Readiness Evaluation (TRE). During the Technology Development Phase following MS A, technology demonstrations were conducted to mitigate risk and identify affordable mature technologies that individually or together meet the Warfighters needs. Following MS B, a Statement of Work (SOW) and System Performance Specification (SPS) were used to award competitive cost plus incentive fee contract to build prototypes that will be subjected to robust engineering developmental testing and Operational Assessment during the System Development & Demonstration phase. Following MS C, award a Fixed Price Incentive Successive Target (FPIS) option for Low Rate Initial Production (LRIP) to support formal Developmental Testing (DT) and Multi-Service Operational Test & Evaluation (MOT&E). Following a successful Full Rate Production (FRP) decision, award a FPIS option with five one-year ordering periods. Full and open competition will be used with an updated SPS to award follow-on production contracts. Following JECP achieving Full Operational Capability, the Expeditionary Collective Protection-Enhanced Program will provide solutions to meet emerging and evolving User needs.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CO5: *COLLECTIVE PROTECTION (SDD)* | |

**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JECP - HW S - Prototype Development | C/CPIF | Science Applications International Corporation San Diego, CA | 8.477 | 3.212 | Jan 2010 | 1.330 | Jan 2011 | 0.000 | | 1.330 | 0.000 | 13.019 | 0.000 |
| | | Subtotal | 8.477 | 3.212 | | 1.330 | | 0.000 | | 1.330 | 0.000 | 13.019 | 0.000 |

**Remarks**

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JECP - ES S - Systems Engineering IPT | MIPR | Various | 3.234 | 1.061 | Oct 2009 | 0.750 | Oct 2010 | 0.000 | | 0.750 | 0.000 | 5.045 | 0.000 |
| ILS S - Integrated Logistics IPT | MIPR | Various | 0.851 | 0.650 | Oct 2009 | 0.500 | Oct 2010 | 0.000 | | 0.500 | 0.000 | 2.001 | 0.000 |
| | | Subtotal | 4.085 | 1.711 | | 1.250 | | 0.000 | | 1.250 | 0.000 | 7.046 | 0.000 |

**Remarks**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CO5: *COLLECTIVE PROTECTION (SDD)* |

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JECP - OTHT SB - Test & Evaluation IPT | MIPR | Various | 3.645 | 0.940 | Oct 2009 | 1.000 | Oct 2010 | 0.000 | | 1.000 | 0.000 | 5.585 | 0.000 |
| OTHT SB - Prototype Performance Specification Testing | MIPR | Various | 2.616 | 2.216 | Oct 2009 | 0.000 | | 0.000 | | 0.000 | 0.000 | 4.832 | 0.000 |
| DTE S - Prototype Production Qualification Testing | MIPR | Various | 0.000 | 1.345 | Jul 2010 | 9.310 | Oct 2010 | 0.000 | | 9.310 | 0.000 | 10.655 | 0.000 |
| OTHT C - M98 Filter Set | MIPR | Various | 0.000 | 0.000 | | 2.350 | Jan 2011 | 0.000 | | 2.350 | 0.000 | 2.350 | 0.000 |
| | | Subtotal | 6.261 | 4.501 | | 12.660 | | 0.000 | | 12.660 | 0.000 | 23.422 | 0.000 |

**Remarks**

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JECP - PM/MS S - APMO Support | MIPR | NSWC Dahlgren Dahlgren, VA | 2.316 | 1.034 | Oct 2009 | 1.000 | Oct 2010 | 0.000 | | 1.000 | 0.000 | 4.350 | 0.000 |
| PM/MS S - APMO Contractor Support | C/FP | Solutions Development Corporation Dahlgren, VA | 0.428 | 0.146 | Jan 2010 | 0.132 | Jan 2011 | 0.000 | | 0.132 | 0.000 | 0.706 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CO5: *COLLECTIVE PROTECTION (SDD)* |

**Management Services ($ in Millions)**

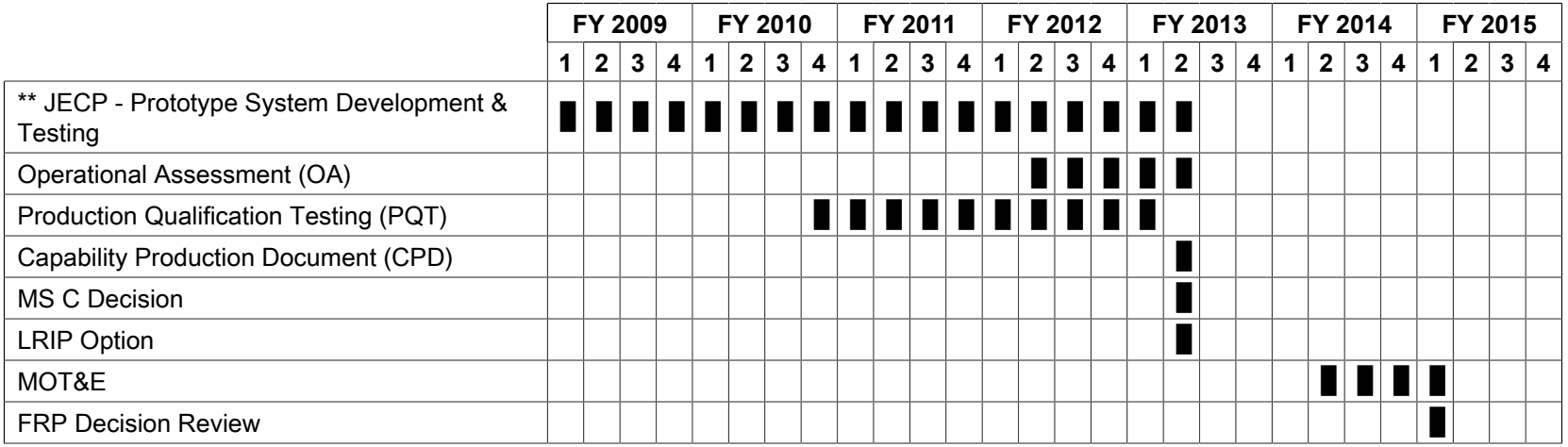
| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| PM/MS S - JPM-ColPro Support | MIPR | NSWC Dahlgren Dahlgren, VA | 0.673 | 0.570 | Oct 2009 | 1.501 | Oct 2010 | 0.000 | | 1.501 | 0.000 | 2.744 | 0.000 |
| PM/MS S - JPEO-CBD Support | MIPR | JPEO CBD Falls Church, VA | 3.116 | 0.673 | Oct 2009 | 0.586 | Oct 2010 | 0.000 | | 0.586 | 0.000 | 4.375 | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | MIPR | HQ AMC, Alexandria | 0.000 | 0.155 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.155 | 0.000 |
| | | Subtotal | 6.533 | 2.578 | | 3.219 | | 0.000 | | 3.219 | 0.000 | 12.330 | 0.000 |

**Remarks**

| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | 25.356 | 12.002 | | 18.459 | | 0.000 | | 18.459 | 0.000 | 55.817 | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CO5: *COLLECTIVE PROTECTION (SDD)* | |



| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | **R-1 ITEM NOMENCLATURE**<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | **PROJECT**<br>CO5: *COLLECTIVE PROTECTION (SDD)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** JECP - Prototype System Development & Testing | 4 | 2008 | 2 | 2013 |
| Operational Assessment (OA) | 2 | 2012 | 2 | 2013 |
| Production Qualification Testing (PQT) | 4 | 2010 | 1 | 2013 |
| Capability Production Document (CPD) | 2 | 2013 | 2 | 2013 |
| MS C Decision | 2 | 2013 | 2 | 2013 |
| LRIP Option | 2 | 2013 | 2 | 2013 |
| MOT&E | 2 | 2014 | 1 | 2015 |
| FRP Decision Review | 1 | 2015 | 1 | 2015 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>DE5: *DECONTAMINATION SYSTEMS (SDD)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DE5: *DECONTAMINATION SYSTEMS (SDD)* | 16.611 | 36.786 | 28.499 | 0.000 | 28.499 | 23.944 | 25.770 | 14.701 | 5.928 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 14 | 13 | | 13 | 0 | 0 | 0 | 0 | | |

**A. Mission Description and Budget Item Justification**

This project funds System Development and Demonstration (SDD) for: (1) Decontamination Competitive Prototype; (2) the Decontamination Family of Systems (DFoS); (3) the Human Remains Decontamination System (HRDS); (4) Joint Platform Interior Decon (JPID); and (5) the Joint Service Sensitive Equipment Decontamination (JSSED).

The Decontamination Competitive Prototype (DC PROTO) effort will support the JSSED and JPID programs of record by performing risk mitigation and will identify a solution for the Joint Strike Fighter (JSF) peculiar interior/exterior decontamination requirement and to support their Live Fire testing in FY13. DC PROTO will evaluate prototype systems that will demonstrate the best decontamination technology for JSSED/JPID to increase sensitive equipment and platform interior decontamination capabilities. DC PROTO will evaluate other technologies that can be inserted into the JSSED/JPID programs to increase the capability of the selected JSSED/JPID technology while supporting the JSF test requirements.

The Decontamination Family of Systems (DFoS) program facilitates the rapid transition of mature Science & Technology research developments to existing JPM - Decon Programs of Record (PoR) and guides S&T community efforts toward meeting the needs of the Warfighter. Leveraging the outcomes of the Material Development Decision (MDD) (3rd Qtr FY10) directed Analysis of Alternatives, DFoS will develop a Family of Systems, to include equipment, to improve decontamination processes and decontaminant solutions to meet the capability gaps for decontaminating NTA and chemical and biological warfare agents from personnel, equipment, vehicle, ship, and aircraft interiors/exteriors, terrain and fixed facility interiors/exteriors.

The Human Remains Decontamination System (HRDS), Increment I, will utilize mature technologies to provide the capability for safe intra-theater handling and storage of Contaminated Human Remains (CHR) associated with a Chemical Warfare Agent (CWA) event. HRDS will be a Family-of-Systems (FoS) designed to leverage differing technology and requirements readiness across three systems: (1) a Contaminated Human Remains Pouch (CHRP) to support the initial recovery of CHR from Point of Fatality to a Mortuary Affairs Decontamination Collection Point (MADCP), (2) a Contaminated Remains Transfer Case System (CHRTS) capability to store or transport CHR post MADCP operations, and (3) a Remains Decontamination System (RDS) to support the capability to store or transport CHR post MADCP operations. The HRDS will provide the Services the capability to: 1) Safely recover, handle, and transport contaminated human remains prior to decontamination at a Mortuary Affairs Decontamination Control Point (MADCP); 2) Enable mortuary affairs units to safely perform their mission with a critical task being that of extensively

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documenting decedent data and obtaining DNA samples to facilitate positive identification of remains; 3) Fully decontaminate human remains (external), and; 4) Safely allow transport of decontaminated human remains from the MADCP to a final destination in the continental United States for final disposition.

The Joint Service Sensitive Equipment Decontamination System (JSSED) and Joint Platform Interior Decontamination (JPID) programs are based on a single technology and are being executed together by the Joint Material Decontamination System (JMDS) program office. These systems will fill the capability to decontaminate chemical and biological warfare agents from individual sensitive equipment, vehicle/aircraft/building interiors and the sensitive equipment within and the associated cargo. The JSSED will provide the first ever capability to decontaminate chemical and biological warfare agents from individual sensitive equipment that are high value or critical sensitive individual electronics and optics that cannot be decontaminated using existing methods without damage. The JPID will provide first ever capability to decontaminate chemical and biological warfare agents from platform interiors such as the interiors of vehicle/aircraft/building and the sensitive equipment within and the associated cargo. These capabilities allow the saving and reuse of contaminated critical and high value assets and avoid costly replacement of those assets. Neither of these capabilities currently exists in DoD.

Protective Self-Decontaminating Surfaces - CHRPS (Congressional Interest Item): Prototype field validation tests of VRCKappler Chemical Biohazard Protective systems. Lab test bacterial infections, deceases and contaminated human remains pouches (CHRPs). Field and live test nerve gas and radiological agents.

Self Contained Automated Vehicle Washing Systems with Microwave Decontamination (Congressional Interest Item): Provide a large-vehicle washing and decontamination system with zero emissions to air or groundwater. Move from the prototype stage to full scale, portable decontamination wash down system.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) DC PROTO<br>*FY 2010 Plans:*<br>Conduct market survey/Industry Day/Sources Sought. | 0.000 | 0.104 | 0.000 | 0.000 | 0.000 |
| 2) DC PROTO<br>*FY 2010 Plans:*<br>Select mature technologies capable of meeting JSSED and JPID requirements. Evaluate and test these technologies as compared against JSSED and JPID requirements. Conduct live agent efficacy and material compatibility testing. | 0.000 | 8.657 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 3) DC PROTO<br>*FY 2011 Base Plans:*<br>Continue material compatibility test and conduct early operational assessment and system integration evaluations on selected technologies for multiple airframes, tactical vehicles and sensitive equipment. | 0.000 | 0.000 | 5.484 | 0.000 | 5.484 |
| 4) DFS<br>*FY 2009 Accomplishments:*<br>Conducted Industry Day/Request for Information/Evaluation of commercially available decontaminants (decon); developed prototype decon kit. | 0.490 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5) DFS<br>*FY 2009 Accomplishments:*<br>Standardized non-traditional agent (NTA) test methodology for decon; designed/developed/ demonstrated prototype environmentally controlled test fixture capability. | 1.710 | 0.000 | 0.000 | 0.000 | 0.000 |
| 6) DFS<br>*FY 2010 Plans:*<br>Initiate development and evaluation test efforts for Surfactant System Technology, and Contamination Indicator/Decontamination Assurance Spray (DAS). | 0.000 | 1.490 | 0.000 | 0.000 | 0.000 |
| 7) DFS<br>*FY 2010 Plans:*<br>Initiate the development effort to evaluate an aircraft decontaminant. | 0.000 | 1.460 | 0.000 | 0.000 | 0.000 |
| 8) DFS | 0.000 | 0.000 | 7.075 | 0.000 | 7.075 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Conduct efficacy and deliver production representative articles/material compatibility testing/ demonstrate manufacturing processes for Decon Wipes and eClO2. | | | | | |
| 9) DFS<br>*FY 2011 Base Plans:*<br>Conduct testing and evaluation of Improved Reactive Sorbent/RSDL Reformulation/Identification-Assurance Sprays/Agent Disclosure Sprays and Protective Coatings. | 0.000 | 0.000 | 1.436 | 0.000 | 1.436 |
| 10) DFS<br>*FY 2011 Base Plans:*<br>Conduct technology and manufacturing readiness assessments/initiate efficacy and material compatibility testing/transition Surfactant System and Contamination Indicator/DAS technologies to DFoS. | 0.000 | 0.000 | 2.759 | 0.000 | 2.759 |
| 11) HRDS<br>*FY 2010 Plans:*<br>Conduct developmental testing and analysis of the Contaminated Human Remains Transfer Case (CHRT) | 0.000 | 3.694 | 0.000 | 0.000 | 0.000 |
| 12) JPID<br>*FY 2010 Plans:*<br>Design and development of prototypes and logistics planning. | 0.000 | 4.778 | 0.000 | 0.000 | 0.000 |
| 13) JPID | 0.000 | 1.500 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>DE5: *DECONTAMINATION SYSTEMS (SDD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Fabrication of 5 JPID prototypes (at $300 thousand each) for agent testing. | | | | | |
| 14) JPID<br>*FY 2011 Base Plans:*<br>Complete Developmental Testing, conduct Early Operational Assessment and support MS C efforts. | 0.000 | 0.000 | 5.791 | 0.000 | 5.791 |
| 15) JPID<br>*FY 2011 Base Plans:*<br>Fabrication of 9 JPID prototypes (at $300 thousand each) for Operational Assessment testing. | 0.000 | 0.000 | 2.700 | 0.000 | 2.700 |
| 16) JSSED<br>*FY 2009 Accomplishments:*<br>Completed assessment of the efficacy of HPV as a technology risk reduction. | 0.375 | 0.000 | 0.000 | 0.000 | 0.000 |
| 17) JSSED<br>*FY 2009 Accomplishments:*<br>Initiated Prototype design and development. | 14.036 | 0.000 | 0.000 | 0.000 | 0.000 |
| 18) JSSED<br>*FY 2010 Plans:*<br>Conduct Developmental Testing and logistics demonstration. | 0.000 | 3.674 | 0.000 | 0.000 | 0.000 |
| 19) JSSED<br>*FY 2010 Plans:*<br>Fabricate 9 JSSED Prototypes (at $300 thousand each) for Developmental Testing. | 0.000 | 2.700 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>DE5: *DECONTAMINATION SYSTEMS (SDD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 20) JSSED<br>*FY 2011 Base Plans:*<br>Complete Early Operational Assessment and conduct MS C. | 0.000 | 0.000 | 2.054 | 0.000 | 2.054 |
| 21) JSSED<br>*FY 2011 Base Plans:*<br>Fabricate 4 JSSED Prototypes (at $300 thousand each) for Operational Assessment testing. | 0.000 | 0.000 | 1.200 | 0.000 | 1.200 |
| 22) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.365 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 16.611 | 28.422 | 28.499 | 0.000 | 28.499 |

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: 1) Chemical and Biological Threat Reduction Coating<br>*FY 2010 Plans:*<br>Congressional Interest Item - Chemical and Biological Threat Reduction Coating | 0.000 | 2.390 |
| Congressional Add: 2) Self-Decontaminating Polymer System for Chemical and Biological Warfare Agents.<br>*FY 2010 Plans:*<br>Congressional Interest Item - Self-Decontaminating Polymer System for Chemical and Biological Warfare Agents. | 0.000 | 2.788 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: 3) Self Contained Automated Vehicle Washing Systems with microwave decontamination<br>*FY 2010 Plans:*<br>Congressional Interest Item - Self Contained Automated Vehicle Washing Systems with microwave decontamination. | 0.000 | 1.593 |
| Congressional Add: 4) Protective Self-Decontaminating Surfaces<br>*FY 2010 Plans:*<br>Congressional Interest Item - Protective Self-Decontaminating Surfaces - CHRPS. | 0.000 | 1.593 |
| Congressional Adds Subtotals | 0.000 | 8.364 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JD0050: *DECONTAMINANT SYSTEM OF SYSTEMS* | 0.000 | 0.000 | 0.000 | | 0.000 | 3.280 | 4.468 | 6.884 | 7.029 | Continuing | Continuing |
| • JD0055: *JOINT SERVICE PERSONNEL/SKIN DECON SYSTEM (JSPDS)* | 8.280 | 4.466 | 0.000 | | 0.000 | 0.000 | 0.000 | 8.645 | 9.105 | Continuing | Continuing |
| • JD0056: *JS TRANS DECON SYSTEM - SMALL SCALE (JSTDS-SS)* | 12.124 | 21.940 | 18.160 | | 18.160 | 12.924 | 7.900 | 5.455 | 4.459 | Continuing | Continuing |
| • JD0060: *JOINT PLATFORM INTERIOR DECON (JPID)* | 0.000 | 0.000 | 0.000 | | 0.000 | 4.097 | 14.064 | 18.977 | 25.604 | Continuing | Continuing |
| | 0.000 | 0.000 | 0.000 | | 0.000 | 14.648 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>DE5: *DECONTAMINATION SYSTEMS (SDD)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JD0061: *JS SENSITIVE EQUIP DECON (JSSED)* | | | | | | | | | | | |

**D. Acquisition Strategy**

DC PROTO

DC PROTO will conduct a Sources Sought for a prototype suitable for sensitive equipment and platform interior decontamination prototypes. The competitive prototype results will be integrated into the JSSED and JPID programs for program risk reduction.

DFS

DFoS will utilize an incremental acquisition strategy to transition various developmental technology efforts (COTS, JSTO, DTRA efforts, etc.) to fill current and future capability gaps. DFoS will support MDAPs and Programs of Record (POR) by guiding S&T efforts and transitioning mature technologies to meet program requirements. The DFoS acquisition will be managed as a Family-of-Systems (FoS), leveraging differing technologies in each subsystem to fulfill Warfighter capability gaps. A multi-phased Analysis of Alternatives (AoA) will be conducted to identify and evaluate the operational effectiveness of potential material solutions to satisfy Service requirements. As each AoA phase is completed, individual systems and their respective phases of entry will be identified. Industry will be solicited and through competitive prototyping, material solutions will be down-selected for continued development and fielding as a new joint force capability.

HRDS

The Human Remains Decontamination System (HRDS) acquisition will be managed as a Family-of-Systems (FoS), leveraging differing technologies in each subsystem to fulfill Warfighter capability gaps. A multi-phased Analysis of Alternatives (AoA) is being conducted for the HRDS FoS to identify and evaluate the operational effectiveness of potential material solutions to satisfy Service requirements. As each AoA phase is completed, individual systems and their respective phases of entry will be identified. Industry will be solicited and through competitive prototyping, material solutions will be down-selected for continued development and fielding as a new joint force capability.

JSSED

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>DE5: *DECONTAMINATION SYSTEMS (SDD)* |

The Joint Service Sensitive Equipment Decontamination (JSSED) programs will be acquired as part of the overarching Joint Material Decontamination System (JMDS) evolutionary acquisition strategy that covers both the Joint Platform Interior Decontamination (JPID) and the JSSED. This strategy will use a single technology to meet the individual sensitive equipment through incremental development. The JSSED strategies is under the JMDS contracting strategy that awarded one single base Engineering and Manufacturing Development (EMD) contract (Cost Plus Incentive Fee) with Low Rate Initial Production and Full Rate Production options (Fixed Price Successive Target) in open competition. The JMDS program will integrate the competitive prototype effort into the JMDS Milestone C/LRIP Decision.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>DE5: *DECONTAMINATION SYSTEMS (SDD)* | |

**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CONG - Congressional Interest Item - HW C - Chemical and Biological Threat Reduction Coating | C/CPFF | TBD | 0.000 | 2.390 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 2.390 | 0.000 |
| Congressional Interest Item - HW C - Self Decontaminating Polymer System for Chemical and Biological Warfare Agents | C/CPFF | TBD | 0.000 | 2.788 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 2.788 | 0.000 |
| ** DFS - HW S - Decon wipes | MIPR | RDECOM-Natick MA | 0.000 | 0.000 | | 1.792 | Jan 2011 | 0.000 | | 1.792 | 0.000 | 1.792 | 0.000 |
| HW S - Electro-chemically Generated Chlorine Dioxide (eCl02) | MIPR | RDECOM-Natick MA | 0.000 | 0.000 | | 2.000 | Jan 2011 | 0.000 | | 2.000 | 0.000 | 2.000 | 0.000 |
| HW C - Surfactant System | MIPR | Defense Threat Reduction Agency (DTRA) Ft. Belvoir, VA | 0.000 | 0.188 | Oct 2009 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.188 | 0.000 |
| HW C - Contaminant Indicator/ Decon Assurance Spray | MIPR | Defense Threat Reduction Agency (DTRA) Ft. Belvoir, VA | 0.000 | 0.200 | Oct 2009 | 0.600 | Apr 2011 | 0.000 | | 0.600 | 0.000 | 0.800 | 0.000 |
| HW C - Aircraft Decon | MIPR | RDECOM-Natick MA | 0.000 | 0.945 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.945 | 0.000 |
| | C/CPFF | TBD | 0.000 | 1.593 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.593 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>DE5: *DECONTAMINATION SYSTEMS (SDD)* |

**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Congressional Interest Item - HW C - Self Contained Automated Vehicle Washing Systems with microwave decontamination | | | | | | | | | | | | | |
| ** HRDS - Congressional Interest Item - HW C - Protective Self-Decontaminating Surfaces - CHRPS | C/CPFF | TBD | 0.000 | 1.593 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.593 | 0.000 |
| ** JPID - HW C - SDD Contract, EMD Contract and fabrication | C/CPIF | Teledyne Brown Engineering Huntsville, AL | 0.000 | 3.000 | Jan 2010 | 2.815 | Jan 2011 | 0.000 | | 2.815 | 0.000 | 5.815 | 0.000 |
| ** JSSED - HW S - EMD Contract - System Development and Fabrication | C/CPIF | Teledyne Brown Engineering - Huntsville AL | 15.764 | 3.000 | Jan 2010 | 0.500 | Jan 2011 | 0.000 | | 0.500 | 0.000 | 19.264 | 0.000 |
| | | **Subtotal** | 15.764 | 15.697 | | 7.707 | | 0.000 | | 7.707 | 0.000 | 39.168 | 0.000 |

**Remarks**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>DE5: *DECONTAMINATION SYSTEMS (SDD)* |

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** DC PROTO - Market Survey/Sources Sought Assessment | MIPR | RDECOM Natick, MA | 0.000 | 0.104 | Oct 2009 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.104 | 0.000 |
| ** DFS - ES S - IPT Technical Support | MIPR | Various | 0.226 | 0.200 | Jan 2010 | 1.124 | Jan 2011 | 0.000 | | 1.124 | 0.687 | 2.237 | 0.000 |
| ** HRDS - TD/D SB - SME Technical Support | MIPR | TBD | 0.000 | 0.643 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.643 | 0.000 |
| | | Subtotal | 0.226 | 0.947 | | 1.124 | | 0.000 | | 1.124 | 0.687 | 2.984 | 0.000 |

**Remarks**

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** DC PROTO - Competitive Prototype Testing | MIPR | TBD | 0.000 | 8.144 | Apr 2010 | 4.892 | Oct 2010 | 0.000 | | 4.892 | 0.000 | 13.036 | 0.000 |
| ** DFS - DTE S - Electro-Chemically Generated Chlorine Dioxide (eClO2) | MIPR | TBD | 0.000 | 0.000 | | 1.134 | Jan 2011 | 0.000 | | 1.134 | 0.221 | 1.355 | 0.000 |
| DTE S - Decon Wipes | MIPR | TBD | 0.000 | 0.000 | | 0.981 | Jan 2011 | 0.000 | | 0.981 | 0.165 | 1.146 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>DE5: *DECONTAMINATION SYSTEMS (SDD)* |

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| OTHT SB - Improved Reactive Sorbent | MIPR | TBD | 0.000 | 0.000 | | 0.571 | Oct 2010 | 0.000 | | 0.571 | 0.000 | 0.571 | 0.000 |
| DTE C - Surfactant System | MIPR | Army Evaluation Center Alexandria, VA | 0.000 | 0.188 | Jan 2010 | 0.650 | Jan 2011 | 0.000 | | 0.650 | 0.094 | 0.932 | 0.000 |
| DTE C - Contaminant Indicator/Decon Assurance Spray | MIPR | TBD | 0.000 | 0.200 | Apr 2010 | 0.875 | Apr 2011 | 0.000 | | 0.875 | 0.188 | 1.263 | 0.000 |
| DTE C - Reactive Skin Decontamination Lotion Reformulation | MIPR | TBD | 0.000 | 0.000 | | 0.225 | Apr 2011 | 0.000 | | 0.225 | 0.000 | 0.225 | 0.000 |
| ** HRDS - OTHT SB - Prototype Planning and Testing | MIPR | TBD | 0.000 | 1.390 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.390 | 0.000 |
| ** JPID - JPID Development Testing | MIPR | ATEC Aberdeen Proving Ground, MD | 0.000 | 2.478 | Oct 2009 | 3.960 | Oct 2010 | 0.000 | | 3.960 | 0.000 | 6.438 | 0.000 |
| ** JSSED - OTHT SB - JSSED/JMDS developmental test planning/execution | MIPR | ATEC Aberdeen, MD | 1.244 | 1.500 | Oct 2009 | 2.062 | Oct 2010 | 0.000 | | 2.062 | 0.000 | 4.806 | 0.000 |
| | | **Subtotal** | 1.244 | 13.900 | | 15.350 | | 0.000 | | 15.350 | 0.668 | 31.162 | 0.000 |

**Remarks**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>DE5: *DECONTAMINATION SYSTEMS (SDD)* |

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** DC PROTO - Program Management Support | MIPR | RDECOM Natick, MA | 0.000 | 0.513 | Oct 2009 | 0.592 | Oct 2010 | 0.000 | | 0.592 | 0.000 | 1.105 | 0.000 |
| ** DFS - PM/MS S - DFoS Integrated Product Team Support | MIPR | RDECOM-Natick MA | 0.870 | 0.674 | Oct 2009 | 0.865 | Oct 2010 | 0.000 | | 0.865 | 0.000 | 2.409 | 0.000 |
| PM/MS S - Program Support | MIPR | Marine Corps Systems Command Quantico, VA | 0.265 | 0.355 | Jan 2010 | 0.453 | Jan 2011 | 0.000 | | 0.453 | 0.000 | 1.073 | 0.000 |
| ** HRDS - PM/MS SB - Program Office Support | MIPR | RDECOM-Natick MA | 0.000 | 1.661 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.661 | 0.000 |
| ** JPID - JPID Service Integrated Product Team Support | MIPR | Various | 0.000 | 0.800 | Oct 2009 | 1.716 | Oct 2010 | 0.000 | | 1.716 | 0.000 | 2.516 | 0.000 |
| ** JSSED - PM/MS S - JSSED/JMDS Service Integrated Product Team Support | MIPR | Various | 6.673 | 1.874 | Oct 2009 | 0.692 | Oct 2010 | 0.000 | | 0.692 | 0.000 | 9.239 | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | MIPR | HQ AMC, Alexandria | 0.000 | 0.365 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.365 | 0.000 |
| | | **Subtotal** | 7.808 | 6.242 | | 4.318 | | 0.000 | | 4.318 | 0.000 | 18.368 | 0.000 |

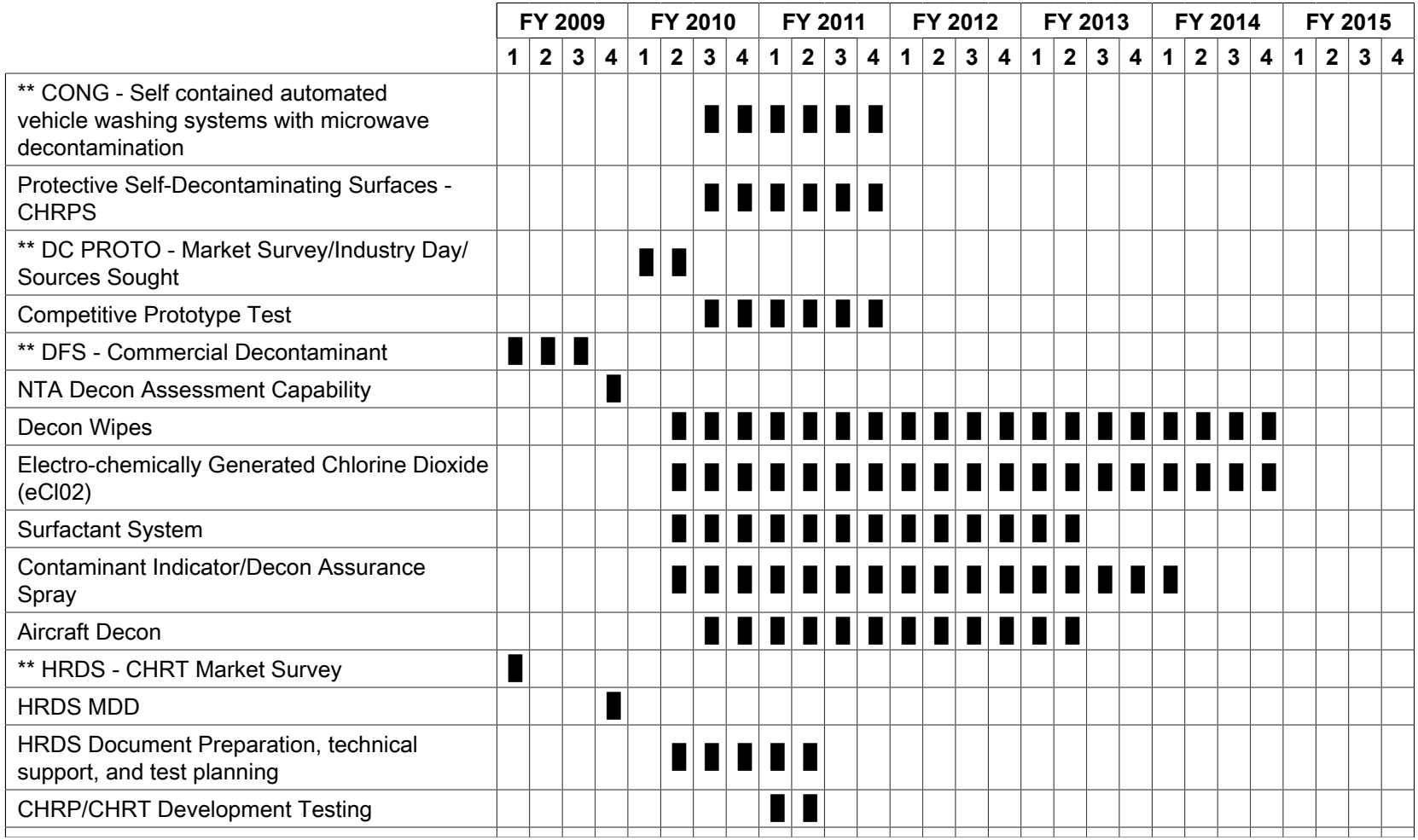
**Remarks**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>DE5: *DECONTAMINATION SYSTEMS (SDD)* | |

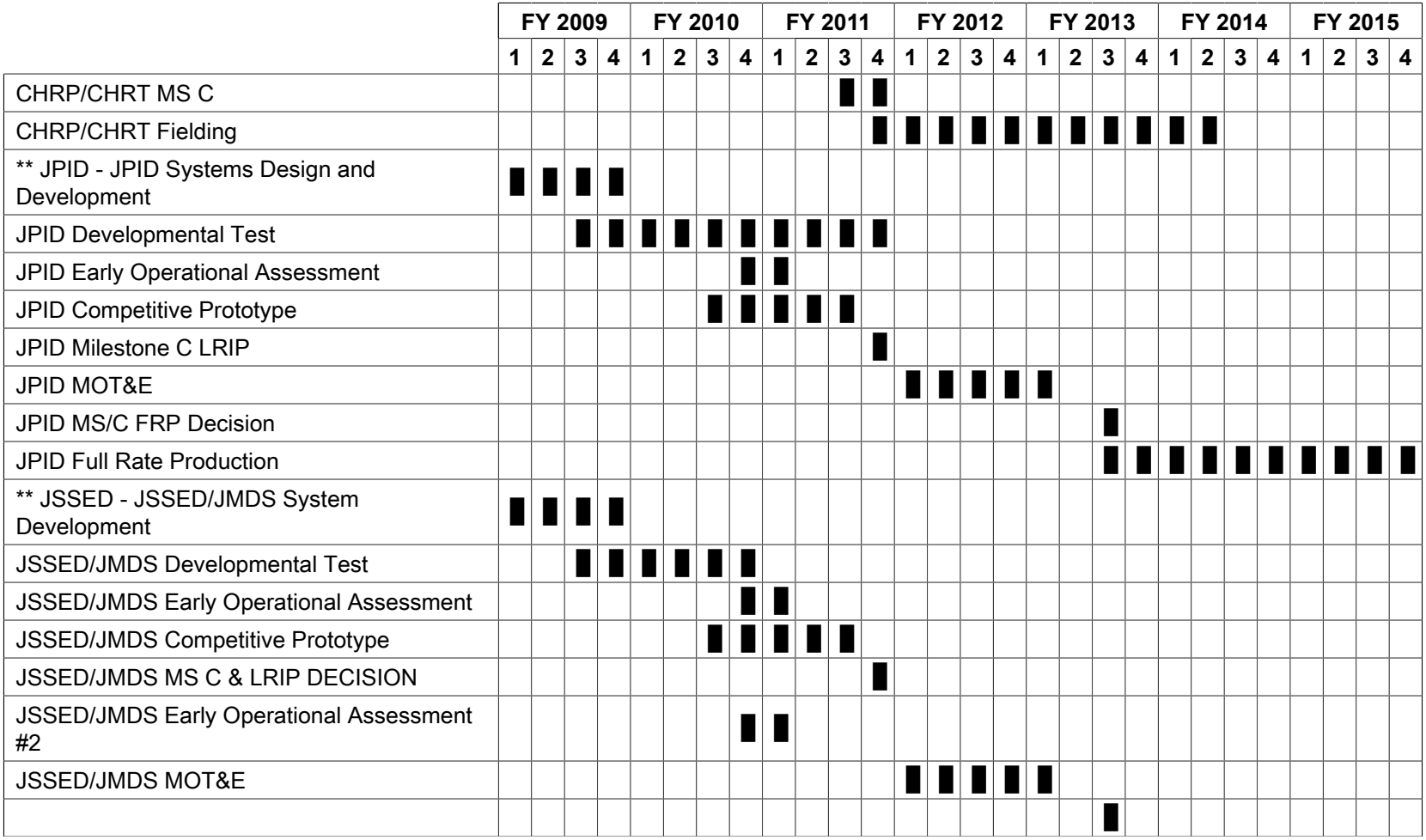
| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | 25.042 | 36.786 | | 28.499 | | 0.000 | | 28.499 | 1.355 | 91.682 | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>DE5: *DECONTAMINATION SYSTEMS (SDD)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | | PROJECT<br>DE5: *DECONTAMINATION SYSTEMS (SDD)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>DE5: *DECONTAMINATION SYSTEMS (SDD)* | |

| | FY 2009 | | | | FY 2010 | | | | FY 2011 | | | | FY 2012 | | | | FY 2013 | | | | FY 2014 | | | | FY 2015 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| JSSED/JMDS Full Rate Production (FRP) DECISION | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| JSSED/JMDS FRP | | | | | | | | | | | | | | | | | | | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>DE5: *DECONTAMINATION SYSTEMS (SDD)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** CONG - Self contained automated vehicle washing systems with microwave decontamination | 3 | 2010 | 4 | 2011 |
| Protective Self-Decontaminating Surfaces - CHRPS | 3 | 2010 | 4 | 2011 |
| ** DC PROTO - Market Survey/Industry Day/Sources Sought | 1 | 2010 | 2 | 2010 |
| Competitive Prototype Test | 3 | 2010 | 4 | 2011 |
| ** DFS - Commercial Decontaminant | 1 | 2009 | 3 | 2009 |
| NTA Decon Assessment Capability | 4 | 2009 | 4 | 2009 |
| Decon Wipes | 2 | 2010 | 4 | 2014 |
| Electro-chemically Generated Chlorine Dioxide (eCl02) | 2 | 2010 | 4 | 2014 |
| Surfactant System | 2 | 2010 | 2 | 2013 |
| Contaminant Indicator/Decon Assurance Spray | 2 | 2010 | 1 | 2014 |
| Aircraft Decon | 3 | 2010 | 2 | 2013 |
| ** HRDS - CHRT Market Survey | 1 | 2009 | 1 | 2009 |
| HRDS MDD | 4 | 2009 | 4 | 2009 |
| HRDS Document Preparation, technical support, and test planning | 2 | 2010 | 2 | 2011 |
| CHRP/CHRT Development Testing | 1 | 2011 | 2 | 2011 |
| CHRP/CHRT MS C | 3 | 2011 | 4 | 2011 |
| CHRP/CHRT Fielding | 4 | 2011 | 2 | 2014 |
| ** JPID - JPID Systems Design and Development | 1 | 2008 | 4 | 2009 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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| | Start | | End | |
|---|---|---|---|---|
| Event | Quarter | Year | Quarter | Year |
| JPID Developmental Test | 3 | 2009 | 4 | 2011 |
| JPID Early Operational Assessment | 4 | 2010 | 1 | 2011 |
| JPID Competitive Prototype | 3 | 2010 | 3 | 2011 |
| JPID Milestone C LRIP | 4 | 2011 | 4 | 2011 |
| JPID MOT&E | 1 | 2012 | 1 | 2013 |
| JPID MS/C FRP Decision | 3 | 2013 | 3 | 2013 |
| JPID Full Rate Production | 3 | 2013 | 4 | 2015 |
| ** JSSED - JSSED/JMDS System Development | 1 | 2008 | 4 | 2009 |
| JSSED/JMDS Developmental Test | 3 | 2009 | 4 | 2010 |
| JSSED/JMDS Early Operational Assessment | 4 | 2010 | 1 | 2011 |
| JSSED/JMDS Competitive Prototype | 3 | 2010 | 3 | 2011 |
| JSSED/JMDS MS C & LRIP DECISION | 4 | 2011 | 4 | 2011 |
| JSSED/JMDS Early Operational Assessment #2 | 4 | 2010 | 1 | 2011 |
| JSSED/JMDS MOT&E | 1 | 2012 | 1 | 2013 |
| JSSED/JMDS Full Rate Production (FRP) DECISION | 3 | 2013 | 3 | 2013 |
| JSSED/JMDS FRP | 3 | 2013 | 4 | 2015 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
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| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IP5: *INDIVIDUAL PROTECTION (SDD)* | 18.363 | 21.094 | 9.678 | 0.000 | 9.678 | 4.833 | 3.044 | 0.756 | 0.563 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 544 | 0 | | 0 | 0 | 0 | 0 | 0 | | |

**A. Mission Description and Budget Item Justification**

This project funds System Development and Demonstration (SDD) of individual protection equipment, the goal is to provide equipment that allows the individual soldier, sailor, airman, or marine to operate in a contaminated Nuclear, Biological and Chemical (NBC) environment with little or no degradation of his/her performance.

The three efforts listed below are funded in this program:

(1) The Joint Service Aircrew Mask (JSAM) is an Acquisition Category (ACAT) III Family of Systems (FoS) respiration system being incrementally developed. JSAM MPU-6 Apache is for use with the Integrated Helmet And Display Sighting System, JSAM Fixed Wing (FW) MBU-25/26 respirator and JSAM MPU-5 Rotor Wing (RW) are being developed for use in the majority of the Department of Defense's (DoD's) Fixed and Rotary Wing aircraft. The F-35 JSAM MBU-26 is being developed with the FW JSAM MBU-25 to meet the needs of the Major Defense Acquisition Program, the Joint Strike Fighter (JSF). The goal of the overall JSAM project is to develop, manufacture, field and sustain an aircrew respirator system that, in conjunction with a below-the-neck (BTN) clothing ensemble, will provide the capability for all aircrew to fly throughout their full operating envelope in an actual or perceived Chemical and Biological (CB) warfare environment. JSAM will be a lightweight CB protective mask that will be worn as CB protection for most Army, Air Force, Navy and Marine rotary and fixed-wing aircrew members. The FW JSAM will be the first and only CB protective mask in the DoD inventory that can provide anti-G protection, up to 9 times the vertical force (Gz), for aircrew in high performance aircraft. All JSAM Increments will be compatible with most below-the-neck CB ensembles and existing aircrew life support equipment. They will include a protective hood assembly, CB filter, blower assembly, and an intercom for ground communication. They will provide flame and thermal protection, provide hypoxia protection to 60,000 feet, demist/ emergency demist and anti-drown features. The MPU-5 and MPU-6 variants are being designed to be capable of being donned/doffed in flight.

(2) The Joint Service General Purpose Mask (JSGPM) funds SDD of respiratory and ocular protection technologies aimed at providing incremental upgrades for the JSGPM. Additionally, this project funds the Technology Development (TD) phase of the Advanced Respiratory Protection Initiative (ARPI) program for developing revolutionary materials, design and concepts that may be transitioned into future Chem/Bio ensemble (Joint Chemical Ensemble). Performance enhancements for all respiratory and ocular protection programs will be focused on increasing the protection levels of the systems from Chemical Warfare Agents (CWAs) and Toxic Industrial Chemicals (TICs) while reducing the physiological and logistical burdens.

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(3) The Lightweight Chemical Biological Ensemble (LCBE), aims to provide CBRN individual protection for the Warfighter while reducing physiological and logistical burdens.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) JSAM | 16.781 | 14.714 | 7.269 | 0.000 | 7.269 |
| *FY 2009 Accomplishments:*<br>JSAM MPU-6 (Apache) - Completed Operational Testing (OT). Prepared documentation for Milestone (MS) C Full Rate Production (FRP).<br>JSAM MPU-5 (RW) - Continued Developmental Testing (DT).<br>JSAM FW - Initiated flight testing, Chem/Bio, environmental and continued integration testing for joint service aircraft platform.<br><br>*FY 2010 Plans:*<br>JSAM MPU-5 (RW) - Prepare specific mask tooling for prototypes. Complete DT. Produce MPU-5 prototypes (256 units at a cost of $4,400 ea) for OT. Start OT.<br>JSAM FW - Continue and complete DT flight testing. Start OT. Produce prototypes (288 prototype at a unit cost of $4,130 ea) for OT. Start OT.<br><br>*FY 2011 Base Plans:*<br>JSAM MPU-5 (RW) - Complete OT. Prepare documentation for MS C FRP.<br>JSAM FW - Complete OT. Prepare documentation for MS C FRP. | | | | | |
| 2) JSGPM | 0.000 | 1.444 | 2.409 | 0.000 | 2.409 |
| *FY 2010 Plans:*<br>JSGPM (ARPI) - Conduct government testing screening. Initiate filter qualification testing on potential End of Service Life Indicator (ESLI) candidates. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>JSGPM (ARPI) - Conduct government testing to ensure carbons transitioned to JSGPM filters to improve TIC protection meeting the user requirements. Conduct government testing on novel filtration candidates considered for Joint Chemical Ensemble (JCE).<br><br>JSGPM - Complete testing of ESLI. | | | | | |
| 3) LCBE<br>*FY 2010 Plans:*<br>Prepare MS A documentation for LCBE Increment 1. Technology demonstration of lightweight garment technologies and designs. Continue thermal burden reduction/heat stress assessment. | 0.000 | 2.305 | 0.000 | 0.000 | 0.000 |
| 4) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.241 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 16.781 | 18.704 | 9.678 | 0.000 | 9.678 |

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: 1) JSAM<br>*FY 2009 Accomplishments:*<br>Congressional Interest Item - JSAM Donn\Doff. Developed Donn\Doff capability for MPU-5 and MPU-6 requirement. | 1.582 | 2.390 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| *FY 2010 Plans:*<br>Congressional Interest Item - JSAM Donn\Doff. Continue development of Donn\Doff capability for MPU-5 and MPU-6 requirement. | | |
| Congressional Adds Subtotals | 1.582 | 2.390 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • IP7: *INDIVIDUAL PROTECTION OPERATIONAL SYS DEV* | 4.560 | 0.000 | 0.000 | | 0.000 | 2.869 | 4.371 | 7.548 | 4.681 | Continuing | Continuing |
| • JI0002: *JS AIRCREW MASK (JSAM)* | 0.000 | 23.045 | 6.964 | | 6.964 | 12.919 | 12.112 | 14.084 | 9.017 | Continuing | Continuing |
| • JI0003: *JOINT SERVICE GENERAL PURPOSE MASK (JSGPM/JSCESM)* | 42.391 | 48.282 | 49.835 | | 49.835 | 51.508 | 56.463 | 56.334 | 60.975 | Continuing | Continuing |
| • JI0300: *JOINT CHEMICAL ENSEMBLE (JCE)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 7.446 | 9.918 | 6.936 | Continuing | Continuing |
| • MA0400: *PROTECTIVE CLOTHING (JSLIST)* | 37.484 | 20.393 | 17.887 | | 17.887 | 18.208 | 9.429 | 6.943 | 6.944 | Continuing | Continuing |

**D. Acquisition Strategy**

JSAM

The JSAM Acquisition Program Baseline Agreement (APBA) identifies JSAM Type IA Apache (MPU-6) as the Rotary Wing (RW) Integrated Helmet and Display Sighting System (IHADSS) variant. The JSAM Type I RW (MPU-5) that is being developed for the majority of RW aircrew. JSAM Type IA Apache (MPU-6) will be fielded first. Appropriate production options will be exercised.

The JSAM Type II Fixed Wing (FW) variant will meet the needs of the FW aircrew, and majority of the requirements for the JSF JSAM.

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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JSGPM

JSGPM: All possible candidates will be identified through the Request For Information (RFI). The candidates will be screened against CWAs and TICs at the sorbent level. Candidates that show an indication that it may provide a performance enhancement may be transitioned into filter qualification testing. The qualification of a new filtration media for JSGPM will be based on the current JSGPM filter specification.

JSGPM (ARPI): The Advanced Respiratory Protection Initiative (ARPI) program will be based on full and open competition. A Request For Information was released in July 2008 to evaluate what novel concepts, materials and designs that could be pursued for the next generation system. An analysis of the results of the market survey will be conducted and potential candidates will be pursued for further evaluation.

LCBE

The Lightweight Chemical Biological Ensemble (LCBE) program will pursue an evolutionary incremental approach to provide capability to the Warfighter. Each increment of LCBE will provide technologies with military utility that are modular in function, and offer improvement in form and fit over current systems. The LCBE program will develop, integrate, test, procure and field systems that increase Warfighter operational performance in a CBRN environment via the use of emerging technologies and by leveraging tradespace in areas such as protection level, heat stress, durability, antimicrobial properties, launderability, self-detoxification, protection time, etc. Where appropriate, modeling and simulation tools will be used to lower LCBE program risks, reduce costs and ensure a high confidence in selected technologies.

LCBE INCREMENT 1
The LCBE will use an evolutionary acquisition strategy with phased development. The first LCBE increment will provide an operationally useful and supportable capability in as short a time as possible. Accordingly, Increment 1 of LCBE will incorporate an accelerated development cycle leveraging existing COTS technologies that will, at a minimum, provide a lightweight CB protective garment capability. Gate testing and down-selection of prototypes will comprise the initial phases of the Government's testing program. A competitively awarded contract is planned for DT and Operational Assessment (OA) will occur prior to MS C. Appropriate system requirements reviews, test readiness reviews, producibility reviews and audits will be scheduled as required prior to each milestone.

Future increments of LCBE shall be defined via separate Capability Development Document (CDDs)/Capability Production Document (CPDs) and will follow a similar path/process from MS A or MS B through MS C/FRP and will leverage preceding efforts to the greatest extent possible, maintaining commonality and synergy across all increments.

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>IP5: *INDIVIDUAL PROTECTION (SDD)* |

**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JSAM - HW S - Contractor Development Types I/IA | C/CPAF | AVOX Lancaster, NY | 36.353 | 0.795 | Oct 2009 | 0.000 | | 0.000 | | 0.000 | 0.000 | 37.148 | 7.209 |
| SW SB - Contractor Development Type II | C/FPI | Gentex Rancho Cucamonga, CA | 12.658 | 4.626 | Oct 2009 | 0.425 | Jan 2011 | 0.000 | | 0.425 | 0.000 | 17.709 | 0.000 |
| HW S - Donn/Doff development | C/FFP | Gentex Rancho Cucamonga, CA | 1.582 | 1.625 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 3.207 | 0.000 |
| | | **Subtotal** | 50.593 | 7.046 | | 0.425 | | 0.000 | | 0.425 | 0.000 | 58.064 | 7.209 |

**Remarks**

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JSGPM - ES C - JSGPM Filter | MIPR | ECBC APG, MD | 0.000 | 0.118 | Oct 2009 | 0.215 | Oct 2010 | 0.000 | | 0.215 | 0.000 | 0.333 | 0.000 |
| ES C - JSGPM Filter | MIPR | NRL Washington, DC | 0.000 | 0.100 | Oct 2009 | 0.150 | Oct 2010 | 0.000 | | 0.150 | 0.000 | 0.250 | 0.000 |
| ** LCBE - ES S - Engineering IPT | MIPR | Various | 0.000 | 0.400 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.400 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>IP5: *INDIVIDUAL PROTECTION (SDD)* |

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ES SB - Tech Demos | MIPR | Various | 0.000 | 1.360 | Oct 2009 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.360 | 0.000 |
| | | Subtotal | 0.000 | 1.978 | | 0.365 | | 0.000 | | 0.365 | 0.000 | 2.343 | 0.000 |

**Remarks**

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JSAM - OTHT SB - Govt Dev Test | MIPR | Various | 24.347 | 2.294 | Oct 2009 | 0.000 | | 0.000 | | 0.000 | 7.174 | 33.815 | 0.092 |
| OTE S - Govt Operational Test Type II | MIPR | Various | 9.706 | 5.064 | Oct 2009 | 4.049 | Jan 2011 | 0.000 | | 4.049 | 4.046 | 22.865 | 0.404 |
| OTHT SB - Govt Operational Test Type I | C/FFP | AVOX Lancaster, NY | 3.074 | 0.000 | | 1.980 | Oct 2010 | 0.000 | | 1.980 | 0.000 | 5.054 | 0.185 |
| ** JSGPM - DTE SB - JSGPM Filter Testing | MIPR | Various | 0.000 | 0.776 | Oct 2009 | 1.594 | Oct 2010 | 0.000 | | 1.594 | 0.000 | 2.370 | 0.000 |
| DTE SB - JSGPM Filter Testing | MIPR | NRL Washington, DC | 0.000 | 0.250 | Oct 2009 | 0.250 | Oct 2010 | 0.000 | | 0.250 | 0.000 | 0.500 | 0.000 |
| | | Subtotal | 37.127 | 8.384 | | 7.873 | | 0.000 | | 7.873 | 11.220 | 64.604 | 0.681 |

**Remarks**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>IP5: *INDIVIDUAL PROTECTION (SDD)* |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2010 Cost | FY 2010 Award Date | FY 2011 Base Cost | FY 2011 Base Award Date | FY 2011 OCO Cost | FY 2011 OCO Award Date | FY 2011 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JSAM - PM/MS C - Program Management/ Management Support | MIPR | Various | 17.525 | 2.700 | Oct 2009 | 0.815 | Oct 2010 | 0.000 | | 0.815 | 0.000 | 21.040 | 5.421 |
| ** JSGPM - PM/MS C - Conduct Market Survey Analysis | MIPR | JPMO IP Stafford, VA | 0.000 | 0.200 | Oct 2009 | 0.200 | Oct 2010 | 0.000 | | 0.200 | 0.000 | 0.400 | 0.000 |
| ** LCBE - PM/MS S - JPM Support | MIPR | Various | 0.000 | 0.545 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.545 | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | MIPR | HQ AMC, Alexandria | 0.000 | 0.241 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.241 | 0.000 |
| | | **Subtotal** | 17.525 | 3.686 | | 1.015 | | 0.000 | | 1.015 | 0.000 | 22.226 | 5.421 |

**Remarks**

| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 105.245 | 21.094 | | 9.678 | | 0.000 | | 9.678 | 11.220 | 147.237 | 13.311 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
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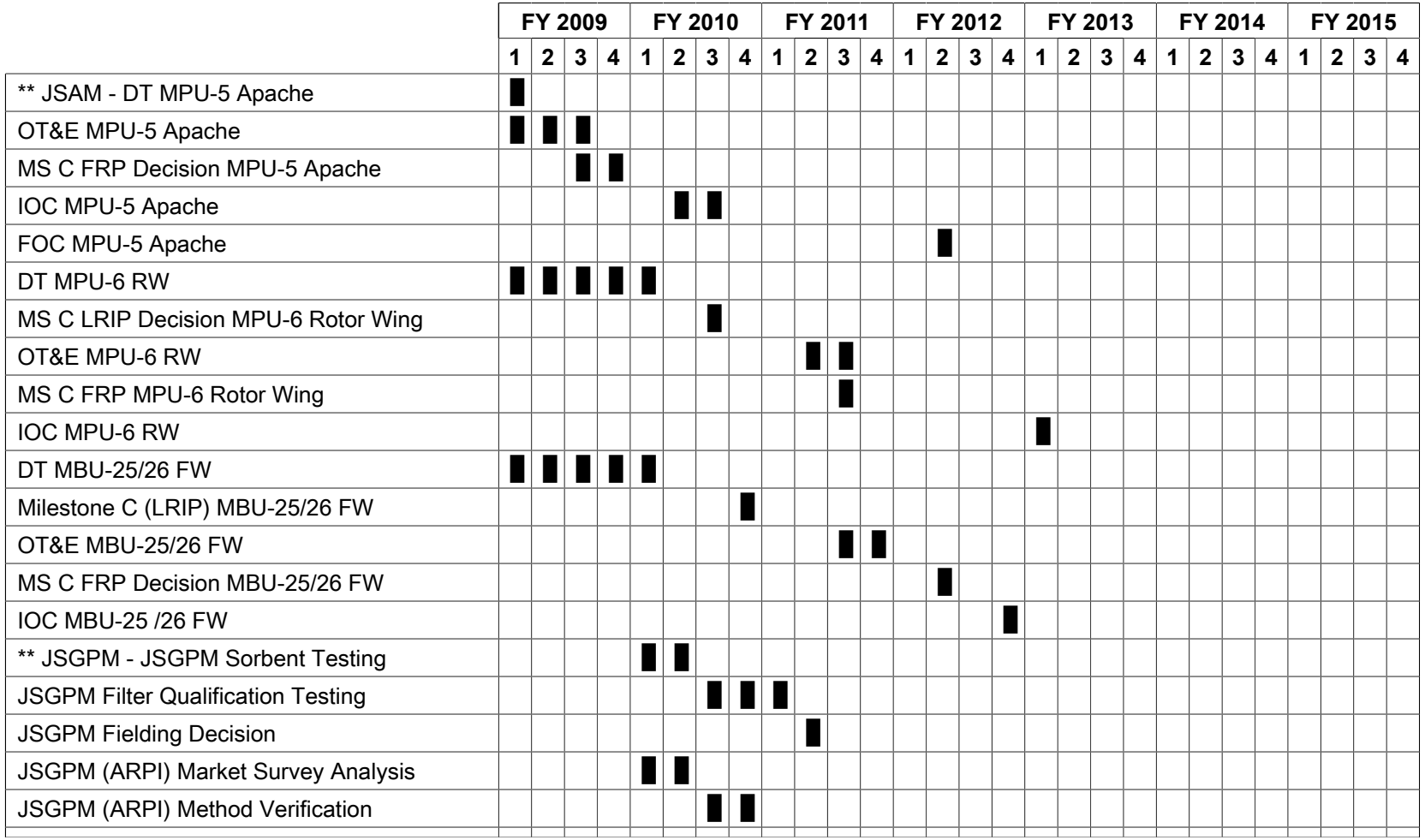

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
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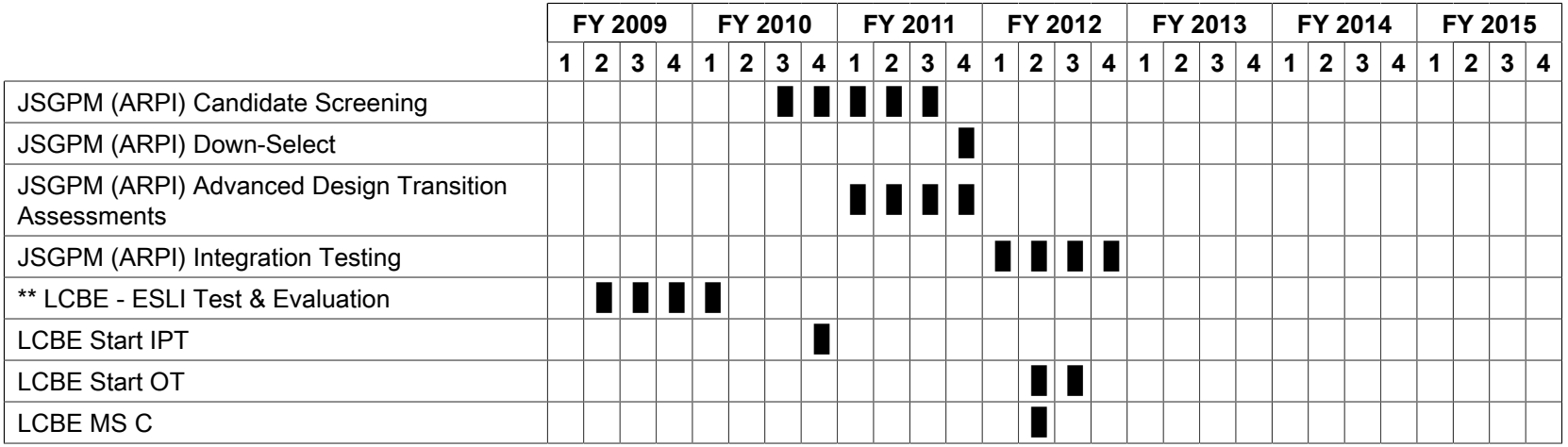

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## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** JSAM - DT MPU-5 Apache | 4 | 2007 | 1 | 2009 |
| OT&E MPU-5 Apache | 2 | 2008 | 3 | 2009 |
| MS C FRP Decision MPU-5 Apache | 3 | 2009 | 4 | 2009 |
| IOC MPU-5 Apache | 2 | 2010 | 3 | 2010 |
| FOC MPU-5 Apache | 2 | 2012 | 2 | 2012 |
| DT MPU-6 RW | 4 | 2007 | 1 | 2010 |
| MS C LRIP Decision MPU-6 Rotor Wing | 3 | 2010 | 3 | 2010 |
| OT&E MPU-6 RW | 2 | 2011 | 3 | 2011 |
| MS C FRP MPU-6 Rotor Wing | 3 | 2011 | 3 | 2011 |
| IOC MPU-6 RW | 1 | 2013 | 1 | 2013 |
| DT MBU-25/26 FW | 1 | 2008 | 1 | 2010 |
| Milestone C (LRIP) MBU-25/26 FW | 4 | 2010 | 4 | 2010 |
| OT&E MBU-25/26 FW | 3 | 2011 | 4 | 2011 |
| MS C FRP Decision MBU-25/26 FW | 2 | 2012 | 2 | 2012 |
| IOC MBU-25 /26 FW | 4 | 2012 | 4 | 2012 |
| ** JSGPM - JSGPM Sorbent Testing | 1 | 2010 | 2 | 2010 |
| JSGPM Filter Qualification Testing | 3 | 2010 | 1 | 2011 |
| JSGPM Fielding Decision | 2 | 2011 | 2 | 2011 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| JSGPM (ARPI) Market Survey Analysis | 1 | 2010 | 2 | 2010 |
| JSGPM (ARPI) Method Verification | 3 | 2010 | 4 | 2010 |
| JSGPM (ARPI) Candidate Screening | 3 | 2010 | 3 | 2011 |
| JSGPM (ARPI) Down-Select | 4 | 2011 | 4 | 2011 |
| JSGPM (ARPI) Advanced Design Transition Assessments | 1 | 2011 | 4 | 2011 |
| JSGPM (ARPI) Integration Testing | 1 | 2012 | 4 | 2012 |
| ** LCBE - ESLI Test & Evaluation | 2 | 2009 | 1 | 2010 |
| LCBE Start IPT | 4 | 2010 | 4 | 2010 |
| LCBE Start OT | 2 | 2012 | 3 | 2012 |
| LCBE MS C | 2 | 2012 | 2 | 2012 |

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| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IS5: *INFORMATION SYSTEMS (SDD)* | 45.694 | 27.301 | 13.844 | 0.000 | 13.844 | 24.984 | 24.872 | 25.345 | 25.775 | Continuing | Continuing |
| Quantity of RDT&E Articles | 80 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | |

**A. Mission Description and Budget Item Justification**

This funding supports System Development and Demonstration and Low Rate Initial Production (SDD/LRIP).

Efforts funded in this project are: (1) Joint Effects Model (JEM); (2) Joint Operational Effects Federation (JOEF); (3) the Joint Warning and Reporting Network (JWARN); and (4) the JPEO-CBD Software Support Activity (SSA).

The JEM is DoD's only accredited model for predicting hazards associated with the release of contaminants into the environment. JEM is being developed in separate increments and is capable of modeling hazards in a variety of scenarios including: counterforce, passive defense, accident and/or incidents (Increment 1); high altitude releases, urban NBC environments (Increment 2); building interiors, and human performance degradation (Increment 3). Battle space commanders and first responders must have a Chemical, Biological, Radiological, Nuclear (CBRN) hazard prediction capability in order to make decisions that will minimize risks of CBRN contamination and enable them to continue mission operations. JEM operates in an integrated fashion with operational and tactical Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) systems, and in a standalone mode. JEM will interface and communicate with the other programs such as JWARN, JOEF, weather systems, intelligence systems, and various databases.

JOEF will be a near real-time course of action analysis tool developed in three increments using a detailed NBC hazard prediction model. Each increment supports Aerial Ports of Debarkation (APODs), Sea Ports of Debarkation (SPODs), mobile forces, medical and automated Tactics, Techniques and Procedures (TTPs) in various levels of fidelity. Increment 1 will support deliberate planning for operational and strategic users in a C4ISR common operating environment (COE); Command and Control Personal Computers (C2PC); and crisis planning for the operational users in a COE.

The Joint Warning and Reporting Network (JWARN) will provide, in the first of two increments, joint forces with a comprehensive analysis and response capability to minimize the effects of hostile CBRN attacks, as well as, accidents and incidents. It will provide the operational capability to employ NBC warning technology which will collect, analyze, identify, locate, report, and disseminate NBC warnings. JWARN will be compatible and integrated with Joint Services C4ISR Systems. JWARN is transition from COE standards to Service Oriented Architecture (SOA). JWARN Increment 2 will provide an expansion of sensors that will connect to JWARN, increased automation of message handling, improved false alarm filtering, integration of route-planning calculator, and interoperability with additional C2 systems.

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JWARN will be located in Command and Control Centers at the appropriate level and will be employed by CBRN defense specialists and other designated personnel. This employment will transfer data automatically from existing sensors and to and from the future sensors to provide commanders with the capability to support operational decision making in a CBRN environment. JWARN will provide additional data processing to support the production of plans and reports, and access to specific CBRN information to improve the efficiency of limited CBRN personnel assets. JWARN will integrate existing sensors into a sensor network or host C2 system, but does not provide the sensors that will be employed in the operating environment.

The JPEO-CBD SSA is a JPEO-CBD enterprise-wide, user developmental support and service organization focusing on development assistance and net-centric interoperability. The SSA provides the CBRN Warfighter with Joint Service solutions for Integrated Architectures, Information Assurance, Verification, Validation and Accreditation (VV&A) and Data Management; interoperable and integrated net-centric, Service-oriented, composable solutions for CBD; and infusion of latest technologies into programs of record. CBRN user community and related communities of interest have need for CBRN "plug and play" capability to allow interoperability and re-configurability across the enterprise. The requirement for net-centric, composable solutions provides the near term foundation for the Warfighter's ability to communicate his CBRN solutions and interoperate with other Service operational systems. It also supports a longer term ability to interoperate with related agencies and to reduce the Warfighter's CBRN footprint as technologies improve.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) JEM Operational Demonstrations and Exercises | 0.381 | 0.698 | 0.000 | 0.000 | 0.000 |
| *FY 2009 Accomplishments:*<br>Supported operational demonstrations and exercises. | | | | | |
| *FY 2010 Plans:*<br>Continue to support operational demonstrations and exercises. | | | | | |
| 2) JEM Independent Verification, Validation, and Accreditation | 1.079 | 1.616 | 0.278 | 0.000 | 0.278 |
| *FY 2009 Accomplishments:*<br>Conducted independent verification, validation, and accreditation of JEM software and models. | | | | | |
| *FY 2010 Plans:*<br>Conduct independent verification, validation, and accreditation of JEM software and models. | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Conduct independent verification, validation, and accreditation of JEM software and models. | | | | | |
| 3) JEM Systems Engineering<br>*FY 2009 Accomplishments:*<br>Continued JEM Increment 1 Systems Engineering Tasks to include software updates, configuration management, human-system integration, security analysis and DoD architecture artifact development. Updated requirements and architecture analysis for supporting Science and Technology capabilities in preparation for JEM Increment 1.<br>*FY 2010 Plans:*<br>Continue to sustain JEM Increment 1 Systems Engineering Tasks to include software updates, configuration management, human-system integration, security analysis and DoD architecture artifact development. | 1.121 | 0.794 | 0.000 | 0.000 | 0.000 |
| 4) JEM Program Management<br>*FY 2009 Accomplishments:*<br>Continued JEM program financial management, scheduling, planning and reporting.<br>*FY 2010 Plans:*<br>Continue JEM program financial management, scheduling, planning and reporting.<br>*FY 2011 Base Plans:*<br>Continue JEM program financial management, scheduling, planning and reporting. | 1.913 | 1.947 | 0.233 | 0.000 | 0.233 |
| 5) JEM Program Development | 2.309 | 2.229 | 0.478 | 0.000 | 0.478 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Performed software upgrades on fielded JEM baseline. Provided JEM updates in parallel with evolving C4I host system upgrades. Continued development of additional capabilities and upgrades to models within JEM. Supported requests for special configurations of JEM to include; NORAD, NORTHCOM, STRATCOM, USFK, USAFE, US National Guard CST, etc. and maintained interoperability with GCCS and J/A/AF/M MCS.<br><br>*FY 2010 Plans:*<br>Perform software upgrades on fielded JEM baseline. Provide JEM updates in parallel with evolving C4I host system upgrades. Continued development of additional capabilities and upgrades to models within JEM. Supported requests for special configurations of JEM to include; NORAD, NORTHCOM, STRATCOM, USFK, USAFE, US National Guard CST, etc. and maintained interoperability with GCCS and J/A/AF/M MCS.<br><br>*FY 2011 Base Plans:*<br>Perform software upgrades on fielded JEM baseline. Provide JEM updates in parallel with evolving C4I host system upgrades. Continue development of additional capabilities and upgrades to models within JEM. Support requests for special configurations of JEM (North American Aerospace Defense Command (NORAD), US Northern Command (NORTHCOM), US Strategic Command (STRATCOM), US Forces Korea (USFK) US Air Force Europe (USAFE), US National Guard Civil Support Teams (CST), (etc). Global Command and Control System (GCCS) - Joint/Army/Air Force/Maritime (J/A/AF/M), Maneuver Control System (MCS). Conduct full system integration, ensure operational supportability; reduce logistics footprint; implement human systems integration; ensure affordability; protect critical program information; and demonstrate system integration, interoperability, safety, and utility. | | | | | |
| 6) JEM Operational Test and Evaluation/Follow-On Test and Evaluation | 1.480 | 1.491 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued to conduct Multi-Service Operational Test and Evaluation (MOT&E) and Follow-on Test and Evaluation (FOT&E).<br><br>*FY 2010 Plans:*<br>Continue to conduct MOT&E and FOT&E. | | | | | |
| 7) JEM Models Continuing Development<br>*FY 2009 Accomplishments:*<br>Provided Scientific Subject Matter Expertise (SME) and support to JEM Model IPT. Conducted revalidation of Increment 1 technology analysis from FY04 analysis and support model validation, verification and accreditation activities.<br><br>*FY 2010 Plans:*<br>Continue to provide Scientific SME and support to JEM Model IPT. Continue to revalidate Increment 1 technology analysis from FY04 analysis and support model validation, verification and accreditation activities. | 0.505 | 0.504 | 0.000 | 0.000 | 0.000 |
| 8) JEM Accession of Technology Improvements<br>*FY 2009 Accomplishments:*<br>Continued Science and Technology transition and development of JEM Increment 1 software. Reviewed and evaluated internal JEM architecture for improved performance and potential operational cost savings. Provided upgrades to JEM Increment 1 to synchronize with Service C2 systems. Migrated JEM Increment 1 software to evolving host platforms. Analyzed existing and future software architectures. Migrated Urban Dispersion Modeling into JEM Increment 1 baseline and included STRATCOM support. | 5.174 | 7.142 | 0.567 | 0.000 | 0.567 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Analyze existing and future software architectures. Continue migrating JEM software to evolving host platforms (Service C2 systems). Incorporate Urban Dispersion Modeling enhancements, Missile Intercept, Backtracking to Source, enhanced STRATCOM Support, and Human Effects. Continue to review and evaluate existing JEM internal architecture for improved performance and potential operational cost savings.<br><br>*FY 2011 Base Plans:*<br>Continue Science and Technology transition and improvement of JEM Increment 1 software. Analyze existing and future software architectures. Continue migrating JEM software to evolving host platforms (Service C2 systems). Incorporate Urban Dispersion Modeling enhancements, Missile Intercept, Backtracking to Source, enhanced STRATCOM Support, and Human Effects. Continue to review and evaluate existing JEM internal architecture for improved performance and potential operational cost savings. | | | | | |
| 9) JEM Developmental Test and Evaluation | 1.091 | 2.073 | 0.439 | 0.000 | 0.439 |
| *FY 2009 Accomplishments:*<br>Continued to perform Governmental DT on JEM Increment 1 software. Verified that the JEM transitioned S&T code and model correctly and conducted test in support of follow-on accreditation and operational test. Completed interoperability, network and system security certifications of multiple service C4I/host systems and three computer operating systems (Windows XP, Vista and UNIX).<br><br>*FY 2010 Plans:*<br>Continue to perform Governmental DT on JEM Increment 1 updates. Verify that the JEM transitioned S&T code and model correctly and conduct tests in support of follow-on accreditation and operational tests. Conduct interoperability, network and system security certifications of multiple service C4I/host systems and three computer operating systems (Windows XP, Vista and UNIX). Conduct verification and validation to ensure updates to evolving baseline don't affect JEM accreditation. | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Continue to perform Governmental DT on JEM Increment 1 updates and evolving baselines in support of future User and Operational Assessments in preparation for milestone events. Verify that the JEM transitioned S&T code and model correctly and conduct test in support of follow-on accreditation and operational test. Conduct interoperability, network and system security certifications of multiple service C4I/host systems and three computer operating systems (Windows XP, Vista and UNIX). Conduct verification and validation to ensure updates to evolving baseline don't affect JEM accreditation. | | | | | |
| 10) JOEF<br>JOEF Program Management<br>*FY 2009 Accomplishments:*<br>Provided Program Management Support, including Systems Engineering, Warfighter, Test and Evaluation, and Integrated Logistics Support Integrated Project Teams (Increment 1). | 2.690 | 0.000 | 0.000 | 0.000 | 0.000 |
| 11) JOEF<br>JOEF Software Development<br>*FY 2009 Accomplishments:*<br>Developed software for deliberate and crisis planning for Seaports of Debarkation (SPOD), Aerial Ports of Debarkation (APOD) and automated Tactics, Techniques and Procedures (TTP), including Common Operating Environment (COE), Command and Control Personal Computer (C2PC) interfaces and MCS/GCCS-J (Increment 1). Developed mobile force capability to meet Service requirements (Increment 1). | 3.700 | 0.000 | 0.000 | 0.000 | 0.000 |
| 12) JOEF | 0.570 | 0.000 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| JOEF Test and Evaluation<br><br>*FY 2009 Accomplishments:*<br>Developed and tested interoperability of JOEF software with required systems (Increment 1). Planned and conducted Developmental and Operational Testing (DT/OT). | | | | | |
| 13) JOEF<br>JOEF Integrated Logistics Support<br><br>*FY 2009 Accomplishments:*<br>Planned and provided Integrated Logistics Support, including training, to the JOEF system (Increment 1). | 0.320 | 0.000 | 0.000 | 0.000 | 0.000 |
| 14) JOEF<br>JOEF Validation and verification (Increment 1)<br><br>*FY 2009 Accomplishments:*<br>Planned and conducted software validation and verification (Increment 1). | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 |
| 15) JOEF<br>JOEF Integration with JEM and JWARN<br><br>*FY 2009 Accomplishments:*<br>Continued the integration with JEM, JWARN and database management systems (Increment 1). | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 |
| 16) JWARN Increment 1<br>JWARN Program Development | 5.660 | 2.249 | 7.261 | 0.000 | 7.261 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Performed software upgrades on JWARN baseline. Provided JWARN updates in parallel with evolving C4I host system upgrades. Continued development of additional capabilities and upgrades within JWARN. Supported requests for special configurations and training of JWARN prototype for US Forces Korea (USFK). Maintained interoperability with Global Command and Control System (GCCS) Joint/Army/Air Force/Maritime (J/A/AF/M) and Maneuver Control System (MCS).<br><br>*FY 2010 Plans:*<br>Perform software upgrades on JWARN baseline. Provide JWARN updates in parallel with evolving C4I host system upgrades. Continue development of additional capabilities and upgrades within JWARN. Support requests for special configurations and training of JWARN prototype for USFK. Maintain interoperability with GCCS J/A/AF/M and MCS. Complete Increment 1 development and initiate Increment 2 planning and development in preparation for Milestone "B" decision through the MDD process as delineated in DOD 5000.02.<br><br>*FY 2011 Base Plans:*<br>Perform software upgrades on JWARN baseline. Provide JWARN updates in parallel with evolving C4I host system upgrades. Continue development of additional capabilities and upgrades within JWARN. Support requests for special configurations and training of JWARN prototype for USFK. Maintain interoperability with GCCS J/A/AF/M and MCS. Initiate JWARN Increment 2 Technology Development Baseline and initiate Engineering and Manufacturing Development activities. Conduct full system integration, ensure operational supportability; reduce logistics footprint; implement human systems integration; ensure affordability; protect critical program information; and demonstrate system integration, interoperability, safety, and utility. | | | | | |
| 17) JWARN Increment 1<br>JWARN Program Management | 2.073 | 1.900 | 2.494 | 0.000 | 2.494 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued JWARN program financial management, scheduling, planning and reporting.<br><br>*FY 2010 Plans:*<br>Continue JWARN program financial management, scheduling, planning and reporting.<br><br>*FY 2011 Base Plans:*<br>Continue JWARN program financial management, scheduling, planning and reporting. | | | | | |
| 18) JWARN Increment 1<br>JWARN Operational demonstrations and tests.<br><br>*FY 2009 Accomplishments:*<br>Conducted operational demonstrations and tests in support of Milestone "C" decision. Generated Multi-Service Operational Test and Evaluation (MOT&E) test results and reports.<br><br>*FY 2010 Plans:*<br>Plan for, conduct and support operational demonstrations and tests in support of Follow-on Test and Evaluation (FOT&E). Generate test results and reports.<br><br>*FY 2011 Base Plans:*<br>Prepare for and conduct operational demonstrations and tests. | 1.634 | 0.050 | 0.050 | 0.000 | 0.050 |
| 19) JWARN<br>Functional Qualification Tests (FQT) | 4.405 | 0.413 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Conducted Increment 1 FQT to include a High Altitude Electro-Magnetic Pulse (HAEMP), MILSTD 810F environmental, and decontamination testing. Generated FQT results and reports.<br><br>*FY 2010 Plans:*<br>Prepare for Increment 2 FQT. | | | | | |
| 20) JWARN Increment 1<br>JWARN Total Package Fielding<br><br>*FY 2009 Accomplishments:*<br>Developed and tested software to support JWARN Total Package Fielding.<br><br>*FY 2010 Plans:*<br>Continue development and test of software to support JWARN Total Package Fielding.<br><br>*FY 2011 Base Plans:*<br>Continue development and test of software to support JWARN Total Package Fielding. | 0.853 | 0.550 | 0.700 | 0.000 | 0.700 |
| 21) JWARN Increment 1<br>JWARN Hardware Development<br><br>*FY 2009 Accomplishments:*<br>Developed the wireless JWARN Component Interface Device (JCID) as required by the Services' Urgent Needs Statement (UNS). Produced 70 Engineering Development Models of the JCID. | 2.553 | 0.000 | 0.000 | 0.000 | 0.000 |
| 22) SSA Policies, Standards and Guidelines | 0.422 | 0.233 | 0.094 | 0.000 | 0.094 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Provided Policies, Standards & Guidelines for IT Systems Development (FISMA compliance and J6 Interoperability Certification).<br><br>*FY 2010 Plans:*<br>Continue to provide Policies, Standards & Guidelines for IT Systems Development (FISMA compliance and J6 Interoperability Certification).<br><br>*FY 2011 Base Plans:*<br>Continue to provide Policies, Standards & Guidelines for IT Systems Development (FISMA compliance and J6 Interoperability Certification). | | | | | |
| 23) SSA Integrated Architecture<br>*FY 2009 Accomplishments:*<br>Continued to maintain a program Integrated Architecture for JPEO-CBD (Warfighter Enterprise Architecture).<br><br>*FY 2010 Plans:*<br>Continue to maintain a program Integrated Architecture for JPEO-CBD (Warfighter Enterprise Architecture).<br><br>*FY 2011 Base Plans:*<br>Continue to maintain a program Integrated Architecture for JPEO-CBD (Warfighter Enterprise Architecture). | 0.695 | 0.422 | 0.170 | 0.000 | 0.170 |
| 24) SSA Enterprise Support and Services | 0.480 | 0.307 | 0.134 | 0.000 | 0.134 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Provided support processes and services for Architectures, Data, Information Assurance, Help Desk, Modeling and Simulation, Science and Technology, and Standards and Policy.<br><br>*FY 2010 Plans:*<br>Continue to provide support processes and services for Architectures, Data, Information Assurance, Help Desk, Modeling and Simulation, Science and Technology, and Standards and Policy.<br><br>*FY 2011 Base Plans:*<br>Continue to provide support processes and services for Architectures, Data, Information Assurance, Help Desk, Modeling and Simulation, Science and Technology, and Standards and Policy. | | | | | |
| 25) SSA Chemical, Biological, Radiological, Nuclear (CBRN) Data Model<br>*FY 2009 Accomplishments:*<br>Provided CBRN Data Model development for CBRN Community of Interest.<br><br>*FY 2010 Plans:*<br>Continue to provide CBRN Data Model development for CBRN Community of Interest.<br><br>*FY 2011 Base Plans:*<br>Continue to provide CBRN Data Model development for CBRN Community of Interest. | 0.493 | 0.307 | 0.134 | 0.000 | 0.134 |
| 26) SSA Enterprise Information Technology Support Plan<br>*FY 2009 Accomplishments:*<br>Maintained Enterprise IT Support Plan. | 0.364 | 0.000 | 0.000 | 0.000 | 0.000 |
| 27) SSA Information Assurance | 0.592 | 0.408 | 0.157 | 0.000 | 0.157 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Provided Information Assurance certification and acceptance services for developing JPEO-CBD programs.<br><br>*FY 2010 Plans:*<br>Continue to provide Information Assurance certification and acceptance services for developing JPEO-CBD programs.<br><br>*FY 2011 Base Plans:*<br>Continue to provide Information Assurance certification and acceptance services for developing JPEO-CBD programs. | | | | | |
| 28) SSA Policy and Standards Repository<br>*FY 2009 Accomplishments:*<br>Continued to maintain a repository for applicable Enterprise policies, standards, and guidelines.<br><br>*FY 2010 Plans:*<br>Continue to maintain a repository for applicable Enterprise policies, standards, and guidelines.<br><br>*FY 2011 Base Plans:*<br>Continue to maintain a repository for applicable Enterprise policies, standards, and guidelines. | 0.532 | 0.340 | 0.140 | 0.000 | 0.140 |
| 29) SSA Technology Transition Support<br>*FY 2009 Accomplishments:*<br>Provided Technology Transition support services (common components and services).<br><br>*FY 2010 Plans:*<br>Continue to provide Technology Transition support services (common components and services). | 0.301 | 0.172 | 0.070 | 0.000 | 0.070 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Continue to provide Technology Transition support services (common components and services). | | | | | |
| 30) SSA<br>*FY 2009 Accomplishments:*<br>Established and maintained Enterprise VV&A guidelines and processes, including M&S strategic support and accreditation support.<br>*FY 2010 Plans:*<br>Continue maintenance of Enterprise VV&A guidelines and processes, including M&S strategic support and accreditation support.<br>*FY 2011 Base Plans:*<br>Continue maintenance of Enterprise VV&A guidelines and processes, including M&S strategic support and accreditation support. | 0.457 | 0.303 | 0.122 | 0.000 | 0.122 |
| 31) SSA Net-Centric Assessment<br>Provided Net-Centric Assessment for programs.<br>*FY 2009 Accomplishments:*<br>Provided Net-Centric Assessment for programs.<br>*FY 2010 Plans:*<br>Continue to provide Net-Centric Assessment for programs.<br>*FY 2011 Base Plans:*<br>Continue to provide Net-Centric Assessment for programs. | 0.623 | 0.399 | 0.161 | 0.000 | 0.161 |

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|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>IS5: *INFORMATION SYSTEMS (SDD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 32) SSA CBRN Interface Standards | 0.624 | 0.402 | 0.162 | 0.000 | 0.162 |
| *FY 2009 Accomplishments:*<br>Developed and maintained Common CBRN Interface standards, including a Common CBRN Sensor Interface (CCSI).<br>*FY 2010 Plans:*<br>Continue to maintain Common CBRN Interface standards, including a CCSI.<br>*FY 2011 Base Plans:*<br>Continue to maintain Common CBRN Interface standards, including a CCSI. Develop new interfaces as required. | | | | | |
| 33) SBIR | 0.000 | 0.352 | 0.000 | 0.000 | 0.000 |
| *FY 2010 Plans:*<br>Small Business Innovative Research. | | | | | |
| Accomplishments/Planned Programs Subtotals | 45.694 | 27.301 | 13.844 | 0.000 | 13.844 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • G47101: *JOINT WARNING & REPORTING NETWORK (JWARN)* | 4.375 | 6.551 | 6.903 | | 6.903 | 8.078 | 5.590 | 8.183 | 8.423 | Continuing | Continuing |
| • JC0208: *JOINT EFFECTS MODEL (JEM)* | 5.546 | 3.482 | 3.482 | | 3.482 | 0.000 | 0.000 | 3.369 | 3.568 | Continuing | Continuing |
| | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 2.482 | 2.480 | 3.716 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
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**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JC0209: *JOINT OPERATIONAL EFFECTS FEDERATION (JOEF)* | | | | | | | | | | | |

**D. Acquisition Strategy**

JEM

The Joint Effects Model (JEM) is following an evolutionary acquisition approach that will allow rapid fielding of existing technologies while further research and development (R&D) continues in order to mature the technologies required for subsequent versions of JEM. It is now being fielded in increments of capabilities. Each increment will retain the functionality of the preceding increment. The JEM development effort will be aligned with the evolving JPEO-CBD architectures and technologies, as well as with Service C2 systems. JEM is expected to develop three distinct increments of software. JEM will define and publish its web-services interface; the JEM interface will be the same on all systems, utilizing data definitions from the approved CBRN data model as appropriate. A cost plus award fee contract was awarded for the follow-on JEM contract for integration and development.

JOEF

Joint Operational Effects Federation (JOEF) is a planning tool to support deliberate and crisis planning. JOEF will be a near real-time course of action analysis tool developed in three increments. It will use a detailed CBRN hazard prediction model. Each block supports Aerial Ports of Debarkation (APODs), Sea Ports of Debarkation (SPODs), mobile forces, medical and automated Tactics, Techniques and Procedures (TTPs) in various levels of fidelity. Increment 1 will support deliberate planning for operational and strategic users in a Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) common operating environment (COE)/Networked environment, Command and Control Personal Computers (C2PC), and crisis planning for the operational users in a COE/Networked environment. Increment 2 will support deliberate and crisis planning for the tactical users in COE/Networked, and Non-Networked environments; deliberate planning for operational and strategic users in a Non-Networked environment; and crisis planning for the operational users in a COE Networked and Non-Networked environments. Increment 2 also supports planning for consequence management and development of consequence management for military capabilities. Increment 3 will extend consequence management capabilities to include hot/allied nation military operations and civilian facilities.

JWARN

JWARN is being developed in two increments. JWARN Increment 1, will integrate JWARN capabilities into specified (Common Operating Environment (COE)-based) operational-level Service Command and Control (C2) systems at the Global Command and Control System (GCCS) stakeholder level, extend the integration effort

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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into the Service tactical (non COE-based) C2 systems, provide connectivity to legacy and newly developed sensors, and complete the development of JWARN in accordance with the threshold requirements contained in the Joint Requirements Oversight Council (JROC) approved Joint Operational Requirement Document (JORD) approved 5 July 2005, by JROC Memorandum 144-5 as refined by the JWARN Increment 1 Capabilities Production Document (CPD) approved 13 December 2007 by JROM 829-07. JWARN Increment 2 will extend these baseline capabilities to other C2 systems and new sensors as they are fielded; and further, will ensure CBRN warning and reporting capabilities remain synchronized with the changing demands of the Warfighter while keeping pace with evolving C2 systems.

SSA

The JPEO-CBD Software Support Activity (SSA) is a JPEO-CBD user support organization spanning and supporting all Joint Project Managers (JPMs) and JPEO-CBD Directorates. The SSA provides enterprise-wide services and coordination across all JPEO-CBD Programs of Record (PORs) that contain data or software, or are capable of linking to the Global Information Grid (GIG). The SSA facilitates interoperability, integration, and supportability of existing and developing IT and National Security Systems (NSS) across the JPEO and all JPMs.

Phase 1a identifies JPEO-CBD JPMs and programs that deal with data or software, and have an IT component. This will be followed by coordination with the JPMs and programs to facilitate the concepts of interoperability, integration and supportability of enterprise-wide services. Next follows work with user communities to develop and demonstrate enterprise-wide common architectures, products and services. [BA5 - System Development and Demonstration].

Phase 1b established management and control measures for tracking and reporting progress of the various elements described in Phases 1 and 2. This includes establishing, tracking, and performing configuration management of inventories and databases of IT systems and their states of interoperability and information assurance compliance. [BA6 - RDT&E Management Support].

Phase 2 will support the application of the enterprise-wide architectures, products and services into the programs, with verification of compliance with the defined products and services. [BA7 - Operational Systems Development].

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>IS5: *INFORMATION SYSTEMS (SDD)* |

**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JEM - SW SB - JEM Hazard Prediction Model Development and Integration | C/CPAF | Northrop Grumman San Diego, CA | 26.438 | 8.643 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 35.081 | 0.000 |
| ** JWARN - SW S - JWARN System Development and Demonstration | C/CPAF | Northrop Grumman Winterpark, FL | 12.238 | 2.000 | Jan 2010 | 4.871 | Jan 2011 | 0.000 | | 4.871 | 0.000 | 19.109 | 0.000 |
| ** SSA - Product Development | MIPR | SPAWAR Systems Center San Diego, CA | 4.641 | 1.020 | Oct 2009 | 0.468 | Oct 2010 | 0.000 | | 0.468 | 0.000 | 6.129 | 0.000 |
| | | Subtotal | 43.317 | 11.663 | | 5.339 | | 0.000 | | 5.339 | 0.000 | 60.319 | 0.000 |

**Remarks**

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JEM - ES S - IPT - System Engineering, Logistics and Program Support | MIPR | Various | 15.203 | 1.998 | Jan 2010 | 0.432 | Jan 2011 | 0.000 | | 0.432 | 0.000 | 17.633 | 0.000 |
| ** SSA - Support Costs | MIPR | | 4.821 | 1.444 | Oct 2009 | 0.682 | Oct 2010 | 0.000 | | 0.682 | 0.000 | 6.947 | 0.000 |

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**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| | | SPAWAR Systems Center San Diego, CA | | | | | | | | | | | |
| | | **Subtotal** | 20.024 | 3.442 | | 1.114 | | 0.000 | | 1.114 | 0.000 | 24.580 | 0.000 |

**Remarks**

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JEM - DTE SB - Hazard Prediction Model Development Test | MIPR | Various | 6.035 | 2.073 | Jan 2010 | 0.346 | Jan 2011 | 0.000 | | 0.346 | 0.000 | 8.454 | 0.000 |
| OTE S - Hazard Prediction Model Developmental Test | MIPR | Various | 5.555 | 2.219 | Jan 2010 | 0.984 | Jan 2011 | 0.000 | | 0.984 | 0.000 | 8.758 | 0.000 |
| OTHT SB - Hazard Prediction Model - IV&V | MIPR | Various | 3.282 | 1.616 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 4.898 | 0.000 |
| ** JWARN - OTHT SB - JWARN | MIPR | Various | 31.247 | 0.161 | Jan 2010 | 0.306 | Jan 2011 | 0.000 | | 0.306 | 0.000 | 31.714 | 0.000 |
| ** SSA - Test and Evaluation | MIPR | SPAWAR Systems Center | 3.460 | 0.485 | Oct 2009 | 0.148 | Oct 2010 | 0.000 | | 0.148 | 0.000 | 4.093 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
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**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| | | San Diego, CA | | | | | | | | | | | |
| | | Subtotal | 49.579 | 6.554 | | 1.784 | | 0.000 | | 1.784 | 0.000 | 57.917 | 0.000 |

**Remarks**

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** JEM - PM/MS S<br>- Program Office<br>- Planning and Programming | MIPR | SPAWAR Systems Command San Diego, CA | 6.613 | 1.945 | Oct 2009 | 0.233 | Oct 2010 | 0.000 | | 0.233 | 0.000 | 8.791 | 0.000 |
| ** JWARN - PM/MS S<br>- JWARN Management Support | MIPR | Various | 21.666 | 3.001 | Jan 2010 | 5.328 | Jan 2011 | 0.000 | | 5.328 | 0.000 | 29.995 | 0.000 |
| ** SSA - Management Services | MIPR | SPAWAR Systems Center San Diego, CA | 3.018 | 0.344 | Oct 2009 | 0.046 | Oct 2010 | 0.000 | | 0.046 | 0.000 | 3.408 | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | MIPR | HQ AMC, Alexandria | 0.000 | 0.352 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.352 | 0.000 |
| | | Subtotal | 31.297 | 5.642 | | 5.607 | | 0.000 | | 5.607 | 0.000 | 42.546 | 0.000 |

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|---|---|---|
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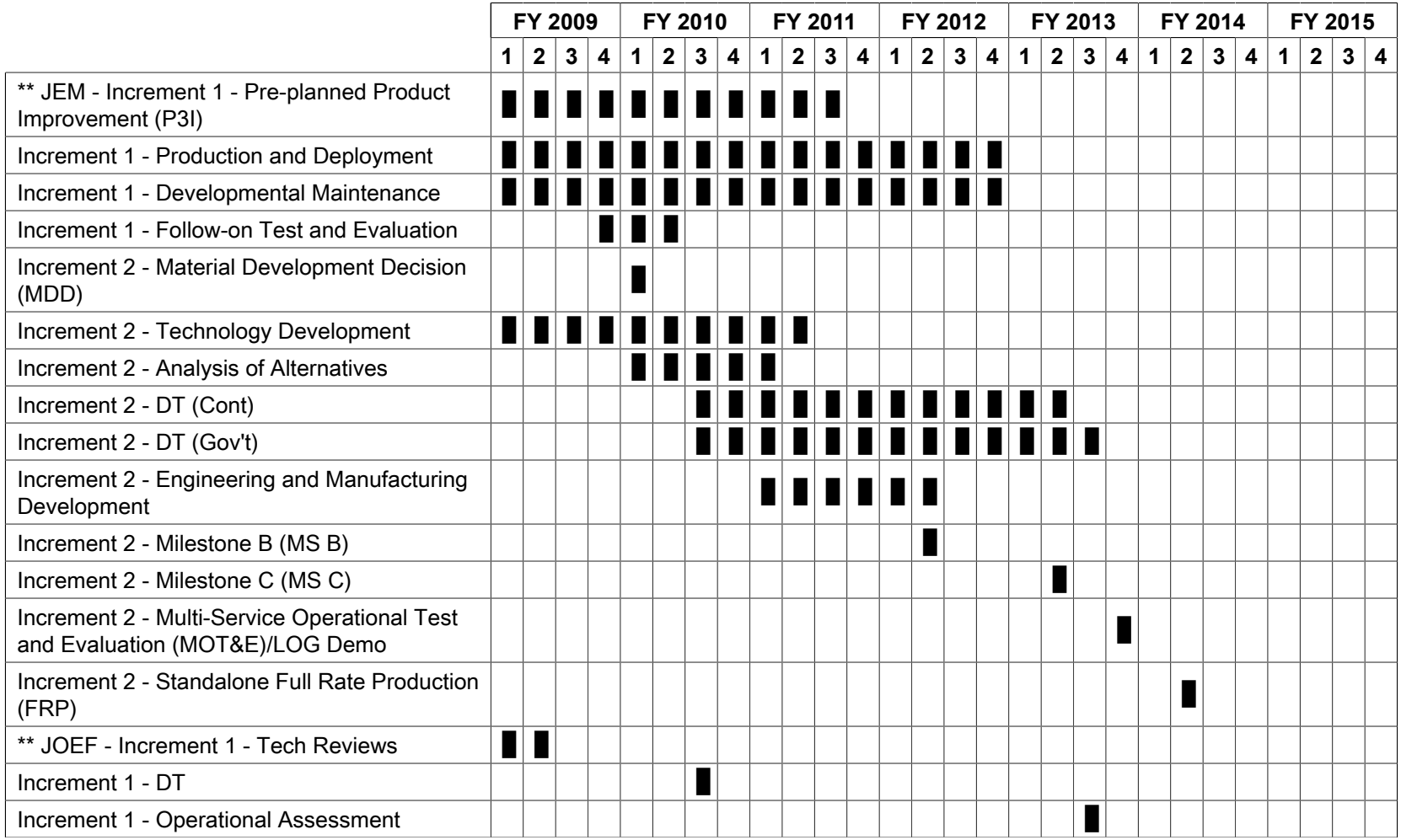
**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Remarks | | | | | | | | | | | | | |

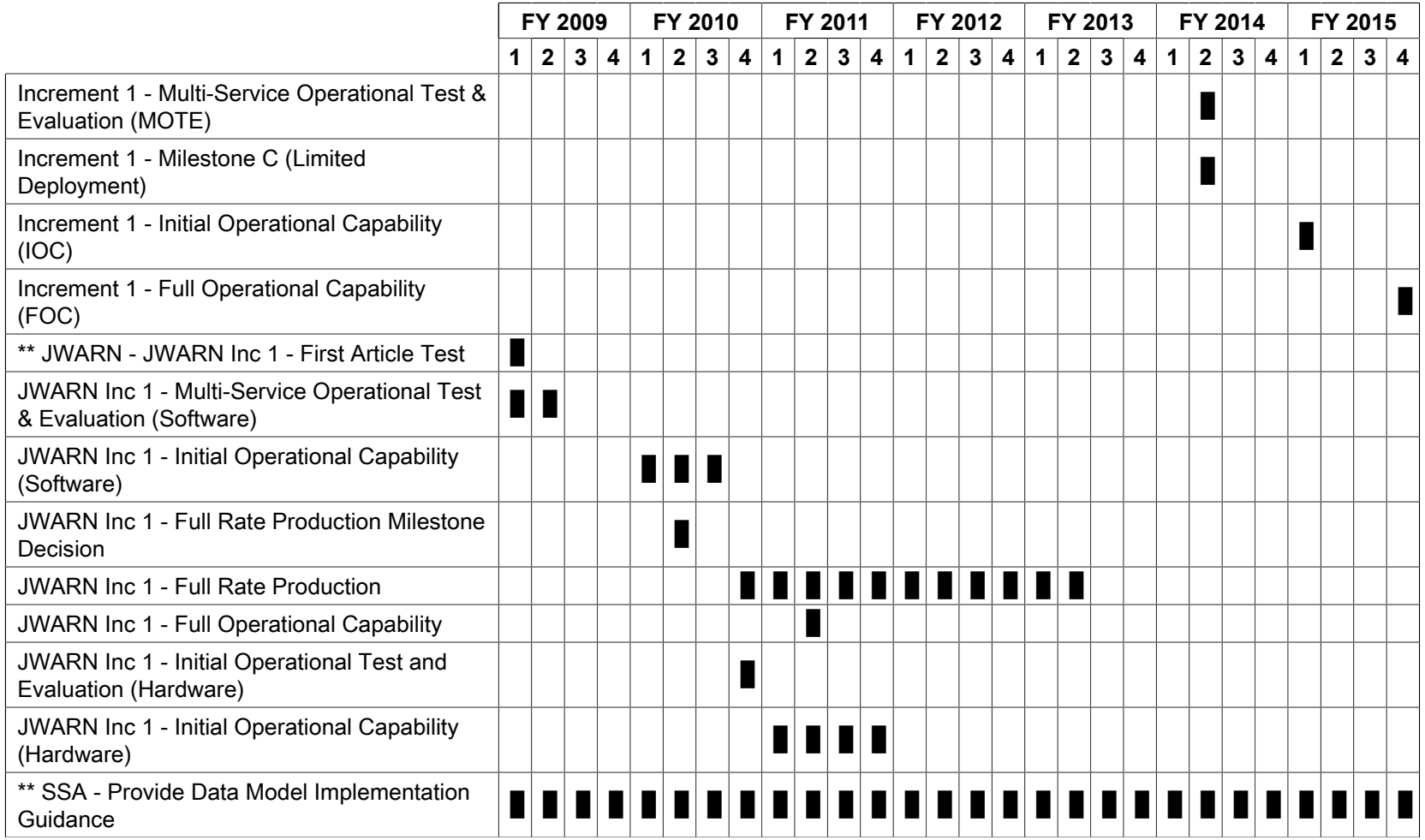
| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | 144.217 | 27.301 | | 13.844 | | 0.000 | | 13.844 | 0.000 | 185.362 | 0.000 |

Remarks

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | | PROJECT<br>IS5: *INFORMATION SYSTEMS (SDD)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>IS5: *INFORMATION SYSTEMS (SDD)* | |



| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
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| | FY 2009 | | | | FY 2010 | | | | FY 2011 | | | | FY 2012 | | | | FY 2013 | | | | FY 2014 | | | | FY 2015 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Provide Enterprise Architecture Products and Services | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Provide Information Assurance Site Compliance Testing | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Provide Integration and Test, M&S, VV&A Certification and Accreditation | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Demonstrate Technology Transition Capabilities | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Provide CM Services for Common User Products and Services | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Provide Net-Centric Assessment and assist programs with implementation of policy | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Develop and provide CBRN Data Model implementation guidance, including reference implementations | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Architecture advisory services to support Warfighter Enterprise and Program Integrated Architectures | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Demonstrate, Verify, Test Technology Transition capabilities especially for Common Components and Services | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Provide Information Assurance Certification/ Acceptance products/services, including compliance testing | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>IS5: *INFORMATION SYSTEMS (SDD)* | |

| | FY 2009 | | | | FY 2010 | | | | FY 2011 | | | | FY 2012 | | | | FY 2013 | | | | FY 2014 | | | | FY 2015 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Provide Modeling, Simulation, VV&A, Integration/Test support and interoperability demonstrations. | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ |
| Provide FISMA and J6 Interoperability certification support | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ |
| Provide CBRN Interface Standards, including reference implementations, e.g. Common CBRN Sensor Interface | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ |
| Sustain CBRN Data Model | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ |
| Sustain CCSI, including investigation, as an industry standard | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ | ▮ |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | **R-1 ITEM NOMENCLATURE**<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | **PROJECT**<br>IS5: *INFORMATION SYSTEMS (SDD)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** JEM - Increment 1 - Pre-planned Product Improvement (P3I) | 3 | 2008 | 3 | 2011 |
| Increment 1 - Production and Deployment | 4 | 2007 | 4 | 2012 |
| Increment 1 - Developmental Maintenance | 3 | 2008 | 4 | 2012 |
| Increment 1 - Follow-on Test and Evaluation | 4 | 2009 | 2 | 2010 |
| Increment 2 - Material Development Decision (MDD) | 1 | 2010 | 1 | 2010 |
| Increment 2 - Technology Development | 3 | 2008 | 2 | 2011 |
| Increment 2 - Analysis of Alternatives | 1 | 2010 | 1 | 2011 |
| Increment 2 - DT (Cont) | 3 | 2010 | 2 | 2013 |
| Increment 2 - DT (Gov't) | 3 | 2010 | 3 | 2013 |
| Increment 2 - Engineering and Manufacturing Development | 1 | 2011 | 2 | 2012 |
| Increment 2 - Milestone B (MS B) | 2 | 2012 | 2 | 2012 |
| Increment 2 - Milestone C (MS C) | 2 | 2013 | 2 | 2013 |
| Increment 2 - Multi-Service Operational Test and Evaluation (MOT&E)/LOG Demo | 4 | 2013 | 4 | 2013 |
| Increment 2 - Standalone Full Rate Production (FRP) | 2 | 2014 | 2 | 2014 |
| ** JOEF - Increment 1 - Tech Reviews | 2 | 2006 | 2 | 2009 |
| Increment 1 - DT | 3 | 2010 | 3 | 2010 |
| Increment 1 - Operational Assessment | 3 | 2013 | 3 | 2013 |
| Increment 1 - Multi-Service Operational Test & Evaluation (MOTE) | 2 | 2014 | 2 | 2014 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | **R-1 ITEM NOMENCLATURE**<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | **PROJECT**<br>IS5: *INFORMATION SYSTEMS (SDD)* |

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| Increment 1 - Milestone C (Limited Deployment) | 2 | 2014 | 2 | 2014 |
| Increment 1 - Initial Operational Capability (IOC) | 1 | 2015 | 1 | 2015 |
| Increment 1 - Full Operational Capability (FOC) | 4 | 2015 | 4 | 2015 |
| ** JWARN - JWARN Inc 1 - First Article Test | 4 | 2008 | 1 | 2009 |
| JWARN Inc 1 - Multi-Service Operational Test & Evaluation (Software) | 4 | 2008 | 2 | 2009 |
| JWARN Inc 1 - Initial Operational Capability (Software) | 1 | 2010 | 3 | 2010 |
| JWARN Inc 1 - Full Rate Production Milestone Decision | 2 | 2010 | 2 | 2010 |
| JWARN Inc 1 - Full Rate Production | 4 | 2010 | 2 | 2013 |
| JWARN Inc 1 - Full Operational Capability | 2 | 2011 | 2 | 2011 |
| JWARN Inc 1 - Initial Operational Test and Evaluation (Hardware) | 4 | 2010 | 4 | 2010 |
| JWARN Inc 1 - Initial Operational Capability (Hardware) | 1 | 2011 | 4 | 2011 |
| ** SSA - Provide Data Model Implementation Guidance | 1 | 2008 | 4 | 2015 |
| Provide Enterprise Architecture Products and Services | 3 | 2007 | 4 | 2015 |
| Provide Information Assurance Site Compliance Testing | 3 | 2006 | 4 | 2015 |
| Provide Integration and Test, M&S, VV&A Certification and Accreditation | 2 | 2007 | 4 | 2015 |
| Demonstrate Technology Transition Capabilities | 1 | 2008 | 4 | 2015 |
| Provide CM Services for Common User Products and Services | 1 | 2008 | 4 | 2015 |
| Provide Net-Centric Assessment and assist programs with implementation of policy | 4 | 2007 | 4 | 2015 |
| Develop and provide CBRN Data Model implementation guidance, including reference implementations | 1 | 2008 | 4 | 2015 |
| | 1 | 2008 | 4 | 2015 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| Architecture advisory services to support Warfighter Enterprise and Program Integrated Architectures | | | | |
| Demonstrate, Verify, Test Technology Transition capabilities especially for Common Components and Services | 1 | 2008 | 4 | 2015 |
| Provide Information Assurance Certification/Acceptance products/services, including compliance testing | 1 | 2008 | 4 | 2015 |
| Provide Modeling, Simulation, VV&A, Integration/Test support and interoperability demonstrations. | 1 | 2008 | 4 | 2015 |
| Provide FISMA and J6 Interoperability certification support | 1 | 2008 | 4 | 2015 |
| Provide CBRN Interface Standards, including reference implementations, e.g. Common CBRN Sensor Interface | 1 | 2008 | 4 | 2015 |
| Sustain CBRN Data Model | 1 | 2008 | 4 | 2015 |
| Sustain CCSI, including investigation, as an industry standard | 1 | 2008 | 4 | 2015 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
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| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* | 87.676 | 57.558 | 141.680 | 0.000 | 141.680 | 161.732 | 159.144 | 141.481 | 111.671 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This project (MB5) contains Engineering and Manufacturing Development (EMD) on efforts (post Milestone B), which provide a rapid response capability from identification of pathogens to the delivery of medical countermeasures. Specifically, this project includes: the Critical Reagents Program (CRP), the Joint Vaccine Acquisition Program (JVAP) which includes vaccines for Recombinant Botulinum A/B and Plague, and The Transformational Medical Technology Initiative (TMTI) program.

The Critical Reagents Program's (CRP) strategy establishes a core research and development capability to develop biological threat agent, genomic reference materials (antigens, nucleic acids, and antibodies) and detection and diagnostic assays for biothreat agent detection that shall be horizontally inserted across multiple detection and diagnostic platforms. In addition, this strategy will implement a formal, validated advanced development process to transition new assays into production and integration with the appropriate detection/diagnostic platform.

The Transformational Medical Technologies Initiative (TMTI) was launched to respond to the threat of emerging or intentionally bioengineered biological threats. TMTI's mission is to protect the Warfighter from genetically engineered biological threats by providing a rapid response capability from identification of pathogens to the delivery of medical countermeasures. This mission is accomplished by developing broad spectrum (multi-agent) therapeutics against biological warfare (BW) agents (e.g, one drug that treats multiple agents). The development of broad spectrum therapeutics involves developing a capability to treat exposure to hemorrhagic fever viruses (HFVs) (e.g. Ebola virus) and intracellular bacterial pathogens (ICBs) (e.g. Tularemia). Efforts are further classified as host-directed therapeutics (e.g, drugs that target common pathways within a human to prevent or treat a variety of diseases) or pathogen-directed therapeutics (e.g., drugs that attack a common pathway found in multiple threat agents). Attrition is high throughout the drug development process. Less than 10% of all preclinical compounds become a licensed drug. Causes for attrition include scientific failures, Food and Drug Administration (FDA) rejection at major milestone reviews, and loss through down-selection at DoD Milestone Decision points. The development of medical countermeasures is an arduous process that requires extensive interaction with the FDA, from pre-clinical research to safety tests in human subjects (Phase I clinical studies), efficacy tests in humans/animals (Phase II clinical studies or pivotal animal efficacy studies), and expanded safety or efficacy studies (Phase III clinical studies), which culminate with a request to the FDA to license, market, and produce a drug. This interaction between the Department of Defense (DoD) and the FDA results in a coordinated, unified, and safe effort.

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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The Joint Vaccine Acquisition Program (JVAP) under Chemical Biological Medical Systems (CBMS) funds the EMD phase of vaccines that are directed against validated biological warfare (BW) weapons to include bacteria, viruses, and toxins of biological origin. Effective medical countermeasures to negate the threat of these BW agents are urgently needed. Vaccines have been identified as the most efficient countermeasure against the validated threat of BW weapons. Efforts for medical biological defense product development involve production scale-up studies and validation, non-clinical studies, consistency manufacturing, and expanded clinical human safety studies. The results of these efforts, and those conducted during the EMD phase, will be used to submit a Biologic License Application (BLA) to the Food and Drug Administration (FDA) for product licensure. To evaluate vaccine effectiveness, pivotal animal studies will be conducted concurrently with the Phase 3 clinical trial to satisfy the requirements of the FDA's "Animal Rule". Upon FDA licensure, the product will transition to full-scale licensed production. Products under development in this budget item include Recombinant Botulinum A/B and Plague vaccines.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) CRP | 2.217 | 1.158 | 1.278 | 0.000 | 1.278 |
| *FY 2009 Accomplishments:*<br>Developed biological threat agent reference materials (new strains of Yersinia and Burkholderia).<br>*FY 2010 Plans:*<br>Continue development/expansion of biological select agents reference materials to known and emerging threats.<br>*FY 2011 Base Plans:*<br>Continue development/expansion of biological select agents reference materials to known and emerging threats. | | | | | |
| 2) CRP | 1.127 | 0.679 | 0.733 | 0.000 | 0.733 |
| *FY 2009 Accomplishments:*<br>Integrated new assays into CRP Catalog (PCR FastBlock assays, Positive Plasmid Controls and ECL System Reagents). | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Continue development of immunoassays and nucleic acid based genomic assays to support fielded and developmental systems.<br><br>*FY 2011 Base Plans:*<br>Continue development of immunoassays and nucleic acid based genomic assays to support fielded and developmental systems. | | | | | |
| 3) CRP<br>*FY 2009 Accomplishments:*<br>Completed implementation of formal Quality Assurance/Quality Control(QA/QC) program to encompass systems engineering, validation, Development Testing (DT), and Operational Testing (OT) for the transition of fielding of biological detection assays.<br><br>*FY 2010 Plans:*<br>Continue QA/QC testing to encompass the transition and fielding of biological detection assays.<br><br>*FY 2011 Base Plans:*<br>Continue QA/QC testing to encompass the transition and fielding of biological detection assays. | 3.568 | 2.206 | 2.358 | 0.000 | 2.358 |
| 4) CRP<br>*FY 2009 Accomplishments:*<br>Continued development of guidelines to achieve International Organization for Standardization (ISO) for select biological threat agent reference materials.<br><br>*FY 2010 Plans:*<br>Finalize implementation plan to achieve ISO certification. | 0.523 | 0.312 | 0.337 | 0.000 | 0.337 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Achieve and maintain ISO certification. | | | | | |
| 5) TMTI<br>Broad Spectrum Medical Countermeasures: Activities during this phase will include Phase 2 clinical trials, which will test the efficacy of therapeutics. Because the therapeutics sought are for biological warfare (BW) indications, efficacy testing on humans cannot be performed and will be tested in animals only. Because of the lack of human efficacy data, trials in animals are considered to be "Pivotal Animal Efficacy Studies" and are most commonly performed on at least two species of animals, to include non-human primates. Activities will also include expanded human and animal safety and/or animal efficacy studies as directed by the Food and Drug Administration (FDA) to support a New Drug Application (NDA) submission.<br>*FY 2011 Base Plans:*<br>Initiate pivotal animal efficacy studies and any expanded safety or efficacy studies as directed by the FDA for up to three candidate drugs following review and approval of new drug candidates at Milestone B. Critical activities will include dose/schedule and administration, assay validation, and efficacy studies in animals to demonstrate a favorable impact on clinical endpoints. Final formulation and dose will be determined by these studies. Pending discussions with the FDA, additional data may be required beyond that collected in initial Phase I clinical studies and pivotal animal efficacy studies to satisfy safety and/or efficacy requirements for NDA submission and licensure. | 0.000 | 0.000 | 48.419 | 0.000 | 48.419 |
| 6) TMTI<br>Platform Technologies: Exercises will commence on the platform technologies as an integrated system, and the bioinformatics system, developed with Science and Technology (S&T) funding, to evaluate and determine their capacity to support TMTI's capability goals. Platform technologies will continue to be integrated. Platforms will be exercised and evaluated as a system. | 0.000 | 0.000 | 17.229 | 0.000 | 17.229 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Plan and execute up to two exercises and evaluations. Data will be collected into lessons learned and analyzed with the goal of improving the integration of the platforms. Analysis will be performed to develop a timeline for the response capability. Continue to evaluate the bioinformatics system for overall architecture, connectivity, processing capability, and user friendliness. Analyze lessons learned from each exercise and incorporate them into future exercises in order to improve countermeasure efficacy and shorten the time required to produce an approved countermeasure for an unknown or genetically modified pathogen. | | | | | |
| 7) JVAP - Recombinant Botulinum Vaccine<br>*FY 2009 Accomplishments:*<br>Completed execution of Phase 1b clinical trial. | 0.874 | 0.000 | 0.000 | 0.000 | 0.000 |
| 8) JVAP - Recombinant Botulinum Vaccine<br>*FY 2009 Accomplishments:*<br>Continued manufacturing process validation and validation of formulation, filled and finished process for serotypes A and B.<br>*FY 2010 Plans:*<br>Continue manufacturing process validation and validation of formulation, fill and finish process for serotypes A and B.<br>*FY 2011 Base Plans:*<br>Continue manufacturing process validation and validation of formulation, fill and finish process for serotypes A and B. | 18.059 | 22.874 | 28.668 | 0.000 | 28.668 |
| 9) JVAP - Recombinant Botulinum Vaccine | 1.053 | 2.788 | 5.323 | 0.000 | 5.323 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Continued non-clinical testing. Continued requirement for safeguarding biological select agents and toxins mandated by DoD Directive 5210.88.<br><br>*FY 2010 Plans:*<br>Continue non-clinical testing. Continue requirement for safeguarding biological select agents and toxins mandated by DoD Directive 5210.88.<br><br>*FY 2011 Base Plans:*<br>Continue non-clinical testing. Continue requirement for safeguarding biological select agents and toxins mandated by DoD Directive 5210.88. | | | | | |
| 10) JVAP - Recombinant Botulinum Vaccine<br>*FY 2009 Accomplishments:*<br>Continued Phase 2 clinical trial.<br><br>*FY 2010 Plans:*<br>Continue Phase 2 clinical trial.<br><br>*FY 2011 Base Plans:*<br>Continue Phase 2 clinical trial. | 9.378 | 4.979 | 2.139 | 0.000 | 2.139 |
| 11) JVAP - Plague Vaccine<br>*FY 2009 Accomplishments:*<br>Continued large scale manufacturing process development.<br><br>*FY 2010 Plans:*<br>Continue and complete large scale manufacturing process development. | 12.956 | 1.453 | 0.000 | 0.000 | 0.000 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 12) JVAP - Plague Vaccine | 11.492 | 9.948 | 9.913 | 0.000 | 9.913 |
| *FY 2009 Accomplishments:*<br>Continued non-clinical studies, to include additional FDA required passive transfer studies. Continued requirement for safeguarding biological select agents and toxins mandated by DoD Directive 5210.88.<br>*FY 2010 Plans:*<br>Continue non-clinical studies, to include additional FDA required passive transfer studies. Continue requirement for safeguarding biological select agents and toxins mandated by DoD Directive 5210.88.<br>*FY 2011 Base Plans:*<br>Continue non-clinical studies, to include additional FDA required passive transfer studies. Continue requirement for safeguarding biological select agents and toxins mandated by DoD Directive 5210.88. | | | | | |
| 13) JVAP - Plague Vaccine | 5.783 | 4.056 | 5.725 | 0.000 | 5.725 |
| *FY 2009 Accomplishments:*<br>Continued Phase 2 clinical trial.<br>*FY 2010 Plans:*<br>Continue Phase 2 clinical trial.<br>*FY 2011 Base Plans:*<br>Continue Phase 2 clinical trial. | | | | | |
| 14) JVAP - Plague Vaccine | 16.162 | 3.471 | 15.260 | 0.000 | 15.260 |
| *FY 2009 Accomplishments:*<br>Continued large scale manufacturing process validation. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Continue large scale manufacturing process validation.<br><br>*FY 2011 Base Plans:*<br>Continue large scale manufacturing process validation. | | | | | |
| 15) JVAP - Plague Vaccine<br>*FY 2009 Accomplishments:*<br>Provided strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contacting, scheduling, acquisition oversight and technical support.<br><br>*FY 2010 Plans:*<br>Provide strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contacting, scheduling, acquisition oversight and technical support.<br><br>*FY 2011 Base Plans:*<br>Provide strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contacting, scheduling, acquisition oversight and technical support. | 4.484 | 2.888 | 4.298 | 0.000 | 4.298 |
| 16) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.746 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 87.676 | 57.558 | 141.680 | 0.000 | 141.680 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JM0001: *JOINT BIO AGENT IDENT AND DIAG SYSTEM (JBAIDS)* | 0.479 | 0.000 | 5.571 | | 5.571 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • JX0005: *DOD BIOLOGICAL VACCINE PROCUREMENT* | 38.109 | 12.701 | 12.824 | | 12.824 | 3.385 | 3.466 | 56.416 | 98.759 | Continuing | Continuing |
| • JX0210: *CRITICAL REAGENTS PROGRAM (CRP)* | 0.000 | 0.000 | 0.994 | | 0.994 | 0.993 | 0.993 | 0.992 | 0.000 | Continuing | Continuing |
| • MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* | 7.910 | 102.437 | 136.975 | | 136.975 | 130.718 | 131.347 | 115.985 | 113.566 | Continuing | Continuing |

**D. Acquisition Strategy**

CRP

The Critical Reagents Program's (CRP) strategy establishes a core research and development capability to develop biological threat agent, genomic reference materials (antigens, nucleic acids, and antibodies) and detection and diagnostic assays for biothreat agent detection that shall be horizontally inserted across multiple detection and diagnostic platforms. In addition, this strategy will implement a formal, validated advanced development process to transition new assays into production and integration with the appropriate detection/diagnostic platform.

TMTI

Transformational Medical Technology Initiative's (TMTI) ultimate goal is the delivery of FDA-licensed, therapeutics to the Warfighter. This goal can be reached through any one of the following three acquisition approaches: 1) through the discovery of new drugs; 2) through application of new drug indications (i.e., through a commercial off-the-shelf (COTS) approach); or, 3) through the re-engineering of previously developed drugs (i.e., through a Modified COTS approach). This may involve FDA-approved drugs or previously developed drug compounds that do not have an FDA license. Each of these approaches will require different entry points into both the drug development process and the defense acquisition management timeline. Moreover, each of these approaches will likely experience a different set of FDA regulatory requirements. In order to execute the overall acquisition strategy, TMTI has partnered with other elements within the DoD Chemical and Biological Defense Program, DoD agencies, private industry, and other DoD laboratories for the development of TMTI products. The contract types used to execute the program will depend on the circumstances, including maturity of the science, the legalities surrounding Intellectual Property (IP) and patent rights, and even the

size of the performer. Cost Plus Fixed Fee and Cost Plus Incentive Fee contracts will be used with traditional or nontraditional defense contractors for most advanced development contracts. Finally, developing platform technologies, such as modeling and simulation to predict drug-to-drug interaction effects prior to actual clinical trials, and the use of genetic sequencing and a bioinformatics backbone, are examples of how TMTI managers intend to augment private industry best practices to streamline the program management, test and evaluation, and overall TMTI product development.

VAC BOT

A prime systems contractor will function as the "responsible head" and license holder and will perform all ancillary, regulatory, quality assurance, and data management as required by the FDA. The current budget supports development through FDA licensure of a recombinant bivalent (A and B) botulinum vaccine. Other serotypes will be developed through an evolutionary approach, as funding becomes available.

The management lead for the program shifted to Joint Vaccine Acquisition Program (JVAP) at Milestone A. The Advanced Component Development and Prototypes (ACD&P) phase included the manufacture of candidate current Good Manufacturing Practices (cGMP) lots, animal safety testing, and initial clinical trials. During this phase, the vaccine was evaluated for safety and immunogenicity in a small human trial (Phase 1).

During the Engineering and Manufacturing Development (EMD) phase, the JVAP prime systems contract (PSC) will stabilize the vaccine formulation, validate the manufacturing processes and testing protocols, optimize the delivery systems and manufacture consistency lots. Phase 2 clinical trials are performed during this phase to provide additional safety data and determine dose and schedule. The Phase 3 clinical trial also is conducted during this phase to demonstrate safety in an expanded volunteer population. To evaluate efficacy, pivotal animal studies will be conducted concurrently with the Phase 3 clinical trial to satisfy FDA requirements for the "Animal Rule." The Milestone C, also the Low Rate Initial Production (LRIP) decision, will be conducted after the manufacturing process has been validated and consistency lots have been produced. At the Milestone C, approval is granted to produce the Initial Operational Capability (IOC) of vaccine material. A Biologics Licensure Application is submitted to the FDA with all clinical, nonclinical, and manufacturing data. The FDA grants licensure to products that are determined to be safe and efficacious.

VAC PLG

Chemical Biological Medical Systems (CBMS) was mitigating technical program risk in the Plague Vaccine program by temporarily supporting development of both a US vaccine candidate and a United Kingdom vaccine candidate. During the 2008 Resource Allocation Decision, the US Plague Vaccine candidate was selected for development through licensure under JVAP's Prime Systems Contract. A Project Arrangement is in place with the United Kingdom and Canada.

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The management lead for the program shifted to JVAP at Milestone A. The Advanced Component Development and Prototypes (ACD&P) phase included the manufacture of candidate current Good Manufacturing Practices (cGMP) lots, animal safety testing, and initial clinical trials. During this phase, the vaccine was evaluated for safety and immunogenicity in a small human trial (Phase 1).

During the Engineering and Manufacturing Development phase (EMD), the vaccine developer will stabilize the vaccine formulation, validate the manufacturing processes and testing protocols, optimize the delivery systems, and manufacture consistency lots. Phase 2 clinical trials are performed during this phase to provide additional safety data and determine dose and schedule. The Phase 3 clinical trial is also conducted during this phase to demonstrate safety in an expanded volunteer population. To evaluate efficacy, pivotal animal studies will be conducted concurrently with the Phase 3 clinical trial to satisfy the requirements of the FDA's "Animal Rule." The Milestone C, also the Low Rate Initial Production (LRIP) decision, will be conducted after the manufacturing process has been validated and consistency lots have been produced. At the Milestone C, approval is granted to produce the Initial Operational Capability (IOC) of vaccine material. A Biologics Licensure Application is submitted to the FDA with all clinical, nonclinical, and manufacturing data. The FDA grants licensure to products that are determined to be safe and efficacious.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
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| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* | |

**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CRP - CRP - Scale-up of Select Biological Threat Agent Reference Materials | MIPR | USAMRIID Fort Detrick, MD & Dugway Proving Ground | 8.101 | 0.511 | Jan 2010 | 0.607 | Jan 2011 | 0.000 | | 0.607 | 0.000 | 9.219 | 0.000 |
| CRP - Development of Select Biological Threat Agent Reference Materials and Assays | MIPR | RDECOM Edgewood, MD | 1.538 | 0.151 | Jan 2010 | 0.159 | Jan 2011 | 0.000 | | 0.159 | 0.000 | 1.848 | 0.000 |
| ** TMTI - HW C - Therapeutic development | C/CPIF | TBD Contract #1 | 0.000 | 0.000 | | 8.493 | Apr 2011 | 0.000 | | 8.493 | 0.000 | 8.493 | 0.000 |
| HW C - Therapeutic development | C/CPIF | TBD Contract #2 | 0.000 | 0.000 | | 8.493 | Apr 2011 | 0.000 | | 8.493 | 0.000 | 8.493 | 0.000 |
| SW S - Technologies | C/CPIF | TBD Technologies | 0.000 | 0.000 | | 6.044 | Apr 2011 | 0.000 | | 6.044 | 0.000 | 6.044 | 0.000 |
| ** VAC BOT - Manufacturing, Validation and Consistency Lot Production | C/CPAF | DynPort Vaccine Company Frederick, MD | 16.175 | 12.470 | Jan 2010 | 14.554 | Jan 2011 | 0.000 | | 14.554 | 0.000 | 43.199 | 0.000 |
| ** VAC PLG - Manufacturing, Validation, and Consistency Lot Production | C/CPAF | DynPort Vaccine Company Frederick, MD | 66.552 | 5.261 | Jan 2010 | 13.743 | Jan 2011 | 0.000 | | 13.743 | 0.000 | 85.556 | 0.000 |
| | | **Subtotal** | 92.366 | 18.393 | | 52.093 | | 0.000 | | 52.093 | 0.000 | 162.852 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* | |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2010 Cost | FY 2010 Award Date | FY 2011 Base Cost | FY 2011 Base Award Date | FY 2011 OCO Cost | FY 2011 OCO Award Date | FY 2011 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Remarks**

RDECOM - Research, Development & Engineering Command
USAMRIID - US Army Medical Research Institute of Infectious Disease
NMRC - Naval Medical Research Center
USAMRIID - US Army Medical Research Institute of Infectious Diseases
DPG - Dugway Proving Ground

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2010 Cost | FY 2010 Award Date | FY 2011 Base Cost | FY 2011 Base Award Date | FY 2011 OCO Cost | FY 2011 OCO Award Date | FY 2011 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CRP - CRP - Select Biological Threat Agent Reference Material Regulatory /Quality Assurance (QA) Support | MIPR | DTIC Edgewood, MD | 0.556 | 0.090 | Jan 2010 | 0.095 | Jan 2011 | 0.000 | | 0.095 | 0.000 | 0.741 | 0.000 |
| CRP - Select Biological Threat Agent Reference Material Support | MIPR | USAMRIID Fort Detrick, MD; RDECOM | 2.290 | 0.294 | Jan 2010 | 0.309 | Jan 2011 | 0.000 | | 0.309 | 0.000 | 2.893 | 0.000 |
| CRP - Select Biological Threat Agent Reference Material Regulatory/ Quality Assurance (QA) Support | MIPR | Dugway Proving Ground Dugway, UT | 1.171 | 0.131 | Jan 2010 | 0.138 | Jan 2011 | 0.000 | | 0.138 | 0.000 | 1.440 | 0.000 |
| | C/CPIF | TBD Contract #1 | 0.000 | 0.000 | | 6.066 | Apr 2011 | 0.000 | | 6.066 | 0.000 | 6.066 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* |

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** TMTI - ES C - Regulatory Integration (Environmental and FDA Documentation) and Delivery System | | | | | | | | | | | | | |
| ES C - Regulatory Integration (Environmental and FDA Documentation) and Delivery System | C/CPIF | TBD Contract #2 | 0.000 | 0.000 | | 6.071 | Apr 2011 | 0.000 | | 6.071 | 0.000 | 6.071 | 0.000 |
| TD/D C - Technologies | C/CPIF | TBD Technologies | 0.000 | 0.000 | | 4.317 | Apr 2011 | 0.000 | | 4.317 | 0.000 | 4.317 | 0.000 |
| ** VAC BOT - Regulatory Integration (Environmental and FDA Documentation) and Delivery System | C/CPAF | DynPort Vaccine Company Frederick, MD | 2.909 | 1.559 | Jan 2010 | 1.819 | Jan 2011 | 0.000 | | 1.819 | 0.000 | 6.287 | 0.000 |
| ** VAC PLG - Regulatory Integration (Environmental and FDA Documentation) and Delivery System | C/CPAF | DynPort Vaccine Company Frederick, MD | 11.631 | 1.155 | Jan 2010 | 1.418 | Jan 2011 | 0.000 | | 1.418 | 0.000 | 14.204 | 0.000 |
| | | **Subtotal** | 18.557 | 3.229 | | 20.233 | | 0.000 | | 20.233 | 0.000 | 42.019 | 0.000 |

**Remarks**

DTIC - Defense Technical Information Center
NMRC - Naval Medical Research Center
RDECOM - Research, Development & Engineering Command

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* | |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2010 Cost | FY 2010 Award Date | FY 2011 Base Cost | FY 2011 Base Award Date | FY 2011 OCO Cost | FY 2011 OCO Award Date | FY 2011 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| USAMRIID - US Army Medical Research Institute of Infectious Diseases<br>DPG - Dugway Proving Ground | | | | | | | | | | | | | |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2010 Cost | FY 2010 Award Date | FY 2011 Base Cost | FY 2011 Base Award Date | FY 2011 OCO Cost | FY 2011 OCO Award Date | FY 2011 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CRP - CRP - Conformance Testing of Select Biological Threat Agent Reference Materials and Assays | MIPR | Naval Medical Research Center Silver Spring, MD | 2.333 | 0.162 | Jan 2010 | 0.206 | Jan 2011 | 0.000 | | 0.206 | 0.000 | 2.701 | 0.000 |
| CRP - Test & Evaluation of Select Biological Threat Agent Reference Materials and Assays | MIPR | USAMRIID Frederick, MD | 3.143 | 0.222 | Jan 2010 | 0.282 | Jan 2011 | 0.000 | | 0.282 | 0.000 | 3.647 | 0.000 |
| CRP - Validation Program | C/CPFF | TBD | 5.431 | 0.597 | Apr 2010 | 0.740 | Apr 2011 | 0.000 | | 0.740 | 0.000 | 6.768 | 0.000 |
| ** TMTI - DTE C - Phase II and III Testing | C/CPIF | TBD Contract #1 | 0.000 | 0.000 | | 9.706 | Apr 2011 | 0.000 | | 9.706 | 0.000 | 9.706 | 0.000 |
| DTE C - Phase II and III Testing | C/CPIF | TBD Contract #2 | 0.000 | 0.000 | | 9.706 | Apr 2011 | 0.000 | | 9.706 | 0.000 | 9.706 | 0.000 |
| Technologies | C/CPIF | TBD Technologies | 0.000 | 0.000 | | 6.752 | Apr 2011 | 0.000 | | 6.752 | 0.000 | 6.752 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* |

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** VAC BOT - Testing, Evaluation, and Clinical Trials | C/CPAF | DynPort Vaccine Company Frederick, MD | 14.883 | 10.378 | Jan 2010 | 12.479 | Jan 2011 | 0.000 | | 12.479 | 0.000 | 37.740 | 0.000 |
| ** VAC PLG - Testing, Evaluation, and Clinical Trials | C/CPAF | DynPort Vaccine Company Frederick, MD | 55.678 | 8.181 | Jan 2010 | 11.174 | Jan 2011 | 0.000 | | 11.174 | 0.000 | 75.033 | 0.000 |
| | | **Subtotal** | 81.468 | 19.540 | | 51.045 | | 0.000 | | 51.045 | 0.000 | 152.053 | 0.000 |

**Remarks**

DTIC - Defense Technical Information Center
NMRC - Naval Medical Research Center
RDECOM - Research, Development & Engineering Command
USAMRIID - US Army Medical Research Institute of Infectious Diseases

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** CRP - Product Management Support | Allot | CBMS Frederick, MD | 0.924 | 0.365 | Oct 2009 | 0.541 | Oct 2010 | 0.000 | | 0.541 | 0.000 | 1.830 | 0.000 |
| Product Management Support | SS/FFP | Goldbelt Raven LLC, Frederick | 3.079 | 1.493 | Jan 2010 | 1.444 | Jan 2011 | 0.000 | | 1.444 | 0.000 | 6.016 | 0.000 |
| Chem Bio Medical Systems Office | Allot | CBMS Frederick, MD | 2.285 | 0.249 | Jul 2010 | 0.180 | Jul 2011 | 0.000 | | 0.180 | 0.000 | 2.714 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* |

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| IT, Facility and Security Support | MIPR | RDECOM Edgewood, MD | 0.194 | 0.090 | Jan 2010 | 0.005 | Jan 2011 | 0.000 | | 0.005 | 0.000 | 0.289 | 0.000 |
| ** VAC BOT - PM/ MS S - Joint Vaccine Acquisition Program Management | Allot | CBMS Frederick, MD | 0.349 | 1.543 | Jul 2010 | 2.738 | Jul 2011 | 0.000 | | 2.738 | 0.000 | 4.630 | 0.000 |
| PM/MS S - Contractor Systems Engineering/ Program Management Support | SS/FFP | Goldbelt Raven LLC, Frederick | 2.983 | 1.805 | Apr 2010 | 1.163 | Apr 2011 | 0.000 | | 1.163 | 0.000 | 5.951 | 0.000 |
| PM/MS S - Award Fee (Maximum 10.5%) | C/CPAF | DynPort Vaccine Company Frederick, MD | 3.691 | 2.886 | Jan 2010 | 3.377 | Jan 2011 | 0.000 | | 3.377 | 0.000 | 9.954 | 0.000 |
| ** VAC PLG - PM/MS S - Joint Vaccine Acquisition Program Management Office | Allot | CBMS Frederick, MD | 4.977 | 0.960 | Jan 2010 | 1.577 | Jan 2011 | 0.000 | | 1.577 | 0.000 | 7.514 | 0.000 |
| PM/MS S - Program Management Support | Allot | JPEO Falls Church, VA | 6.225 | 2.888 | Jul 2010 | 3.534 | Jul 2011 | 0.000 | | 3.534 | 0.000 | 12.647 | 0.000 |
| PM/MS S - Contractor Systems Engineering/ Program Management Support #2 | SS/FFP | Goldbelt Raven LLC, Frederick | 7.870 | 0.851 | Apr 2010 | 1.576 | Apr 2011 | 0.000 | | 1.576 | 0.000 | 10.297 | 0.000 |
| PM/MS S - Award Fee (Maximum 10.5%) #2 | C/CPAF | DynPort Vaccine Company Frederick, MD | 10.860 | 2.520 | Jan 2010 | 2.174 | Jan 2011 | 0.000 | | 2.174 | 0.000 | 15.554 | 0.000 |
| | MIPR | HQ | 0.000 | 0.746 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.746 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
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**Management Services ($ in Millions)**

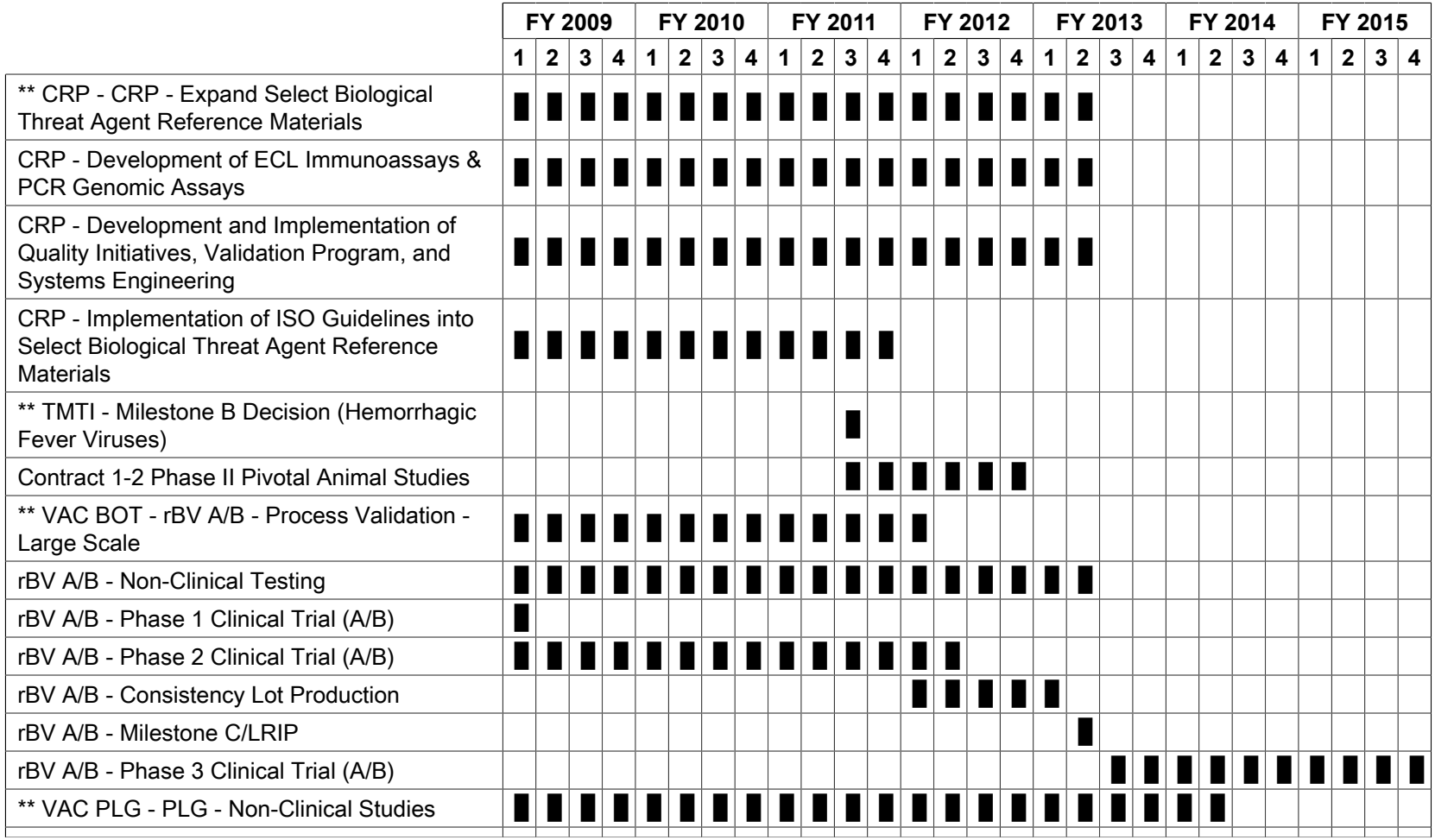
| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | | AMC, Alexandria | | | | | | | | | | | |
| | | Subtotal | 43.437 | 16.396 | | 18.309 | | 0.000 | | 18.309 | 0.000 | 78.142 | 0.000 |

**Remarks**

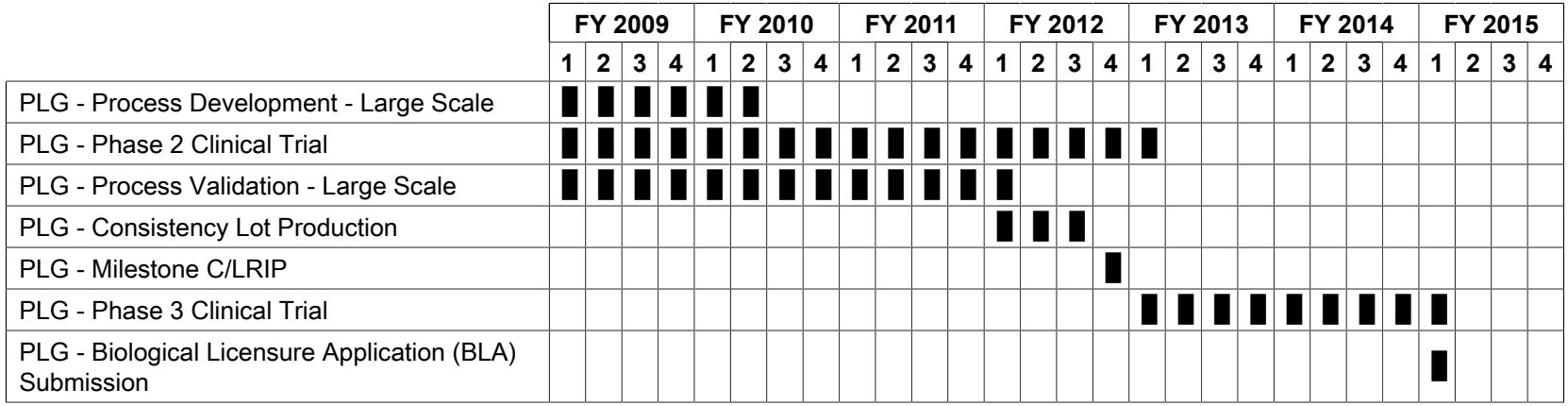
| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | 235.828 | 57.558 | | 141.680 | | 0.000 | | 141.680 | 0.000 | 435.066 | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* | |



| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* | |



| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | **R-1 ITEM NOMENCLATURE**<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | **PROJECT**<br>MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** CRP - CRP - Expand Select Biological Threat Agent Reference Materials | 4 | 2003 | 2 | 2013 |
| CRP - Development of ECL Immunoassays & PCR Genomic Assays | 1 | 2003 | 2 | 2013 |
| CRP - Development and Implementation of Quality Initiatives, Validation Program, and Systems Engineering | 4 | 2006 | 2 | 2013 |
| CRP - Implementation of ISO Guidelines into Select Biological Threat Agent Reference Materials | 3 | 2007 | 4 | 2011 |
| ** TMTI - Milestone B Decision (Hemorrhagic Fever Viruses) | 3 | 2011 | 3 | 2011 |
| Contract 1-2 Phase II Pivotal Animal Studies | 3 | 2011 | 4 | 2012 |
| ** VAC BOT - rBV A/B - Process Validation - Large Scale | 1 | 2002 | 1 | 2012 |
| rBV A/B - Non-Clinical Testing | 2 | 2003 | 2 | 2013 |
| rBV A/B - Phase 1 Clinical Trial (A/B) | 3 | 2004 | 1 | 2009 |
| rBV A/B - Phase 2 Clinical Trial (A/B) | 4 | 2008 | 2 | 2012 |
| rBV A/B - Consistency Lot Production | 1 | 2012 | 1 | 2013 |
| rBV A/B - Milestone C/LRIP | 2 | 2013 | 2 | 2013 |
| rBV A/B - Phase 3 Clinical Trial (A/B) | 3 | 2013 | 1 | 2016 |
| ** VAC PLG - PLG - Non-Clinical Studies | 2 | 2003 | 2 | 2014 |
| PLG - Process Development - Large Scale | 4 | 2004 | 2 | 2010 |
| PLG - Phase 2 Clinical Trial | 3 | 2006 | 1 | 2013 |
| PLG - Process Validation - Large Scale | 4 | 2007 | 1 | 2012 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* |

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| PLG - Consistency Lot Production | 1 | 2012 | 3 | 2012 |
| PLG - Milestone C/LRIP | 4 | 2012 | 4 | 2012 |
| PLG - Phase 3 Clinical Trial | 1 | 2013 | 1 | 2015 |
| PLG - Biological Licensure Application (BLA) Submission | 1 | 2015 | 1 | 2015 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* | 14.203 | 14.027 | 51.856 | 0.000 | 51.856 | 47.835 | 28.771 | 12.122 | 8.171 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This project funds the development of medical materiel and other medical equipment items necessary to provide an effective capability for medical defense against chemical agent threats facing U.S. forces in the field. This project supports efforts in the Engineering and Manufacturing Development (EMD) phase of the acquisition strategy for prophylactic and therapeutic drugs, diagnostic equipment, and other life support equipment for protection against and management of chemical warfare agents. Project funds research and development of safety studies, manufacturing scale-up, process validation, drug interaction, performance test, and submission of the Food and Drug Administration (FDA) drug licensure application(s). This program currently funds: (1) Advanced Anticonvulsant System (AAS), which will be used as a treatment for seizures from exposure to nerve agents; (2) Bioscavenger Increment 2 (BSCAV Increment 2), which will be used as a prophylaxis against nerve agents; (3) Inhalational Atropine (IA), which will be used to treat continuing nerve agent-induced effects after the patient has been evacuated to a medical treatment facility; (4) Improved Nerve Agent Treatment System (INATS), which will be used as a treatment for nerve agent intoxication to include new indications for Pyridostigmine Bromide (PB) that will be integrated with current therapeutic regimens; and (5) Pharmaceutical Post Approval and Development Support (PPADS) - Soman Nerve Agent Pyriodstigmine Pretreatment (SNAPP) used as a pretreatment against nerve agent poisoning. Time Temperature Indicators (TTI), Item Unique Identification (IUID), and Radio-Frequency Identification (RFID) will be part of the development effort for incorporation on all medical countermeasures being developed by CBMS-MITS. A TTI is a human readable tab that will provide the Warfighter immediate knowledge if the product is still useable or not. IUID and RFID labels placed on the product will improve inventory management and strategic purchasing, and enable reliable visibility, and capability-based operational readiness.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) AAS | 3.491 | 0.176 | 0.000 | 0.000 | 0.000 |
| *FY 2009 Accomplishments:*<br>Continued Phase 2 clinical safety studies. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Complete Phase 2 clinical safety studies. | | | | | |
| 2) AAS<br>*FY 2009 Accomplishments:*<br>Continued process development and current Good Manufacturing Practices (cGMP) requirements.<br>*FY 2010 Plans:*<br>Continue process development and current Good Manufacturing Practices (cGMP) requirements.<br>*FY 2011 Base Plans:*<br>Continue process development and current Good Manufacturing Practices (cGMP) requirements. | 3.118 | 0.675 | 1.881 | 0.000 | 1.881 |
| 3) AAS<br>*FY 2009 Accomplishments:*<br>Continued Good Laboratory Practices (GLP) animal efficacy studies.<br>*FY 2010 Plans:*<br>Complete Good Laboratory Practices (GLP) animal efficacy studies. | 3.865 | 0.293 | 0.000 | 0.000 | 0.000 |
| 4) AAS<br>*FY 2009 Accomplishments:*<br>Completed formulation and toxicology studies. | 0.946 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5) AAS<br>*FY 2009 Accomplishments:*<br>Continued Developmental Testing/Operational Testing (DT/OT) of packaging. | 0.334 | 0.281 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Complete Developmental Testing/Operational Testing (DT/OT) of packaging. | | | | | |
| 6) AAS<br>*FY 2009 Accomplishments:*<br>Initiated New Drug Application (NDA).<br>*FY 2010 Plans:*<br>Continue New Drug Application (NDA).<br>*FY 2011 Base Plans:*<br>Complete New Drug Application (NDA). | 1.093 | 1.963 | 0.628 | 0.000 | 0.628 |
| 7) BSCAV<br>*FY 2010 Plans:*<br>Continue large scale manufacturing, process qualification, and validation.<br>*FY 2011 Base Plans:*<br>Continue large scale manufacturing, process qualification, and validation. | 0.000 | 5.061 | 7.487 | 0.000 | 7.487 |
| 8) BSCAV<br>*FY 2010 Plans:*<br>Initiate Good Laboratory Practices (GLP) animal efficacy studies.<br>*FY 2011 Base Plans:*<br>Continue Good Laboratory Practices (GLP) animal efficacy studies. | 0.000 | 1.037 | 6.398 | 0.000 | 6.398 |
| 9) BSCAV | 0.000 | 0.000 | 0.515 | 0.000 | 0.515 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Initiate Phase 2 clinical safety studies. | | | | | |
| 10) BSCAV<br>*FY 2011 Base Plans:*<br>Initiate BLA preparation and submission to Food and Drug Administration (FDA). | 0.000 | 0.000 | 1.050 | 0.000 | 1.050 |
| 11) BSCAV<br>NTA<br>*FY 2011 Base Plans:*<br>Initiate GLP animal studies to demonstrate efficacy against a broad spectrum of nerve agents including non-traditional agents. | 0.000 | 0.000 | 8.878 | 0.000 | 8.878 |
| 12) BSCAV<br>BSCAV<br>*FY 2010 Plans:*<br>Initiate proof of concept studies for alternative manufacturing technology.<br>*FY 2011 Base Plans:*<br>Continue proof of concept studies for alternative manufacturing technology. | 0.000 | 0.800 | 1.005 | 0.000 | 1.005 |
| 13) IA<br>*FY 2011 Base Plans:*<br>Continue process development and current Good Manufacturing Practices (cGMP) requirements. | 0.000 | 0.000 | 1.605 | 0.000 | 1.605 |
| 14) Inhalational Atropine (IA) | 0.000 | 0.000 | 0.900 | 0.000 | 0.900 |

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|---|---|---|
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Continue formulation, analytical methods, and device development. | | | | | |
| 15) INATS<br>*FY 2010 Plans:*<br>Initiate Phase 1 clinical trial.<br>*FY 2011 Base Plans:*<br>Complete Phase 1 clinical trial. | 0.000 | 2.823 | 0.680 | 0.000 | 0.680 |
| 16) INATS<br>*FY 2011 Base Plans:*<br>Initiate oxime candidate Current Good Manufacturing Practice (cGMP) manufacturing and large scale process validation and qualification requirements and stability in autoinjector. | 0.000 | 0.000 | 4.863 | 0.000 | 4.863 |
| 17) INATS<br>*FY 2011 Base Plans:*<br>Initiate Good Laboratory Practices (GLP) definitive animal efficacy studies. | 0.000 | 0.000 | 2.645 | 0.000 | 2.645 |
| 18) INATS<br>*FY 2011 Base Plans:*<br>Initiate and continue Phase 2 clinical safety studies. | 0.000 | 0.000 | 2.225 | 0.000 | 2.225 |
| 19) INATS | 1.016 | 0.000 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Provided strategic/tactical planning, government systems engineering, program/financial management, costing, technology, assessment, contracting, scheduling, acquisition oversight and technology support. | | | | | |
| 20) INATS<br>*FY 2011 Base Plans:*<br>Initiate New Drug Application (NDA) preparation. | 0.000 | 0.000 | 0.600 | 0.000 | 0.600 |
| 21) INATS<br>INATS - Test candidate oxime against non-traditional agents.<br>*FY 2011 Base Plans:*<br>INATS - Test candidate oxime against non-traditional agents. | 0.000 | 0.000 | 10.496 | 0.000 | 10.496 |
| 22) PPADS<br>*FY 2010 Plans:*<br>Develop a Time Temperature Indicator (TTI) capability for Soman Nerve Agent Pre-Treatment Pyridostigmine to provide visual indicator of product reliability. | 0.000 | 0.738 | 0.000 | 0.000 | 0.000 |
| 23) PPADS<br>*FY 2009 Accomplishments:*<br>Initiated development of a cGMP process for the production of Sodium Thiosulfate and Sodium Nitrite as part of the cyanide antidote kit. | 0.340 | 0.000 | 0.000 | 0.000 | 0.000 |
| 24) SBIR | 0.000 | 0.180 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Small Business Innovative Research. | | | | | |
| Accomplishments/Planned Programs Subtotals | 14.203 | 14.027 | 51.856 | 0.000 | 51.856 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JM6500: *INHALATIONAL ATROPINE (IA)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.496 | 0.991 | Continuing | Continuing |
| • JM6555: *IMPROVED NERVE AGENT TREATMENT SYSTEM (INATS)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 3.966 | 4.954 | Continuing | Continuing |
| • JM6677: *ADVANCED ANTICONVULSANT SYSTEM (AAS)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 4.466 | 9.126 | 5.187 | Continuing | Continuing |

**D. Acquisition Strategy**

AAS

The Advanced Anticonvulsant System (AAS) will consist of the drug midazolam in an autoinjector. Midazolam, injected intramuscularly, will treat against seizures and prevent subsequent neurological damage caused by exposure to nerve agents. Midazolam is more water-soluble than diazepam (the currently fielded medication to control nerve agent-induced seizures) and terminates nerve agent-induced seizures more quickly than diazepam. AAS will not eliminate the need for other protective and therapeutic systems. AAS will be a replacement for the currently-fielded Convulsant Antidote, Nerve Agent (CANA) autoinjector, which uses diazepam.

BSCAV

The Bioscavenger acquisition strategy consists of a developmental program with three distinct increments.

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| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* |

Increment 1 is butyrylcholinesterase purified from human plasma (i.e., plasma-derived Bioscavenger or pBioscavenger). The Medical Identification and Treatment Systems (MITS) Joint Product Management Office exercises management oversight, and a commercial partner serves as the system integrator during the Technology Development Phase, which includes small scale manufacturing, pre-clinical animal studies, Investigational New Drug (IND) application, and Phase 1 human clinical safety studies.

The Bioscavenger Increment 2 strategy includes a proof-of-concept study followed by an initial down-selection between two different technologies: Recombinant human butyrylcholinesterase (rHuBChE) and small synthetic molecule, awarded to two different contractors. The chosen technology, rHuBChE, will continue to a formal down-selection with the plasma-derived Bioscavenger at Milestone B prior to transition to the Engineering and Manufacturing Development (EMD) phase. Following Milestone B into EMD, MITS will continue to exercise management oversight with system integration support of a commercial partner to ensure manufacturing of the product is in accordance with Food and Drug Administration (FDA) regulations and guidelines. Prior to FDA licensure, the commercial partner will perform a Phase 2 human clinical safety study, definitive animal efficacy studies, and toxicology studies. The SDD phase will culminate in obtaining FDA licensure of the Bioscavenger. During the Production and Deployment phase, the MITS JPMO, in conjunction with a commercial partner, will pursue full rate and stockpile production and conduct any FDA-mandated post-marketing surveillance.

Unlike Bioscavenger Increment 1 and 2 technology, where the Bioscavenger becomes ineffective after binding with nerve agents, Increment 3 will include products that continuously degrade nerve agents while retaining their effectiveness (catalytic Bioscavenger). Because the technology for Increment 3 is immature, a candidate product will not be ready for transition to advanced development until late in the next decade. Therefore, CBMS MITS is exploring alternative technologies to reduce the costs of producing Bioscavenger Increment 2.

IA

Medical Identification and Treatment Systems (MITS) Joint Product Management Office (JPMO) will manage the development of Inhalational Atropine (IA) for the DoD. For this Advanced Development effort, the competitively selected contractor will serve as the systems integrator throughout development and shall be responsible for conducting the activities associated with drug development in a manner consistent with eventual approval by the Food and Drug Administration (FDA), including: human clinical safety studies; pharmacokinetic studies; and validated manufacturing. The contractor shall sponsor the drug product to the FDA and hold all approvals and/or licenses.

INATS

Medical Identification and Treatment Systems (MITS) Joint Product Management Office will serve as the system integrator during the Technology Development Phase that includes pre-clinical animal studies and Phase 1 human clinical safety studies. After Milestone B, during the System Development and Demonstration Phase,

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MITS and/or a commercial partner (product dependent) will serve as the system integrator to ensure that products are manufactured in accordance with Food and Drug Administration (FDA) regulations and guidelines, appropriate Phase 2 human clinical safety and definitive animal efficacy studies are conducted, and required toxicology studies are performed. During the Production and Deployment Phase, FDA approval will be obtained and full rate and stockpile production will be pursued. Any FDA mandated post-marketing surveillance will be conducted.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
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**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** AAS - AAS - cGMP Manufacturing Requirements | C/CPIF | Meridian Medical Technologies Columbia, MD | 11.018 | 1.409 | Jan 2010 | 1.029 | Jan 2011 | 0.000 | | 1.029 | 0.000 | 13.456 | 0.000 |
| ** BSCAV - BSCAV Inc 2 - cGMP Manufacturing | C/CPIF | TBD | 0.000 | 2.714 | Apr 2010 | 6.010 | Jan 2011 | 0.000 | | 6.010 | 0.000 | 8.724 | 0.000 |
| ** IA - cGMP Manufacturing requirements | C/CPIF | TBD | 0.000 | 0.000 | | 0.945 | Jan 2011 | 0.000 | | 0.945 | 0.000 | 0.945 | 0.000 |
| ** INATS - INATS - cGMP Manufacturing | C/CPIF | TBD | 0.000 | 1.597 | Jan 2010 | 2.912 | Jan 2011 | 0.000 | | 2.912 | 0.000 | 4.509 | 0.000 |
| INATS - NTA Study | C/CPIF | TBD | 0.000 | 0.000 | | 10.496 | Jan 2011 | 0.000 | | 10.496 | 0.000 | 10.496 | 0.000 |
| | | Subtotal | 11.018 | 5.720 | | 21.392 | | 0.000 | | 21.392 | 0.000 | 38.130 | 0.000 |

**Remarks**

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** AAS - AAS - Regulatory Integration and NDA Support Efforts | C/CPIF | Meridian Medical Technologies Columbia, MD | 4.018 | 0.529 | Jan 2010 | 0.391 | Jan 2011 | 0.000 | | 0.391 | 0.000 | 4.938 | 0.000 |
| | C/CPIF | TBD | 0.000 | 1.075 | Apr 2010 | 2.626 | Jan 2011 | 0.000 | | 2.626 | 0.000 | 3.701 | 0.000 |

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**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** BSCAV - BSCAV Inc 2 - Regulatory Integration & Biologics License Application (BLA) Support Efforts | | | | | | | | | | | | | |
| ** IA - Regulatory Integration and NDA support efforts | C/CPIF | TBD | 0.000 | 0.000 | | 0.390 | Jan 2011 | 0.000 | | 0.390 | 0.000 | 0.390 | 0.000 |
| ** INATS - INATS - Regulatory Integration and NDA Support Efforts | C/CPIF | TBD | 0.000 | 0.543 | Jan 2010 | 1.092 | Jan 2011 | 0.000 | | 1.092 | 0.000 | 1.635 | 0.000 |
| | | Subtotal | 4.018 | 2.147 | | 4.499 | | 0.000 | | 4.499 | 0.000 | 10.664 | 0.000 |

**Remarks**

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** AAS - AAS - GLP Animal Efficacy Studies | C/CPFF | Battelle Memorial Institute Columbus, OH | 2.949 | 0.921 | Jan 2010 | 0.698 | Jan 2011 | 0.000 | | 0.698 | 0.000 | 4.568 | 0.000 |
| ** BSCAV - BSCAV Inc 2 - Phase 2 Clinical | C/CPIF | TBD | 0.000 | 2.034 | Apr 2010 | 6.193 | Jan 2011 | 0.000 | | 6.193 | 0.000 | 8.227 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* |

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Safety and GLP Animal Efficacy Studies | | | | | | | | | | | | | |
| BSCAV Inc 2 - Animal Efficacy Studies | C/CPIF | TBD | 0.000 | 0.000 | | 8.878 | Jan 2011 | 0.000 | | 8.878 | 0.000 | 8.878 | 0.000 |
| ** IA - Formulation and device development studies | C/CPIF | TBD | 0.000 | 0.000 | | 0.780 | Jan 2011 | 0.000 | | 0.780 | 0.000 | 0.780 | 0.000 |
| ** INATS - INATS - GLP Animal Efficacy & Phase 2 Clinical Safety Studies | C/CPIF | TBD | 0.000 | 0.410 | Jul 2010 | 3.963 | Apr 2011 | 0.000 | | 3.963 | 0.000 | 4.373 | 0.000 |
| INATS - Large Scale Manufacturing | C/CPIF | TBD | 0.000 | 0.000 | | 0.881 | Apr 2011 | 0.000 | | 0.881 | 0.000 | 0.881 | 0.000 |
| ** PPADS - PPADS - Time Temperature Indicator (TTI) Capability | C/CPIF | TBD | 0.000 | 0.738 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.738 | 0.000 |
| | | Subtotal | 2.949 | 4.103 | | 21.393 | | 0.000 | | 21.393 | 0.000 | 28.445 | 0.000 |

**Remarks**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** AAS - AAS - Product Management Support | MIPR | USAMMDA Fort Detrick, MD | 0.689 | 0.165 | Jan 2010 | 0.170 | Jan 2011 | 0.000 | | 0.170 | 0.000 | 1.024 | 0.000 |
| AAS - Chem Bio Medical Systems | Allot | CBMS Frederick, MD | 1.127 | 0.364 | Apr 2010 | 0.221 | Jan 2011 | 0.000 | | 0.221 | 0.000 | 1.712 | 0.000 |
| ** BSCAV - BSCAV Inc 2 - Product Management Support | SS/FFP | Goldbelt Raven LLC, Frederick | 0.000 | 0.502 | Apr 2010 | 0.825 | Jan 2011 | 0.000 | | 0.825 | 0.000 | 1.327 | 0.000 |
| BSCAV Inc 2 - Chem Bio Medical Systems | Allot | CBMS Frederick, MD | 0.000 | 0.054 | Apr 2010 | 0.081 | Apr 2011 | 0.000 | | 0.081 | 0.000 | 0.135 | 0.000 |
| BSCAV Inc 2 - Joint Program Executive Office | Allot | JPEO Falls Church, VA | 0.000 | 0.358 | Apr 2010 | 0.542 | Jan 2011 | 0.000 | | 0.542 | 0.000 | 0.900 | 0.000 |
| USAMMDA, Fort Detrick, MD | Allot | Fort Detrick MD | 0.000 | 0.161 | Apr 2010 | 0.178 | Apr 2011 | 0.000 | | 0.178 | 0.000 | 0.339 | 0.000 |
| ** IA - IA - Management Support | Allot | CBMS Frederick, MD | 0.000 | 0.000 | | 0.260 | Jan 2011 | 0.000 | | 0.260 | 0.000 | 0.260 | 0.000 |
| IA - Management Support | Allot | JPEO Falls Church, VA | 0.000 | 0.000 | | 0.130 | Jan 2011 | 0.000 | | 0.130 | 0.000 | 0.130 | 0.000 |
| ** INATS - INATS - Product Management Support | SS/FFP | Goldbelt Raven LLC, Frederick | 0.000 | 0.000 | | 0.705 | Jan 2011 | 0.000 | | 0.705 | 0.000 | 0.705 | 0.000 |
| INATS - Product Management Support | MIPR | USAMMDA Fort Detrick, MD | 0.000 | 0.000 | | 0.160 | Apr 2011 | 0.000 | | 0.160 | 0.000 | 0.160 | 0.000 |
| INATS - Chem Bio Medical Systems | Allot | CBMS Frederick, MD | 0.000 | 0.273 | Jan 2010 | 0.300 | Jan 2011 | 0.000 | | 0.300 | 0.000 | 0.573 | 0.000 |
| | Allot | JPEO | 1.016 | 0.000 | | 1.000 | Jan 2011 | 0.000 | | 1.000 | 0.000 | 2.016 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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**Management Services ($ in Millions)**

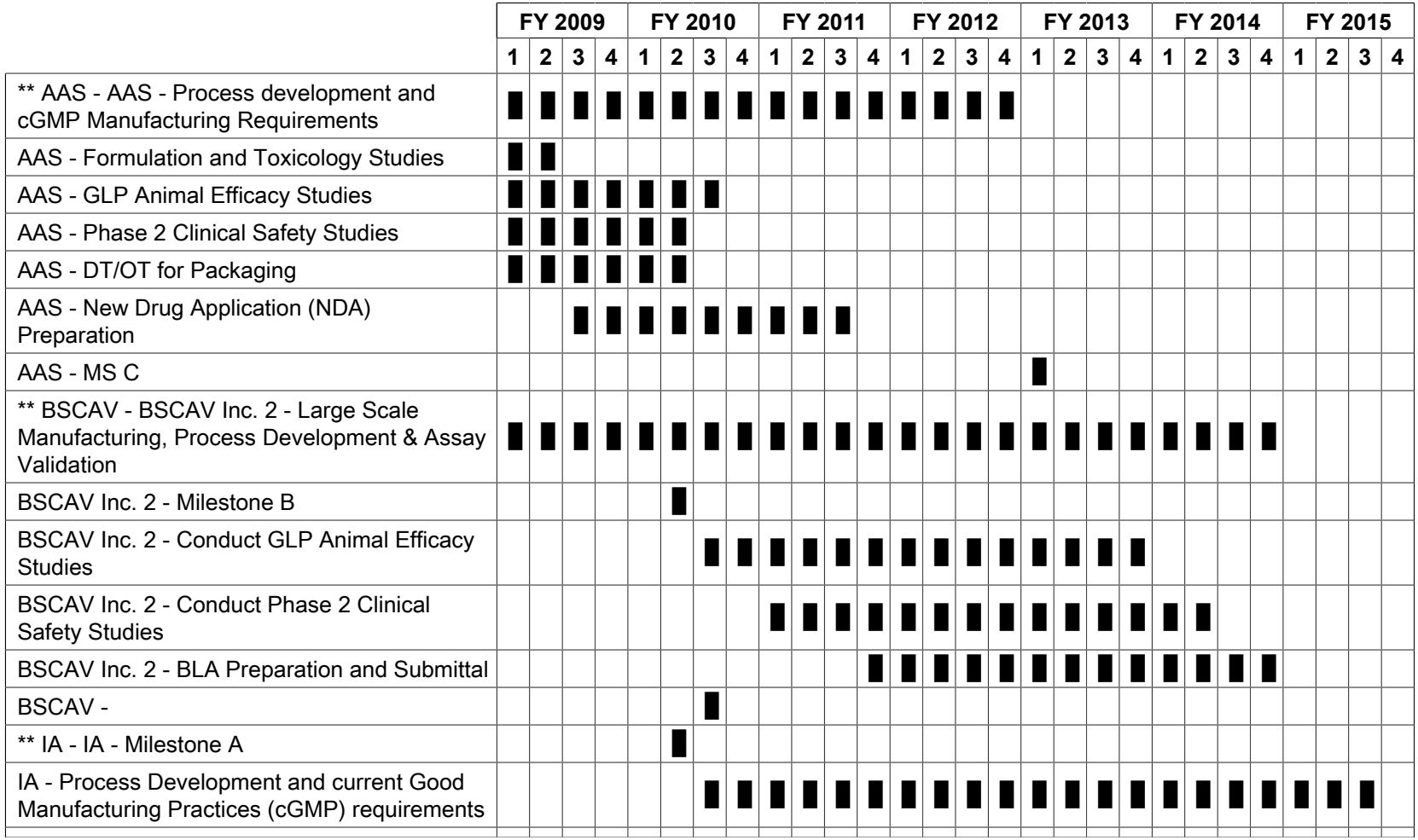
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2010 Cost | FY 2010 Award Date | FY 2011 Base Cost | FY 2011 Base Award Date | FY 2011 OCO Cost | FY 2011 OCO Award Date | FY 2011 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INATS - Joint Program Executive Office | | Falls Church, VA | | | | | | | | | | | |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | MIPR | HQ<br>AMC, Alexandria | 0.000 | 0.180 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.180 | 0.000 |
| | | **Subtotal** | 2.832 | 2.057 | | 4.572 | | 0.000 | | 4.572 | 0.000 | 9.461 | 0.000 |

**Remarks**

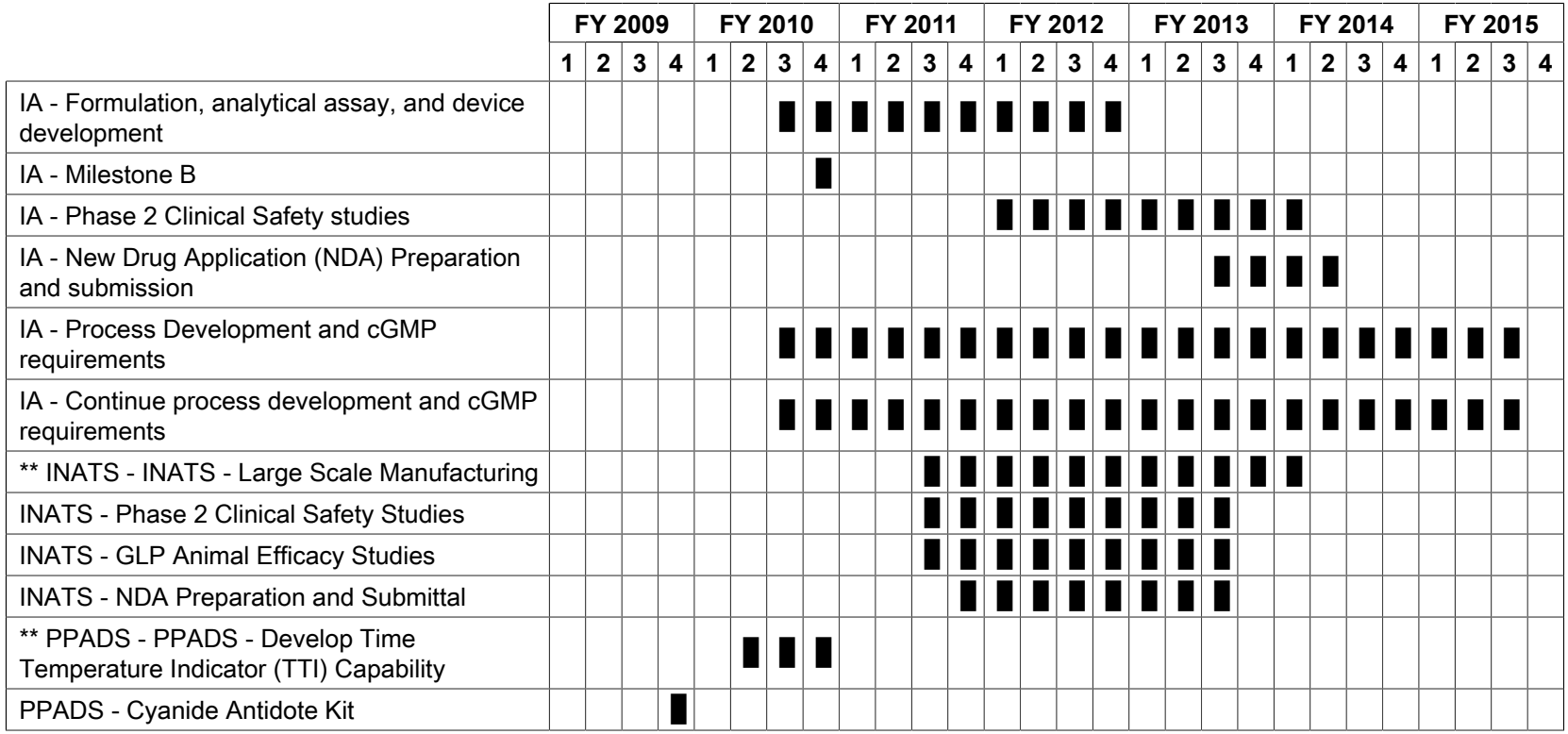
| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 20.817 | 14.027 | | 51.856 | | 0.000 | | 51.856 | 0.000 | 86.700 | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | | PROJECT<br>MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | | PROJECT<br>MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** AAS - AAS - Process development and cGMP Manufacturing Requirements | 4 | 2005 | 4 | 2012 |
| AAS - Formulation and Toxicology Studies | 3 | 2007 | 2 | 2009 |
| AAS - GLP Animal Efficacy Studies | 4 | 2007 | 3 | 2010 |
| AAS - Phase 2 Clinical Safety Studies | 3 | 2007 | 2 | 2010 |
| AAS - DT/OT for Packaging | 4 | 2008 | 2 | 2010 |
| AAS - New Drug Application (NDA) Preparation | 3 | 2009 | 3 | 2011 |
| AAS - MS C | 1 | 2013 | 1 | 2013 |
| ** BSCAV - BSCAV Inc. 2 - Large Scale Manufacturing, Process Development & Assay Validation | 1 | 2008 | 4 | 2014 |
| BSCAV Inc. 2 - Milestone B | 2 | 2010 | 2 | 2010 |
| BSCAV Inc. 2 - Conduct GLP Animal Efficacy Studies | 3 | 2010 | 4 | 2013 |
| BSCAV Inc. 2 - Conduct Phase 2 Clinical Safety Studies | 1 | 2011 | 2 | 2014 |
| BSCAV Inc. 2 - BLA Preparation and Submittal | 4 | 2011 | 4 | 2014 |
| BSCAV - | 3 | 2010 | 3 | 2010 |
| ** IA - IA - Milestone A | 2 | 2010 | 2 | 2010 |
| IA - Process Development and current Good Manufacturing Practices (cGMP) requirements | 3 | 2010 | 3 | 2015 |
| IA - Formulation, analytical assay, and device development | 3 | 2010 | 4 | 2012 |
| IA - Milestone B | 4 | 2010 | 4 | 2010 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* |

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| IA - Phase 2 Clinical Safety studies | 1 | 2012 | 1 | 2014 |
| IA - New Drug Application (NDA) Preparation and submission | 3 | 2013 | 2 | 2014 |
| IA - Process Development and cGMP requirements | 3 | 2010 | 3 | 2015 |
| IA - Continue process development and cGMP requirements | 3 | 2010 | 3 | 2015 |
| ** INATS - INATS - Large Scale Manufacturing | 3 | 2011 | 1 | 2014 |
| INATS - Phase 2 Clinical Safety Studies | 3 | 2011 | 3 | 2013 |
| INATS - GLP Animal Efficacy Studies | 3 | 2011 | 3 | 2013 |
| INATS - NDA Preparation and Submittal | 4 | 2011 | 3 | 2013 |
| ** PPADS - PPADS - Develop Time Temperature Indicator (TTI) Capability | 2 | 2010 | 4 | 2010 |
| PPADS - Cyanide Antidote Kit | 4 | 2009 | 4 | 2009 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MR5: *MEDICAL RADIOLOGICAL DEFENSE (SDD)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MR5: *MEDICAL RADIOLOGICAL DEFENSE (SDD)* | 3.002 | 8.276 | 1.143 | 0.000 | 1.143 | 4.817 | 2.265 | 0.000 | 0.000 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This project funds the advanced development of candidate therapeutic medical countermeasures to mitigate the consequences of exposure to ionizing radiation due to nuclear or radiological attacks. Exposure to ionizing radiation causes damage to blood-forming cells (hematopoietic system) and gastrointestinal system, leading to Acute Radiation Syndrome (ARS). Medical countermeasures must be approved by the Food and Drug Administration (FDA) for human use prior to fielding. Testing the efficacy of candidate drugs against normally lethal radiation exposure cannot be conducted in humans; therefore, surrogate animal models must be used to obtain FDA approval.

Medical Radiation Countermeasures (MRADC) efforts include multiple countermeasures required to restore casualties to pre-exposure health and to protect U.S. Forces against injury caused by exposure to radiation. MRADC shall reverse or limit radiation injury resulting in increase survival, decreased incapacity, and sustained operational effectiveness. In addition, MRADC shall be effective against a broad range of radiation sources and types, and shall be useable in the battle space, including evacuation.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) MRADC | 0.000 | 2.080 | 0.368 | 0.000 | 0.368 |
| MRADC<br><br>*FY 2010 Plans:*<br>Initiate non-clinical animal efficacy studies. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MR5: *MEDICAL RADIOLOGICAL DEFENSE (SDD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Continue non-clinical animal efficacy studies. | | | | | |
| 2) MRADC<br>*FY 2009 Accomplishments:*<br>Provided strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. | 3.002 | 0.000 | 0.000 | 0.000 | 0.000 |
| 3) MRADC<br>*FY 2010 Plans:*<br>Initiate process development and current Good Manufacturing Practices (cGMP) manufacturing requirements.<br>*FY 2011 Base Plans:*<br>Continue process development and current Good Manufacturing Practices (cGMP) manufacturing requirements. | 0.000 | 3.583 | 0.395 | 0.000 | 0.395 |
| 4) MRADC<br>*FY 2010 Plans:*<br>Initiate product formulation, storage, and delivery system on 2 candidates.<br>*FY 2011 Base Plans:*<br>Continue product formulation, storage, and delivery system on 2 candidates. | 0.000 | 2.505 | 0.380 | 0.000 | 0.380 |
| 5) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.108 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MR5: *MEDICAL RADIOLOGICAL DEFENSE (SDD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Accomplishments/Planned Programs Subtotals | 3.002 | 8.276 | 1.143 | 0.000 | 1.143 |

**C. Other Program Funding Summary ($ in Millions)**

N/A

**D. Acquisition Strategy**

MRADC

Medical Identification and Treatment Systems (MITS) Joint Product Management Office will manage the development of Medical Radiation Countermeasures (MRADC) for the Department of Defense (DoD). A contractor will serve as the product integrator throughout development and shall be responsible for conducting activities associated with drug development in a manner consistent with eventual approval by the Food and Drug Administration (FDA). The contractor shall sponsor the drug to the FDA and hold all approvals and/or licenses. The Technology Development phase includes pre-clinical studies and Phase 1 human clinical safety studies. During the Engineering and Manufacturing Development (EMD) phase, large scale manufacturing, Phase 2 human clinical safety studies and definitive animal efficacy studies will be conducted. FDA approval of the countermeasure is an exit criterion for the EMD phase. During the Production and Deployment Phase, sufficient quantities of product to meet Initial Operational Capability and Full Operational Capability will be purchased. Subsequent purchases will be made by the Defense Logistics Agency. Any post-marketing surveillance requested by the FDA will be conducted.

MRADC will be developed using a system-of-systems approach to provide a full spectrum capability to protect against the radiation threat. Individual countermeasure solutions will be developed using a single step to a full capability (FDA approval) strategy. The DoD is working very closely with the Department of Health and Human Services (HHS), which also has a radiation countermeasure program. The establishment of an interagency working group provides oversight and guidance to both agency programs to ensure that their efforts are non-duplicative and are directed to meeting the requirement of both agencies.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MR5: *MEDICAL RADIOLOGICAL DEFENSE (SDD)* | |

**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** MRADC - MRADC - cGMP Manufacturing | C/CPIF | TBD | 0.000 | 2.346 | Jan 2010 | 0.377 | Jan 2011 | 0.000 | | 0.377 | 0.000 | 2.723 | 0.000 |
| MRADC - Product Formulation, Storage and Delivery System | C/CPIF | TBD | 0.000 | 2.219 | Jan 2010 | 0.200 | Jan 2011 | 0.000 | | 0.200 | 0.000 | 2.419 | 0.000 |
| | | Subtotal | 0.000 | 4.565 | | 0.577 | | 0.000 | | 0.577 | 0.000 | 5.142 | 0.000 |

**Remarks**

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** MRADC - MRADC - Regulatory Integration and NDA Support Efforts | C/CPIF | TBD | 0.000 | 0.000 | | 0.100 | Jan 2011 | 0.000 | | 0.100 | 0.000 | 0.100 | 0.000 |
| | | Subtotal | 0.000 | 0.000 | | 0.100 | | 0.000 | | 0.100 | 0.000 | 0.100 | 0.000 |

**Remarks**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MR5: *MEDICAL RADIOLOGICAL DEFENSE (SDD)* |

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** MRADC - MRADC - Definitive Animal Efficacy studies | C/CPIF | TBD | 0.000 | 2.087 | Jan 2010 | 0.200 | Jan 2011 | 0.000 | | 0.200 | 0.000 | 2.287 | 0.000 |
| | | Subtotal | 0.000 | 2.087 | | 0.200 | | 0.000 | | 0.200 | 0.000 | 2.287 | 0.000 |

**Remarks**

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** MRADC - MRADC - Product Management Support | SS/FFP | Goldbelt Raven LLC, Frederick | 0.657 | 0.705 | Jan 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.362 | 0.000 |
| MRADC - Chem Bio Medical Systems | Allot | CBMS Frederick, MD | 0.000 | 0.659 | Apr 2010 | 0.100 | Apr 2011 | 0.000 | | 0.100 | 0.000 | 0.759 | 0.000 |
| MRADC - Product Management Services | MIPR | USAMMDA Ft Detrick, MD | 0.145 | 0.152 | Oct 2009 | 0.166 | Oct 2010 | 0.000 | | 0.166 | 0.000 | 0.463 | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | MIPR | HQ AMC, Alexandria | 0.000 | 0.108 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.108 | 0.000 |
| | | Subtotal | 0.802 | 1.624 | | 0.266 | | 0.000 | | 0.266 | 0.000 | 2.692 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MR5: *MEDICAL RADIOLOGICAL DEFENSE (SDD)* | |

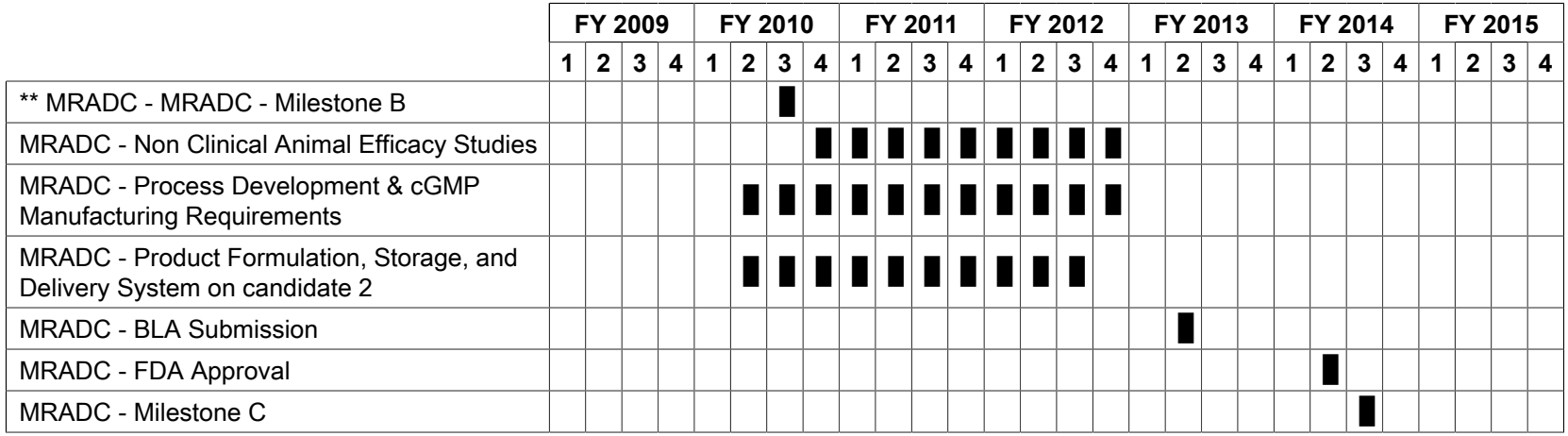
**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Remarks | | | | | | | | | | | | | |

| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | 0.802 | 8.276 | | 1.143 | | 0.000 | | 1.143 | 0.000 | 10.221 | 0.000 |

Remarks

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MR5: *MEDICAL RADIOLOGICAL DEFENSE (SDD)* | |



| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | **R-1 ITEM NOMENCLATURE**<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | **PROJECT**<br>MR5: *MEDICAL RADIOLOGICAL DEFENSE (SDD)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** MRADC - MRADC - Milestone B | 3 | 2010 | 3 | 2010 |
| MRADC - Non Clinical Animal Efficacy Studies | 4 | 2010 | 4 | 2012 |
| MRADC - Process Development & cGMP Manufacturing Requirements | 2 | 2010 | 4 | 2012 |
| MRADC - Product Formulation, Storage, and Delivery System on candidate 2 | 2 | 2010 | 3 | 2012 |
| MRADC - BLA Submission | 2 | 2013 | 2 | 2013 |
| MRADC - FDA Approval | 2 | 2014 | 2 | 2014 |
| MRADC - Milestone C | 3 | 2014 | 3 | 2014 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | | | | | | | | DATE: February 2010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | | | | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | | | | PROJECT<br>TE5: *TEST & EVALUATION (SDD)* | | | |
| **COST ($ in Millions)** | **FY 2009 Actual** | **FY 2010 Estimate** | **FY 2011 Base Estimate** | **FY 2011 OCO Estimate** | **FY 2011 Total Estimate** | **FY 2012 Estimate** | **FY 2013 Estimate** | **FY 2014 Estimate** | **FY 2015 Estimate** | **Cost To Complete** | **Total Cost** |
| TE5: *TEST & EVALUATION (SDD)* | 37.444 | 36.593 | 15.901 | 0.000 | 15.901 | 12.243 | 4.238 | 14.614 | 15.300 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This funding supports the Joint Project Manager Nuclear, Biological, Chemical Contamination Avoidance Product Director, Test Equipment, Strategy, and Support (PD TESS) efforts. PD TESS provides test infrastructure products for testing and evaluating chemical and biological defense systems throughout the life cycle acquisition process in support of the Milestone Decision Authority, Joint Project Managers, and the Test and Evaluation (T&E) community. PD TESS test infrastructure products are aligned in four groups to include: (1) Chemical Laboratory (Sense); (2) Biological Laboratory (Sense); (3) Field Simulant (Sense); (4) Individual Protection, Collective Protection and Decontamination (Shield and Sustain).

(1) Chemical Laboratory (Sense): Products for this area include a Non-Traditional Agent (NTA) Test Facility and a Dynamic Test Chamber (DTC) for chemical point sensors. The Dynamic Test Chamber provides a new capability for testing chemical point detection systems against chemical warfare agents in various environmental conditions. Major CBDP acquisition programs supported are: the Joint Chemical Agent Detector (JCAD).

(2) Sense Laboratory (Biological): Products for this area include a Whole System Live Agent Test (WSLAT) "Strung Out" Chamber; WSLAT "Full System" Chamber; and upgrade of a bio-level 3 facility located at Dugway Proving Ground (DPG). The WSLAT "Strung Out" Chamber supports Joint Biological Point Detection component testing in biological live agent environments. The WSLAT "Full System" Chamber supports testing of all biological detection systems in production configuration in biological live agent environments. The Baker Laboratory Upgrade will provide a bio-level 3 fabricated infrastructure to host the WSLAT "Full System" Chamber. The upgrade will include bio-level 3 support laboratories and analytical instrumentation. Major CBDP acquisition programs supported are: the Joint Biological Point Detection System (JBPDS)/JBPDS Block II; the Joint Biological Tactical Detection System (JBTDS); and the Joint Biological Standoff Detection System (JBSDS) Block II.

(3) Field Simulant (Sense): Products for this area include a fully instrumented Simulant Test Grid and characterization of the Active Standoff Chamber (ASC) facilities. The Test Grid effort provides a fully instrumented 20 km by 40 km field simulant test capability that integrates cloud tracking equipment, meteorological equipment, test data network, C4ISR network, and operations center. The ASC effort provides a controlled simulant cloud characterization and facility. Major acquisition programs supported are: the Joint Chemical Agent Detector (JCAD); the Joint NBC Reconnaissance System (JNBCRS); the Joint Warning and Reporting Network (JWARN); the Joint Biological Standoff Detection System (JBSDS); the Joint Biological Point Detection System (JBPDS); the Joint Biological Tactical Detection System (JBTDS); the Joint Effects Model (JEM); the Joint Operational Effects Federation (JOEF); and the Joint Expeditionary Collective Protection (JECP) System.

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | **R-1 ITEM NOMENCLATURE**<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | **PROJECT**<br>TE5: *TEST & EVALUATION (SDD)* |

(4) Individual Protection, Collective Protection and Decontamination (Shield and Sustain): Products for this area include: a Small Item Decontamination Chamber; Individual Protection Ensemble (IPE) Mannequin; Man-in-Simulant Test (MIST) instrumentation; Individual Protection Equipment (IPE) Grid; Collective Protection (ColPro) instrumentation and facilities. The Small Item Decontamination Chamber provides an enhanced ability to conduct decontamination and residual agent off-gassing testing. The IPE Mannequin provides an articulated robotic mannequin that simulates Warfighters activities and includes under ensemble agent sensing capability for evaluating IPE against chemical warfare agents. The Man-in-Simulant Test instrumentation provides a near real time simulant sensor system to monitor penetration of simulant. The Individual Protection Equipment (IPE) Grid provides test procedures to establish commonality measurements for system level IPE performance tests. Chemical, Biological Agent Resistance Test (CBART) fixture provides a near real time testing capability under a range of environmental conditions for individual and collective protection materials. Collective Protection instrumentation and fixture upgrades provide improved test capabilities at Dugway Proving Ground, Dahlgren Naval Surface Warfare Center, and the Edgewood Chemical Biological Center for the evaluation of entire ColPro systems, subsystems and individual components. Acquisition Programs supported are: Joint Platform Interior Decontamination/Joint Material Decontamination System (JPID/JMDS); Joint Service Transportable Decontamination System (JSTDS); Joint Expeditionary Collective Protection (JECP); Joint Collective Protection Equipment (JCPE); Protective Clothing; Joint Protective Aircrew Ensemble (JPACE); Joint Service General Purpose Mask (JSGPM); Joint Service Aircrew Mask (JSAM); and the Joint Chemical Ensemble (JCE).

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) PD TESS - IPE Mannequin<br>*FY 2010 Plans:*<br>Initiate IPE Mannequin and Chamber system design, fabrication and installation.<br>*FY 2011 Base Plans:*<br>Complete installation and conduct verification and validation testing. | 0.000 | 13.200 | 6.300 | 0.000 | 6.300 |
| 2) PD TESS - IPE Man-in-Simulant Test (MIST) Upgrade<br>*FY 2010 Plans:*<br>Procure, verify and validate real-time MIST sensors. | 0.000 | 0.659 | 0.000 | 0.000 | 0.000 |
| 3) PD TESS - Dynamic Test Chamber | 4.610 | 0.750 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>TE5: *TEST & EVALUATION (SDD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Completed assembly and installation and conducted validation testing.<br><br>*FY 2010 Plans:*<br>Complete validation of the Dynamic Test Chamber. | | | | | |
| 4) PD TESS - Test Grid Instrumentation Network & Design<br>*FY 2009 Accomplishments:*<br>Procured chemical dissemination and referee instrumentation, installed test data network, and initiated build of the operations center.<br><br>*FY 2010 Plans:*<br>Complete IOC for chemical simulant testing. Procure data network software build and operational demonstration. Procure operational demonstration hardware.<br><br>*FY 2011 Base Plans:*<br>Conduct characterization testing of Biological referee instrumentation. | 23.175 | 14.441 | 4.530 | 0.000 | 4.530 |
| 5) PD TESS - Decon Facility Upgrade<br>*FY 2009 Accomplishments:*<br>Completed assembly and installation of small item decon chamber. | 0.193 | 0.000 | 0.000 | 0.000 | 0.000 |
| 6) PD TESS - Whole System Live Agent Test (WSLAT)<br>*FY 2009 Accomplishments:*<br>Continued construction of Baker Laboratory and procured referee instrumentation. Awarded WSLAT design, fabrication, and build contract. | 7.203 | 5.010 | 1.915 | 0.000 | 1.915 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>TE5: *TEST & EVALUATION (SDD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Complete WSLAT design and initiate build.<br><br>*FY 2011 Base Plans:*<br>Complete WSLAT build and installation. | | | | | |
| 7) PD TESS - ColPro Upgrades<br>*FY 2009 Accomplishments:*<br>Initiated biological and mechanical filtration for ColPro facilities. | 0.528 | 0.000 | 0.000 | 0.000 | 0.000 |
| 8) PD TESS<br>*FY 2009 Accomplishments:*<br>Provided system engineering support for the design, build, integration and validation of test infrastructure products.<br><br>*FY 2010 Plans:*<br>Continue system engineering support for the design, build, integration and validation of test infrastructure products.<br><br>*FY 2011 Base Plans:*<br>Continue system engineering support for the design, build, integration and validation of test infrastructure products. | 1.735 | 0.797 | 3.156 | 0.000 | 3.156 |
| 9) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.461 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 37.444 | 35.318 | 15.901 | 0.000 | 15.901 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>TE5: *TEST & EVALUATION (SDD)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: 1) Real Time Monitoring of Chemical Agents<br>*FY 2010 Plans:*<br>Congressional Interest Item - Real Time Monitoring of Chemical Agents, Chemical Agent Stimulants and Toxic Industrial Chemicals. | 0.000 | 1.275 |
| Congressional Adds Subtotals | 0.000 | 1.275 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TE7: *TEST & EVALUATION (OP SYS DEV)* | 7.037 | 4.870 | 4.813 | | 4.813 | 4.779 | 4.750 | 5.660 | 5.615 | Continuing | Continuing |

**D. Acquisition Strategy**

PD TESS

The PD TESS program provides for the development and acquisition of new and enhanced test infrastructure to support the sense, shield, shape, and sustain mission areas for the Joint Service Chemical and Biological Defense Program (CBDP). The efforts are supported through competitive contract actions, academia, and other Government agencies. Infrastructure solutions will leverage commercially available systems to provide state-of-the-art capabilities that address current and future CBDP test and evaluation needs.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>TE5: *TEST & EVALUATION (SDD)* |

**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** PD TESS - HW S - IPE Mannequin System Fabricate/Install | C/FFP | Midwest Research Institute Kansas City, MO | 0.000 | 13.200 | Jan 2010 | 6.300 | | 0.000 | | 6.300 | 0.000 | 19.500 | 0.000 |
| HW S - WSLAT Chamber Fabrication/ Installation | C/FFP | TBD | 4.521 | 5.010 | | 1.915 | Jan 2011 | 0.000 | | 1.915 | 0.000 | 11.446 | 0.000 |
| HW S - Test Grid Referee Instrumentation, Data Network and C4ISR | C/FFP | Lockheed Martin Integrated Systems Wall, NJ | 40.959 | 14.441 | Jan 2010 | 4.530 | | 0.000 | | 4.530 | 0.000 | 59.930 | 0.000 |
| HW S - Dynamic Test Chamber Fabrication/ Installation | Reqn | NAVSEA (JHU-APL) Washington, DC | 7.490 | 0.750 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 8.240 | 0.000 |
| Congressional Interest Item - Real Time Monitoring of Chemical Agents, Chemical Agent Stimulants and Toxic Industrial Chemicals. | C/CPFF | TBD | 0.000 | 1.275 | Apr 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 1.275 | 0.000 |
| | | **Subtotal** | 52.970 | 34.676 | | 12.745 | | 0.000 | | 12.745 | 0.000 | 100.391 | 0.000 |

**Remarks**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>TE5: *TEST & EVALUATION (SDD)* |

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** PD TESS - OTHT S - IPE MIST Validation | MIPR | Various | 0.000 | 0.659 | Jul 2010 | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.659 | 0.000 |
| | | Subtotal | 0.000 | 0.659 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.659 | 0.000 |

**Remarks**

Test efforts are for the validation of capabilities.

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** PD TESS - PM/MS S - Program Management/ Systems Engineering Support | MIPR | JPM NBCCA APG, MD | 10.642 | 0.797 | Oct 2009 | 3.156 | Oct 2010 | 0.000 | | 3.156 | 0.000 | 14.595 | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | MIPR | HQ AMC, Alexandria | 0.000 | 0.461 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.461 | 0.000 |
| | | Subtotal | 10.642 | 1.258 | | 3.156 | | 0.000 | | 3.156 | 0.000 | 15.056 | 0.000 |

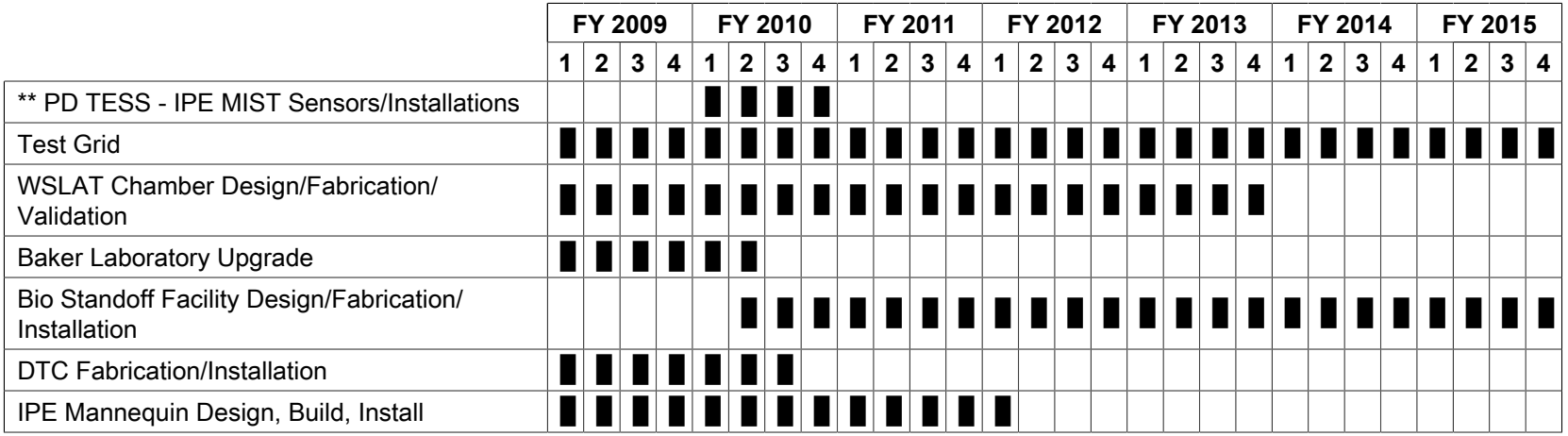
**Remarks**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>TE5: *TEST & EVALUATION (SDD)* | |

| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | 63.612 | 36.593 | | 15.901 | | 0.000 | | 15.901 | 0.000 | 116.106 | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>TE5: *TEST & EVALUATION (SDD)* | |



| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | **R-1 ITEM NOMENCLATURE**<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | **PROJECT**<br>TE5: *TEST & EVALUATION (SDD)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** PD TESS - IPE MIST Sensors/Installations | 1 | 2010 | 4 | 2010 |
| Test Grid | 1 | 2009 | 4 | 2015 |
| WSLAT Chamber Design/Fabrication/Validation | 1 | 2006 | 4 | 2013 |
| Baker Laboratory Upgrade | 1 | 2008 | 2 | 2010 |
| Bio Standoff Facility Design/Fabrication/Installation | 2 | 2010 | 4 | 2015 |
| DTC Fabrication/Installation | 1 | 2008 | 3 | 2010 |
| IPE Mannequin Design, Build, Install | 1 | 2009 | 1 | 2012 |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Program Element | 100.470 | 106.033 | 120.995 | 0.000 | 120.995 | 127.666 | 134.162 | 129.575 | 126.792 | Continuing | Continuing |
| DT6: *JOINT DOCTRINE AND TRAINING SUPPORT (RDT&E MGT SUPPORT)* | 5.388 | 6.637 | 6.332 | 0.000 | 6.332 | 5.547 | 5.722 | 5.889 | 6.004 | Continuing | Continuing |
| DW6: *MAJOR RANGE AND TEST FACILITY BASE (MRTFB)* | 53.710 | 54.461 | 60.274 | 0.000 | 60.274 | 67.308 | 73.054 | 74.610 | 74.332 | Continuing | Continuing |
| LS6: *LABORATORY SUPPORT* | 5.380 | 10.296 | 18.945 | 0.000 | 18.945 | 20.123 | 20.091 | 12.672 | 9.228 | Continuing | Continuing |
| MS6: *RDT&E MGT SUPPORT* | 30.144 | 27.424 | 29.714 | 0.000 | 29.714 | 29.711 | 30.233 | 31.193 | 31.917 | Continuing | Continuing |
| O49: *JOINT CONCEPT DEVELOPMENT AND EXPERIMENTATION PROGRAM* | 5.848 | 7.215 | 5.730 | 0.000 | 5.730 | 4.977 | 5.062 | 5.211 | 5.311 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This Budget Activity includes research, development, testing and evaluation management support for the Department of Defense (DoD) Chemical and Biological Defense Program (CBDP) and includes the CBDP Small Business Innovative Research (SBIR) program.

Program Element 0605384BP supports Joint Doctrine and Training (Project DT6), sustains the technical test capability at Dugway Proving Ground (DPG) (Project DW6); sustains the core Department of Defense (DoD) Science and Technology (S&T) laboratory infrastructure (Project LS6), provides for program management and financial management support (Project MS6), and supports the Joint Concept Development and Experimentation (JCDE) program (Project O49).

The Joint Training and Doctrine Support (DT6) project funds development of Joint Doctrine and Tactics, Techniques, and Procedures for developing CB defense systems. This project also funds CB modeling and simulation to support the Warfighter.

The Major Range and Test Facility Base (MRTFB) is a set of test installations, facilities, and ranges which are regarded as "national assets." These assets are sized, operated, and maintained primarily for DoD test and evaluation missions. However, the MRTFB facilities and ranges are also available to commercial and other users on a reimbursable basis. Dugway Proving Ground is designated as the primary element of the MRTFB to primarily conduct CB Defense test and evaluation. The DW6 Project provides operating funds to Dugway Proving Ground in accordance with the National Defense Authorization Act of 2003 (P/L/ 107-314 - sect 232) to ensure

that DOD test customers are only charged direct costs of testing and that overhead expenses are centrally funded. It finances the required institutional test operating costs. Institutional test operating costs include institutional civilian and contractor labor; repair and maintenance of test instrumentation, equipment, and facilities; and replacement of test equipment.

The Laboratory Support (LS6) project funds laboratory infrastructure to maintain and enhance DoD infrastructure capabilities to counter an expanding threat space, exploit advances in technology and develop and transition CB defense equipment and countermeasures to the Warfighter.

The management support (MS6) project, provides management support for the DoD CBDP to allow program overview and integration of overall medical and non-medical programs by the Assistant to the Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs (ATSD(NCB)), through the Special Assistant, Chemical Biological Defense and Chemical Demilitarization Programs (SA(CBD&CDP)); execution management by the Defense Threat Reduction Agency (DTRA); integration of Joint requirements, management of training and doctrine by the Joint Requirements Office (JRO); Joint RDA planning, input to the Annual Report to Congress and Program Objective Memorandum (POM) development by the Program Analysis and Integration Office (PA&IO); review of Joint plans and the consolidated CB Defense POM Strategy by Army in its Executive Agent role.

The management support project also funds the Joint Test Infrastructure Working Group (JTIWG) program to execute the Test and Evaluation (T&E) Executive mission to establish test infrastructure investment strategy and adequate testing for Developmental Testing (DT) and Operational Testing (OT) of Department of Defense (DoD) Chemical Biological Defense (CBD) systems and components throughout the systems' acquisition life cycle, as required in the RDA Plan. The JTIWG program funds T&E Early Involvement, test threat planning, and T&E Standards planning and development to support testing the CBD systems for all services.

The Joint Concept Development and Experimentation (O49) project funds the planning, conduct, evaluation, and reporting on Joint tests (for other than developmental hardware) and accomplishment of operational research assessments in response to requirements received from the Services and the Combatant Commanders for already fielded equipment and systems.

This Budget Activity also funds Program Element 0605502BP, which supports the Small Business Innovative Research (SBIR) program. The overall objective of the Chemical and Biological Defense (CBD) SBIR program is to improve the transition or transfer of innovative CBD technologies between DoD components and the private sector for mutual benefit. The CBD program includes those technology efforts that maximize a strong defensive posture in a CB environment using passive and active means as deterrents. These technologies include CB detection; information assessment (identification, modeling, and intelligence); contamination avoidance; and protection of both individual soldiers and equipment.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* |

**B. Program Change Summary ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 99.811 | 106.477 | 0.000 | 0.000 | 0.000 |
| Current President's Budget | 100.470 | 106.033 | 120.995 | 0.000 | 120.995 |
| Total Adjustments | 0.659 | -0.444 | 120.995 | 0.000 | 120.995 |
| • Congressional General Reductions | | -0.444 | | | |
| • Congressional Directed Reductions | | 0.000 | | | |
| • Congressional Rescissions | 0.000 | 0.000 | | | |
| • Congressional Adds | | 0.000 | | | |
| • Congressional Directed Transfers | | 0.000 | | | |
| • Reprogrammings | 1.812 | 0.000 | | | |
| • SBIR/STTR Transfer | -1.153 | 0.000 | | | |
| • Other Adjustments | 0.000 | 0.000 | 120.995 | 0.000 | 120.995 |

**Change Summary Explanation**

Funding: N/A - Adjustments less than 10% of total program.

Schedule: N/A

Technical: N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>DT6: *JOINT DOCTRINE AND TRAINING SUPPORT (RDT&E MGT SUPPORT)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DT6: *JOINT DOCTRINE AND TRAINING SUPPORT (RDT&E MGT SUPPORT)* | 5.388 | 6.637 | 6.332 | 0.000 | 6.332 | 5.547 | 5.722 | 5.889 | 6.004 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

The activities of this project directly support the Joint Service CB defense program; in particular, the development of Joint Chemical, Biological, Radiological, and Nuclear (CBRN) defense capability requirements and the improvement of CBRN defense related doctrine, education, training, and awareness at the Joint and Service levels. This effort provides for: (1) Development, coordination, and integration of Joint CBRN defense capability requirements; (2) Development/revision of medical and non-medical CBRN defense Multi-Service Tactics, Techniques, and Procedures (MTTP), Joint Doctrine and Tactics, Techniques, and Procedures (JTTP); (3) The CBDP Joint Senior Leader Course (JSLC); (4) Assistance in correcting training and doctrine deficiencies covered in the lessons learned process, combat operations, capability development studies and Department of Defense Inspector General (DODIG) and Government Accountability Office (GAO) reports; (5) Support of current and planned CBRN defense studies, analysis, training, exercises, and wargames; determine overlaps, duplication, and shortfalls; and build and execute programs to correct shortfalls in all aspects of CBRN defense across all DoD mission areas.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) JRO DT | 5.388 | 6.556 | 6.332 | 0.000 | 6.332 |
| *FY 2009 Accomplishments:*<br>Supported the revision and development of CBRN defense medical and physical sciences MTTPs. Supported the integration of CBRN defense considerations during the revision and development of selected Joint doctrine and JTTPs. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>DT6: *JOINT DOCTRINE AND TRAINING SUPPORT (RDT&E MGT SUPPORT)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Continue to support the revision and development of CBRN defense medical and physical sciences MTTPs. Continue to support the integration of CBRN defense considerations during the revision and development of selected Joint doctrine and JTTPs.<br><br>*FY 2011 Base Plans:*<br>Continue to support the revision and development of CBRN defense medical and physical sciences MTTPs. Continue to support the integration of CBRN defense considerations during the revision and development of selected Joint doctrine and JTTPs. | | | | | |
| 2) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.081 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 5.388 | 6.637 | 6.332 | 0.000 | 6.332 |

**C. Other Program Funding Summary ($ in Millions)**

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>DW6: *MAJOR RANGE AND TEST FACILITY BASE (MRTFB)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DW6: *MAJOR RANGE AND TEST FACILITY BASE (MRTFB)* | 53.710 | 54.461 | 60.274 | 0.000 | 60.274 | 67.308 | 73.054 | 74.610 | 74.332 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

Project provides the technical capability for testing Department of Defense (DoD) Chemical and Biological (CB) defense materiel, equipment, and systems from concept through production at Dugway Proving Ground (DPG), a Major Range and Test Facility Base (MRTFB). Funding reflects compliance with National Defense Authorization Act (NDAA) for FY 2003 (Public Law 107-314 - December 2002), Sec 232, requiring Major Range and Test Facility Bases to be fully funded and that DoD test customers be charged for direct costs only.

DPG, a MRTFB, is the reliance center for all DoD CB defense testing and provides the United States' only combined range, chamber, toxic chemical lab, and bio-safety level three test facility. Total institutional test operating costs are to be provided by the Service component IAW DoD 3200.11.

DPG uses state-of-the-art chemical and life sciences test facilities and test chambers to perform CB defense testing of protective gear, decontamination systems, detectors, and equipment while totally containing chemical agents and biological pathogens. DPG also provides a fully instrumented outdoor range capability for testing with simulants that can be correlated to the laboratory testing with live agents.

Projects programmed for testing at DPG include: Joint Nuclear, Biological, and Chemical Reconnaissance System (JNBCRS); Joint Chemical Agent Detector (JCAD); Joint Biological Point Detection System (JBPDS); Joint Biological Stand-off Detection System (JBSDS); Joint Biological Agent Identification and Detection System (JBAIDS); Joint Biological Tactical Detection System (JBTDS); Whole System Live Agent Test (WSLAT); Joint Service Lightweight Integrated Suit Technology (JSLIST) Additional Sources Qualification 2 (JASQ 2); JSLIST Block II Glove Upgrade - Flame Resistant; JSLIST Performance Enhancement (JPE); JSLIST Combat Vehicle Crewman Coverage (JC3); Joint Protective Aircrew Ensemble (JPACE); Monitoring and Survey Sets, Kits, and Outfits (MSSKO); Joint Contaminated Surface Detector (JCSD); Joint Chemical, Biological and Radiological Agent Water Monitor (JCBRAWM); Nuclear, Biological and Chemical Environment Personal Hydration System (NEPHS); Analytical Lab System (ALS); Joint Expeditionary Collective Protection (JECP); Chemical Biological Protective Shelter (CBPS); Joint Service Aircrew Mask (JSAM); Joint Service Family of Decontamination Systems (JSFDS); Joint Materiel Decontamination System (JMDS); Human Remains Decontamination System (HRDS); Joint Warning and Reporting Network (JWARN); Joint Effects Model (JEM); and Joint Operational Effects Federation (JOEF).

**B. Accomplishments/Planned Program ($ in Millions)**

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>DW6: *MAJOR RANGE AND TEST FACILITY BASE (MRTFB)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) DPG, MRTFB | 38.630 | 38.193 | 43.362 | 0.000 | 43.362 |
| *FY 2009 Accomplishments:*<br>Supported Dugway Proving Ground (DPG), a Major Range and Test Facility Base (MRTFB), operations to include institutional civilian labor costs for Army PBG authorizations. These civilian personnel include safety, security, resource management, surety operations, range control, environmental oversight, and workload management. This represents the civilian labor required to support operations, but cannot be directly tied to a single test and therefore, cannot be charged to that test. The test customer pays all direct costs that are directly attributable to the use of a test facility or resource for testing of a particular program. | | | | | |
| *FY 2010 Plans:*<br>Supports Dugway Proving Ground (DPG), a Major Range and Test Facility Base (MRTFB), operations to include institutional civilian labor costs for Army PBG authorizations. These civilian personnel include safety, security, resource management, surety operations, range control, environmental oversight, and workload management. This represents the civilian labor required to support operations, but cannot be directly tied to a single test and therefore, cannot be charged to that test. The test customer pays all direct costs that are directly attributable to the use of a test facility or resource for testing of a particular program. | | | | | |
| *FY 2011 Base Plans:*<br>Supports Dugway Proving Ground (DPG), a Major Range and Test Facility Base (MRTFB), operations to include institutional civilian labor costs for Army PBG authorizations. These civilian personnel include safety, security, resource management, surety operations, range control, environmental oversight, and workload management. This represents the civilian labor required to support operations, but cannot be directly tied to a single test and therefore, cannot be charged to that test. The test customer pays all direct costs that are directly attributable to the use of a test facility or resource for testing of a particular program. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>DW6: *MAJOR RANGE AND TEST FACILITY BASE (MRTFB)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 2) DPG, MRTFB | 6.100 | 6.394 | 6.921 | 0.000 | 6.921 |
| *FY 2009 Accomplishments:*<br>Provided for postponed and ongoing sustainment of existing instrumentation and equipment at DPG in support of their operations. Supported annual service contracts for equipment operation, diagnostics, and calibration, as well as, routine life-cycle and use-related replacement of existing field, administrative, and analytical instrumentation components and systems. | | | | | |
| *FY 2010 Plans:*<br>Provides for postponed and ongoing sustainment of existing instrumentation and equipment at DPG in support of their operations. Supports annual service contracts for equipment operation, diagnostics, and calibration, as well as, routine life-cycle and use-related replacement of existing field, administrative, and analytical instrumentation components and systems. | | | | | |
| *FY 2011 Base Plans:*<br>Provides for postponed and ongoing sustainment of existing instrumentation and equipment at DPG in support of their operations. Supports annual service contracts for equipment operation, diagnostics, and calibration, as well as, routine life-cycle and use-related replacement of existing field, administrative, and analytical instrumentation components and systems. | | | | | |
| 3) DPG, MRTFB | 1.840 | 1.884 | 2.082 | 0.000 | 2.082 |
| *FY 2009 Accomplishments:*<br>Provided DPG with a dedicated and specially trained, 24-hour, support staff who operated and maintained all critical control systems, such as highly complex HVAC system, and decontamination systems within DPG's Materiel Test Facility, Combined Chemical Test Facility, and the Life Science Test Facility complex. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>DW6: *MAJOR RANGE AND TEST FACILITY BASE (MRTFB)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Provides DPG with a dedicated and specially trained, 24-hour, support staff who operate and maintain all critical control systems, such as highly complex HVAC system, and decontamination systems within DPG's Materiel Test Facility, Combined Chemical Test Facility, and the Life Science Test Facility complex.<br><br>*FY 2011 Base Plans:*<br>Provides DPG with a dedicated and specially trained, 24-hour, support staff who operate and maintain all critical control systems, such as highly complex HVAC system, and decontamination systems within DPG's Materiel Test Facility, Combined Chemical Test Facility, and the Life Science Test Facility complex. | | | | | |
| 4) DPG, MRTFB<br>*FY 2009 Accomplishments:*<br>Supported DPG defense mission for contractor labor overhead costs. This was the institutional cost of providing contractual effort to this MRTFB including chemical and biological analysis, field support, planning, and report documentation.<br><br>*FY 2010 Plans:*<br>Supports DPG defense mission for contractor labor overhead costs. This is the institutional cost of providing contractual effort to this MRTFB including chemical and biological analysis, field support, planning, and report documentation.<br><br>*FY 2011 Base Plans:*<br>Supports DPG defense mission for contractor labor overhead costs. This is the institutional cost of providing contractual effort to this MRTFB including chemical and biological analysis, field support, planning, and report documentation. | 7.140 | 7.325 | 7.409 | 0.000 | 7.409 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>DW6: *MAJOR RANGE AND TEST FACILITY BASE (MRTFB)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 5) DPG MRTFB<br>*FY 2011 Base Plans:*<br>Initiate Technology and Integration study and initial design work for Non Traditional Agent (NTA) activities. | 0.000 | 0.000 | 0.500 | 0.000 | 0.500 |
| 6) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.665 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 53.710 | 54.461 | 60.274 | 0.000 | 60.274 |

**C. Other Program Funding Summary ($ in Millions)**

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>LS6: *LABORATORY SUPPORT* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LS6: *LABORATORY SUPPORT* | 5.380 | 10.296 | 18.945 | 0.000 | 18.945 | 20.123 | 20.091 | 12.672 | 9.228 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This project (LS6) provides for the maintenance and enhancement of the DoD laboratory infrastructure capabilities to counter an expanding threat space, exploit advances in technology, and develop and transition chemical and biological (CB) defense equipment and countermeasures to the Warfighter. This laboratory infrastructure project upgrades key systems to the current state-of-the-art capabilities. Key systems include: gas filters, controls, emergency, mechanical/electrical, and structural systems. This project will ensure that the necessary surety operations can be conducted effectively and safely in support of Chemical and Biological Defense Program (CBDP) RDTE programs. As a force multiplier, this project will provide more robust capabilities to the CBDP and ensure continuity of operations and environmental compliance.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) LABINF - Gas Filters | 1.200 | 1.245 | 1.314 | 0.000 | 1.314 |
| *FY 2009 Accomplishments:*<br>Modernized existing gas filters to include developing new filter designs with the capability of protecting against emerging threat agents. | | | | | |
| *FY 2010 Plans:*<br>Modernize existing gas filters to include developing new filter designs with the capability of protecting against emerging threat agents. | | | | | |
| *FY 2011 Base Plans:*<br>Modernize existing gas filters to include developing new filter designs with the capability of protecting against emerging threat agents. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>LS6: *LABORATORY SUPPORT* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 2) LABINF - Control Systems | 0.991 | 0.995 | 0.896 | 0.000 | 0.896 |
| *FY 2009 Accomplishments:*<br>Modernized mechanical and pneumatic control systems to full digital controls.<br><br>*FY 2010 Plans:*<br>Modernize mechanical and pneumatic control systems to full digital controls.<br><br>*FY 2011 Base Plans:*<br>Modernize mechanical and pneumatic control systems to full digital controls. | | | | | |
| 3) LABINF - Emergency Systems | 0.992 | 0.900 | 0.920 | 0.000 | 0.920 |
| *FY 2009 Accomplishments:*<br>Modernized emergency systems to increase reliability and safety.<br><br>*FY 2010 Plans:*<br>Modernize emergency systems to increase reliability and safety.<br><br>*FY 2011 Base Plans:*<br>Modernize emergency systems to increase reliability and safety. | | | | | |
| 4) LABINF - Mechanical/Electrical Systems | 1.205 | 1.279 | 1.254 | 0.000 | 1.254 |
| *FY 2009 Accomplishments:*<br>Provided upgrades to key systems to ensure worker safety, environmental compliance, and continuity of operations. Upgrades included low-flow hood alarms, redundant exhaust fans and HVAC controllers. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>LS6: *LABORATORY SUPPORT* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Provide upgrades to key systems to ensure worker safety, environmental compliance, and continuity of operations. Upgrades include low-flow hood alarms, redundant exhaust fans and HVAC controllers.<br><br>*FY 2011 Base Plans:*<br>Provide upgrades to key systems to ensure worker safety, environmental compliance, and continuity of operations. Upgrades include low-flow hood alarms, redundant exhaust fans and HVAC controllers. | | | | | |
| 5) LABINF - Structural Systems (Waste Collection and Decon/Neutralization)<br>*FY 2009 Accomplishments:*<br>Modernized methods of decontaminating and cleaning existing large scale agent dissemination test chambers. Upgrading these systems ensured compatibility with the newer decontaminants and threat agents. Upgrading floors, foundations, and building structures enhanced the ability to store, package, and ship chemical surety material.<br><br>*FY 2010 Plans:*<br>Modernize methods of decontaminating and cleaning existing large scale agent dissemination test chambers. Upgrading these systems will ensure compatibility with the newer decontaminants and threat agents. Upgrading floors, foundations, and building structures will enhance the ability to store, package, and ship chemical surety material.<br><br>*FY 2011 Base Plans:*<br>Modernize methods of decontaminating and cleaning existing large scale agent dissemination test chambers. Upgrading these systems will ensure compatibility with the newer decontaminants and threat agents. Upgrading floors, foundations, and building structures will enhance the ability to store, package, and ship chemical surety material. | 0.992 | 0.900 | 0.900 | 0.000 | 0.900 |
| 6) LABINF - Initial Outfitting, Transition, and Equipment | 0.000 | 4.852 | 13.661 | 0.000 | 13.661 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>LS6: *LABORATORY SUPPORT* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Provides key chemical and biological defense effort upgrades, initial outfitting, and equipment for the United States Army Medical Research Institute of Infectious Diseases (USAMRIID) and United States Army Medical Research Institute of Chemical Defense (USAMRICD) infrastructure.<br><br>*FY 2011 Base Plans:*<br>Provides key chemical and biological defense effort upgrades, initial outfitting, and equipment for the USAMRIID and USAMRICD infrastructure. | | | | | |
| 7) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.125 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 5.380 | 10.296 | 18.945 | 0.000 | 18.945 |

**C. Other Program Funding Summary ($ in Millions)**

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>MS6: *RDT&E MGT SUPPORT* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MS6: *RDT&E MGT SUPPORT* | 30.144 | 27.424 | 29.714 | 0.000 | 29.714 | 29.711 | 30.233 | 31.193 | 31.917 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This project provides management support for the DoD CBDP. It includes program oversight and integration of overall medical and non-medical programs by the Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs (ATSD(NCB)) defense programs through the Deputy Assistant to the Secretary of Defense for Chemical and Biological Defense/Chemical Demilitarization (ODATSD(CBD/CD)). Funds execution management is provided by DTRA.

The project also provides for the development, coordination and integration of Joint Chemical, Biological, Radiological and Nuclear (CBRN) defense capability requirements, including assistance and support to the Combatant Commanders and Services to improve CBRN defense related doctrine, education, training, and awareness by the Joint Requirements Office (JRO) Joint CBRN Defense Research, Development, and Acquisition (RDA) planning; and input to the CBD Annual Report to Congress, and program guidance development by the Program Analysis and Integration Office (PA&IO).

The project includes programming support for the Joint Service CB Information System (JSCBIS) which serves as a budgetary and informational database for the DoD CBDP. Also included within the project is financial management services include fund distribution, execution reporting and fiscal financial statements.

This project also supports the Test and Evaluation (T&E) Executive, who is responsible for the planning, balancing, and oversight of test infrastructure and test technology requirements to support Developmental Testing (DT) and Operational Testing (OT) of DoD CBD systems, as outlined in the RDA Plan. The T&E Executive guides JPEO planning and coordination with the Operational Test Activities to plan a series of methodology, instrumentation, and associated validation efforts that provide test infrastructure and technologies for testing RDA systems needed to support all Services, and to ensure the adequacy of testing for RDA systems in alignment with acquisition schedules and associated decision points.

The CBDP T&E Executive directly supports OSD T&E oversight acquisition programs and provides the mechanism for early T&E involvement in the acquisition process. The CBDP T&E Executive provides the T&E infrastructure investment strategy and coordinates investment planning and T&E capabilities validation among the Joint Service Community to ensure that program needs are met.

**B. Accomplishments/Planned Program ($ in Millions)**

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>MS6: *RDT&E MGT SUPPORT* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) JRO MGT | 6.508 | 7.312 | 9.424 | 0.000 | 9.424 |
| *FY 2009 Accomplishments:*<br>Represented the Services and Combatant Commanders in the development, coordination, and integration of CBRN defense operational capabilities across all DoD mission areas. Planned, coordinated and executed the development and review of: Joint CBRN defense capability requirements; DoD CBDP program guidance; Joint CBRN Defense Modernization Plan; Integrated medical and physical sciences CBRN Defense Joint Priority List (JPL); CBRN Defense Joint Future Operational Capabilities; Program Objective Memorandum; Nuclear Posture Review; and the CBD Annual Report to Congress.<br><br>*FY 2010 Plans:*<br>Represent the Services and Combatant Commanders in the development, coordination, and integration of CBRN defense operational capabilities across all DoD mission areas. Plan, coordinate and execute the development and review of: Joint CBRN defense capability requirements; DoD CBDP program guidance; Joint CBRN Defense Modernization Plan; Integrated medical and physical sciences CBRN Defense JPL; CBRN Defense Joint Future Operational Capabilities; Program Objective Memorandum; and the CBD Annual Report to Congress.<br><br>*FY 2011 Base Plans:*<br>Represent the Services and Combatant Commanders in the development, coordination, and integration of CBRN defense operational capabilities across all DoD mission areas. Plan, coordinate and execute the development and review of: Joint CBRN defense capability requirements; DoD CBDP program guidance; Joint CBRN Defense Modernization Plan; Integrated medical and physical sciences CBRN Defense JPL; CBRN Defense Joint Future Operational Capabilities; Program Objective Memorandum; and the CBD Annual Report to Congress. | | | | | |
| 2) JTIWG | 4.905 | 4.625 | 4.857 | 0.000 | 4.857 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>MS6: *RDT&E MGT SUPPORT* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Joint Test Infrastructure Working Group (JTIWG) - Continued Test and Evaluation (T&E) Executive mission to ensure credible testing of Chemical Biological Defense Program (CBDP) systems. Supported the Director for Operational Test and Evaluation (DOT&E) for OSD T&E Oversight and the Joint Program Executive Office for Chemical Biological Defense (JPEO-CBD) and the Joint Requirements Office (JRO) Integrated Process Teams (IPTs) and Integrated Concept teams (ICTs) by providing technical assistance to structure acquisition programs and test scopes. Continued support for early involvement of the Operational Test Agencies (OTAs) and other T&E organizations in T&E infrastructure planning. Initiated T&E Standards Plan and development of interim standards with the CBDP acquisition community. Increased role of T&E Capabilities and Methodologies IPT to establish requirements for T&E capabilities and ensure the T&E procedures are validated. Continued development of threat test support documentation: updated 4 Joint Threat Test Support documents: Joint Effects Model (JEM), Joint Service Lightweight Nuclear, Biological, Chemical Reconnaissance System (JSLNBCRS), Joint Warning and Reporting Network (JWARN), and Joint Operational Effect Federation (JOEF). Provided draft System Threat Assessment Reports (STARs) on JOEF and JWARN. Continued support to JPEO-CBD and Joint Science and Technology Office (JSTO)-CB regarding identification of specific test methodology and test technology needs, to include providing guidance to develop simulants, participation in scientific review panels, and review of technology/ methodology and development plans. Continued to provide guidance to improve the Test and Evaluation Master Plans (TEMPs) for acquisition programs, threat information development, and to expedite Lead OTA assignment and overall coordination. Continued to lead the International T&E methodology development and standardization efforts to support the Australia, Canadian, UK, and US Memorandum of Understanding (MOU). Supported planning for T&E infrastructure input to the Program Objective Memorandum (POM) process and supported JRO, Program Analysis and Integration Office (PA&IO), and SA(CBD & CDP) in helping develop processes to develop baseline info. | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>MS6: *RDT&E MGT SUPPORT* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Joint Test Infrastructure Working Group (JTIWG) - Continue Test and Evaluation (T&E) Executive mission support to ensure credible testing of Chemical Biological Defense Program (CBDP) systems and support to the Director for Operational Test and Evaluation (DOT&E) for OSD T&E Oversight. Continue direct support to the Joint Program Executive Office for Chemical Biological Defense (JPEO-CBD) and the Joint Requirements Office (JRO) Integrated Process Teams (IPTs) and Integrated Concept teams (ICTs) providing technical assistance to structure acquisition programs and test scopes. Continue early involvement of the Operational Test Agencies (OTAs) and other T&E organizations in T&E infrastructure planning. Continue development of threat test support documentation to support developmental and operational tests in which an operational threat must be realistically presented, including Joint Chemical Agent Detector (JCAD), Joint Biological Standoff Detection System (JBSDS), Joint Biological Tactical Detection System (JBTDS), Joint Service Lightweight Nuclear, Biological, Chemical Reconnaissance System (JSLNBCRS), Joint Biological Agent Identification and Diagnostic System (JBAIDS), Joint Warning and Reporting Network (JWARN), Joint Service Transportable Decontamination System Small Scale (JSTDS-SS), and the Improved Point Detection System (IPDS). Continue support to JPEO-CBD and Joint Science and Technology Office (JSTO)-CB regarding specific test methodology and test technology needs, to include updates to the Technology Transition documents, participation in scientific review panels, and review of technology/methodology and development plans. Continue to provide guidance to improve the Test and Evaluation Master Plan (TEMP)s for acquisition programs, threat support documentation development, and development of T&E Capabilities Needs Statements and to expedite Lead OTA assignment and overall coordination. Continue to lead the International T&E methodology development and standardization efforts to support the Australia, Canadian, UK, and US Memorandum of Understanding (MOU). Provide T&E infrastructure input to the Program Objective Memorandum (POM) process and support JRO, Program Analysis and Integration Office (PA&IO), and SA(CBD & CDP) in development and defense of POM and Budget submissions. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>MS6: *RDT&E MGT SUPPORT* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Joint Test Infrastructure Working Group (JTIWG) - Continue Test and Evaluation (T&E) Executive mission support to ensure credible testing of Chemical Biological Defense Program (CBDP) systems and support to the Director for Operational Test and Evaluation (DOT&E) for OSD T&E Oversight. Continue direct support to the Joint Program Executive Office for Chemical Biological Defense (JPEO-CBD) and the Joint Requirements Office (JRO) Integrated Process Teams (IPTs) and Integrated Concept teams (ICTs) providing technical assistance to structure acquisition programs and test scopes. Continue early involvement of the Operational Test Agencies (OTAs) and other T&E organizations in T&E infrastructure planning. Continue development of threat test support documentation to support developmental and operational tests in which an operational threat must be realistically presented, including Joint Chemical Agent Detector (JCAD), Joint Biological Standoff Detection System (JBSDS), Joint Biological Tactical Detection System (JBTDS), Joint Service Lightweight Nuclear, Biological, Chemical Reconnaissance System (JSLNBCRS), Joint Biological Agent Identification and Diagnostic System (JBAIDS), Joint Warning and Reporting Network (JWARN), Joint Service Transportable Decontamination System Small Scale (JSTDS-SS), and the Improved Point Detection System (IPDS). Continue support to JPEO-CBD and Joint Science and Technology Office (JSTO)-CB regarding specific test methodology and test technology needs, to include updates to the Technology Transition documents, participation in scientific review panels, and review of technology/methodology and development plans. Continue to provide guidance to improve the Test and Evaluation Master Plan (TEMP)s for acquisition programs, threat support documentation development, and development of T&E Capabilities Needs Statements and to expedite Lead OTA assignment and overall coordination. Continue to lead the International T&E methodology development and standardization efforts to support the Australia, Canadian, UK, and US Memorandum of Understanding (MOU). Provide T&E infrastructure input to the Program Objective Memorandum (POM) process and support JRO, Program Analysis and Integration Office (PA&IO), and SA(CBD & CDP) in development and defense of POM and Budget submissions. | | | | | |
| 3) OSD MGT | 13.686 | 10.037 | 10.160 | 0.000 | 10.160 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
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| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>MS6: *RDT&E MGT SUPPORT* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Performed program reviews/assessments, provided programmatic Planning, Programming, Budgeting and Execution (PPBE) oversight/analysis, and provided congressional issue analysis and support. Supported financial management services provided by the Defense Threat Reduction Agency (DTRA), such as funding distribution and execution reporting.<br><br>*FY 2010 Plans:*<br>Perform program reviews/assessments, provide programmatic PPBE oversight/analysis, and provide congressional issue analysis and support. Support financial management services provided by DTRA, such as funding distribution and execution reporting.<br><br>*FY 2011 Base Plans:*<br>Perform program reviews/assessments, provide programmatic PPBE oversight/analysis, and provide congressional issue analysis and support. Support financial management services provided by DTRA, such as funding distribution and execution reporting. | | | | | |
| 4) PAIO MGT<br>*FY 2009 Accomplishments:*<br>Developed assessments to support RDA Planning. Provided analytic programmatic support for development of program guidance, the Program, Budget and Execution Reviews, and the PB submissions. Responded to specialized evaluation studies throughout the PPBE process. Provided JSCBIS database management.<br><br>*FY 2010 Plans:*<br>Develop assessments to support RDA Planning. Provide analytic programmatic support for development of program guidance, the Program, Budget and Execution Reviews, and the PB submissions. Respond to specialized evaluation studies throughout the PPBE process. Provide JSCBIS database management. | 5.045 | 5.115 | 5.273 | 0.000 | 5.273 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>MS6: *RDT&E MGT SUPPORT* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Develop assessments to support RDA Planning. Provide analytic programmatic support for development of program guidance, the Program, Budget and Execution Reviews, and the PB submissions. Respond to specialized evaluation studies throughout the PPBE process. Provide JSCBIS database management. | | | | | |
| 5) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.335 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 30.144 | 27.424 | 29.714 | 0.000 | 29.714 |

**C. Other Program Funding Summary ($ in Millions)**

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>O49: *JOINT CONCEPT DEVELOPMENT AND EXPERIMENTATION PROGRAM* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| O49: *JOINT CONCEPT DEVELOPMENT AND EXPERIMENTATION PROGRAM* | 5.848 | 7.215 | 5.730 | 0.000 | 5.730 | 4.977 | 5.062 | 5.211 | 5.311 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

The objectives of the Joint Concept Development and Experimentation (JCDE) program are to plan, conduct, evaluate, and report on joint tests and experiments (for other than developmental hardware) and accomplish capability development assessments. This program will provide ongoing input to the Combatant Commanders and Services for development of doctrine, policy, training procedures, and feedback into the Joint Capabilities Integration and Development System (JCID) and acquisition processes.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) JCDE | 5.848 | 7.125 | 5.730 | 0.000 | 5.730 |
| *FY 2009 Accomplishments:*<br>Supported the JCD for CBRND in conducting workshops, studies, war games and limited objective experiments to explore, refine, and validate potential solutions and alternatives that will update and improve the Joint CBRND concept. | | | | | |
| *FY 2010 Plans:*<br>Support the JCD for CBRND in conducting workshops, studies, war games and limited objective experiments to explore, refine, and validate potential solutions and alternatives that will update and improve the Joint CBRND concept. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605384BP: *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)* | PROJECT<br>O49: *JOINT CONCEPT DEVELOPMENT AND EXPERIMENTATION PROGRAM* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Support the JCD for CBRND in conducting workshops, studies, war games and limited objective experiments to explore, refine, and validate potential solutions and alternatives that will update and improve the Joint CBRND concept. | | | | | |
| 2) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.090 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 5.848 | 7.215 | 5.730 | 0.000 | 5.730 |

**C. Other Program Funding Summary ($ in Millions)**

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605502BP: *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)* |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Program Element | 12.713 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| SB6: *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)* | 12.713 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

The overall objective of the CBD SBIR program is to improve the transition or transfer of innovative CBD technologies between DoD components and the private sector for mutual benefit. The CBD program includes those technology efforts that maximize a strong defensive posture in a biological or chemical environment using passive and active means as deterrents. These technologies include chemical and biological detection; information assessment, which includes identification, modeling, and intelligence; contamination avoidance; and protection of both individual soldiers and equipment.

**B. Program Change Summary ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Current President's Budget | 12.713 | 0.000 | 0.000 | 0.000 | 0.000 |
| Total Adjustments | 12.713 | 0.000 | 0.000 | 0.000 | 0.000 |
| • Congressional General Reductions | | 0.000 | | | |
| • Congressional Directed Reductions | | 0.000 | | | |
| • Congressional Rescissions | 0.000 | 0.000 | | | |
| • Congressional Adds | | 0.000 | | | |
| • Congressional Directed Transfers | | 0.000 | | | |
| • Reprogrammings | 0.000 | 0.000 | | | |
| • SBIR/STTR Transfer | 12.713 | 0.000 | | | |
| • Other Adjustments | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**Change Summary Explanation**

Funding: FY09 - Funding transferred and applied to SBIR program (+$12,713K).

Schedule: N/A

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605502BP: *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)* |

Technical: N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605502BP: *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)* | PROJECT<br>SB6: *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SB6: *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)* | 12.713 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

The SBIR Program is a Congressionally mandated program established to increase the participation of small business in federal research and development (R&D). Currently, each participating government agency must reserve 2.5% of its extramural R&D for SBIR awards to competing small businesses. The goal of the SBIR Program is to invest in the innovative capabilities of the small business community to help meet government R&D objectives while allowing small companies to develop technologies and products which they can then commercialize through sales back to the government or in the private sector.

The Small Business Technology Transfer (STTR) Program like SBIR, is a Government-wide program, mandated by the Small Business Research and Development Enhancement Act of 1992, PL 102-564. STTR was established in FY94 as a three-year pilot program. In early 1996, the General Accounting Office (GAO) conducted a comprehensive review of the Government-wide STTR Program to determine the effectiveness of the pilot program. Upon review of the GAO report, Congress voted to reauthorize the STTR Program to the year 2000, consistent with the authorization period for the SBIR Program.

STTR was established as a companion program to the SBIR Program and is executed in essentially the same manner; however, there are several distinct differences. The STTR Program provides a mechanism for participation by university, Federally-Funded Research and Development Centers (FFRDCs), and other non-profit research institutions. Specifically, the STTR Program is designed to provide an incentive for small companies and research at academic institutions and non-profit research and development institutions to work together to move emerging technical ideas from the laboratory to the marketplace to foster high-tech economic development and to advance U.S. economic competitiveness. Each STTR proposal must be submitted by a team which includes a small business (as the prime contractor for contracting purposes) and at least one research institution, which have entered into a Cooperative Research and Development Agreement for the purposes of the STTR effort. Furthermore, the project must be divided up such that the small business performs at least 40% of the work and the research institution(s) performs at least 30% of the work. The remainder of the work may be performed by either party or a third party. The budget is separate from the SBIR budget and is significantly smaller (0.15% of the extramural R&D budget vs. 2.5% for the SBIR Program).

The DoD has consolidated management and oversight of the CBDP into a single office within the OSD. The Army was designated as the Executive Agent for coordination and integration of the Chemical and Biological Defense (CBD) program. The executive agent for the SBIR/STTR portion of the program is the Army Research Office-Washington.

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 6: *RDT&E Management Support* | R-1 ITEM NOMENCLATURE<br>PE 0605502BP: *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)* | PROJECT<br>SB6: *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)* |

The overall objective of the CBD SBIR/STTR program is to improve the transition or transfer of innovative CBD technologies between DoD components and the private sector for mutual benefit. The CBD program includes those technology efforts that maximize a strong defensive posture in a biological or chemical environment using passive and active means as deterrents. These technologies include chemical and biological detection; information assessment, which includes identification, modeling, and intelligence; contamination avoidance; and protection of both individual soldiers and equipment.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) ZSBIR | 12.713 | 0.000 | 0.000 | 0.000 | 0.000 |
| *FY 2009 Accomplishments:*<br>Small Business Innovative Research. | | | | | |
| Accomplishments/Planned Programs Subtotals | 12.713 | 0.000 | 0.000 | 0.000 | 0.000 |

**C. Other Program Funding Summary ($ in Millions)**

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Program Element | 12.494 | 6.172 | 6.634 | 0.000 | 6.634 | 9.317 | 10.639 | 14.763 | 11.873 | Continuing | Continuing |
| IP7: *INDIVIDUAL PROTECTION OPERATIONAL SYS DEV* | 4.560 | 0.000 | 0.000 | 0.000 | 0.000 | 2.869 | 4.371 | 7.548 | 4.681 | Continuing | Continuing |
| IS7: *INFORMATION SYSTEMS (OP SYS DEV)* | 0.897 | 1.302 | 1.821 | 0.000 | 1.821 | 1.669 | 1.518 | 1.555 | 1.577 | Continuing | Continuing |
| TE7: *TEST & EVALUATION (OP SYS DEV)* | 7.037 | 4.870 | 4.813 | 0.000 | 4.813 | 4.779 | 4.750 | 5.660 | 5.615 | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

This program element provides development efforts to upgrade systems in the Department of Defense (DoD) Chemical Biological Defense Program that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

Efforts in this program element support the upgrade of fielded CB defense equipment against emerging chemical threat agents and toxic industrial chemicals. Specifically this program supports (1) the upgrade of individual protection systems, (2) the JPEO-CBD Software Support Activity (SSA), and (3) revitalization and technical upgrade of existing instrumentation and equipment at Dugway Proving Ground (DPG).

| Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Chemical and Biological Defense Program | DATE: February 2010 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | **R-1 ITEM NOMENCLATURE**<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* |

**B. Program Change Summary ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 12.640 | 6.198 | 0.000 | 0.000 | 0.000 |
| Current President's Budget | 12.494 | 6.172 | 6.634 | 0.000 | 6.634 |
| Total Adjustments | -0.146 | -0.026 | 6.634 | 0.000 | 6.634 |
| • Congressional General Reductions | | -0.026 | | | |
| • Congressional Directed Reductions | | 0.000 | | | |
| • Congressional Rescissions | 0.000 | 0.000 | | | |
| • Congressional Adds | | 0.000 | | | |
| • Congressional Directed Transfers | | 0.000 | | | |
| • Reprogrammings | 0.000 | 0.000 | | | |
| • SBIR/STTR Transfer | -0.146 | 0.000 | | | |
| • Other Adjustments | 0.000 | 0.000 | 6.634 | 0.000 | 6.634 |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2009 | FY 2010 |
|---|---|---|
| **Project:** IP7: *INDIVIDUAL PROTECTION OPERATIONAL SYS DEV* | | |
| Congressional Add: *1) JCEIII* | 2.371 | 0.000 |
| Congressional Add Subtotals for Project: IP7 | 2.371 | 0.000 |
| Congressional Add Totals for all Projects | 2.371 | 0.000 |

**Change Summary Explanation**

Funding: N/A - Adjustments less than 10% of total program.

Schedule: N/A

Technical: N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IP7: *INDIVIDUAL PROTECTION OPERATIONAL SYS DEV* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IP7: *INDIVIDUAL PROTECTION OPERATIONAL SYS DEV* | 4.560 | 0.000 | 0.000 | 0.000 | 0.000 | 2.869 | 4.371 | 7.548 | 4.681 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This project provides developmental efforts to upgrade fielded Individual Protection (IP) systems to include battle dress uniform, gloves, footwear and masks for protection against Non-Traditional Agents.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) JSGPM Filtration -<br>*FY 2009 Accomplishments:*<br>Initiated IPT to explore integration concepts. | 1.639 | 0.000 | 0.000 | 0.000 | 0.000 |
| 2) ESLI -<br>*FY 2009 Accomplishments:*<br>Conducted critical design review for End-of-Service Life Indicator (ESLI), and fabricated final prototype. | 0.550 | 0.000 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 2.189 | 0.000 | 0.000 | 0.000 | 0.000 |

| | FY 2009 | FY 2010 |
|---|---|---|
| Congressional Add: 1) JCEIII | 2.371 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | **R-1 ITEM NOMENCLATURE**<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | **PROJECT**<br>IP7: *INDIVIDUAL PROTECTION OPERATIONAL SYS DEV* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 |
|---|---|---|
| *FY 2009 Accomplishments:*<br>Congressional Interest Item - JSGPM Filtration. Initiated IPT to explore integration concepts, develop new performance specification with increase Toxic Industrial Chemicals (TIC) requirements, start filter qualification. Awarded contract for new filtration development. | | |
| Congressional Adds Subtotals | 2.371 | 0.000 |

**C. Other Program Funding Summary ($ in Millions)**

N/A

**D. Acquisition Strategy**

LCBE

The Lightweight Chemical Biological Ensemble (LCBE) program will pursue an evolutionary incremental approach to provide capability to the Warfighter. Each increment of LCBE will provide technologies with military utility that are modular in function, and offer improvement in form and fit over current systems. The LCBE program will develop, integrate, test, procure and field systems that increase Warfighter operational performance in a CBRN environment via the use of emerging technologies and by leveraging tradespace in areas such as protection level, heat stress, durability, antimicrobial properties, launderability, self-detoxification, protection time, etc. Where appropriate, modeling and simulation tools will be used to lower LCBE program risks, reduce costs and ensure a high confidence in selected technologies.

LCBE INCREMENT 1

The LCBE will use an evolutionary acquisition strategy with phased development. The first LCBE increment will provide an operationally useful and supportable capability in as short a time as possible. Accordingly, Increment 1 of LCBE will incorporate an accelerated development cycle leveraging existing COTS technologies that will, at a minimum, provide a lightweight CB protective garment capability. Gate testing and down-selection of prototypes will comprise the initial phases of the Government's testing program. A competitively awarded contract is planned for DT and Operational Assessment (OA) will occur prior to MS C. Appropriate system requirements reviews, test readiness reviews, producibility reviews and audits will be scheduled as required prior to each milestone.

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IP7: *INDIVIDUAL PROTECTION OPERATIONAL SYS DEV* |

Future increments of LCBE shall be defined via separate Capability Development Document (CDDs)/Capability Production Document (CPDs) and will follow a similar path/process from MS A or MS B through MS C/FRP and will leverage preceding efforts to the greatest extent possible, maintaining commonality and synergy across all increments.

**E. Performance Metrics**

N/A

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IP7: *INDIVIDUAL PROTECTION OPERATIONAL SYS DEV* | |

| | FY 2009 | | | | FY 2010 | | | | FY 2011 | | | | FY 2012 | | | | FY 2013 | | | | FY 2014 | | | | FY 2015 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| ** LCBE - Initiate IPT | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | | | | | |
| Fabricate ESLI Prototype | | ■ | ■ | | | | | | | | | | | | | | | | | | | | | | | | | |
| ESLI Test & Evaluation | | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | | | | |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IP7: *INDIVIDUAL PROTECTION OPERATIONAL SYS DEV* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** LCBE - Initiate IPT | 1 | 2009 | 4 | 2009 |
| Fabricate ESLI Prototype | 2 | 2009 | 3 | 2009 |
| ESLI Test & Evaluation | 2 | 2009 | 1 | 2010 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IS7: *INFORMATION SYSTEMS (OP SYS DEV)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IS7: *INFORMATION SYSTEMS (OP SYS DEV)* | 0.897 | 1.302 | 1.821 | 0.000 | 1.821 | 1.669 | 1.518 | 1.555 | 1.577 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

The project supports the JPEO-CBD Software Support Activity (SSA). The JPEO-CBD SSA is a JPEO-CBD enterprise-wide, user developmental support and Service organization focusing on development assistance and net-centric interoperability. The SSA provides the CBRN Warfighter with Joint Service solutions for Information Assurance, Verification, Validation and Accreditation (VV&A), and Data Management; interoperable and integrated net-centric, Service-oriented, composable solutions for CBD; and infusion of latest technologies into programs of record. CBRN user community and related communities of interest have need for CBRN "plug and play" capability to allow interoperability and re-configurability across the enterprise. The requirement for net-centric, composable solutions provides the near term foundation for the Warfighter's ability to communicate his CBRN solutions and interoperate with other Service operational systems. It also supports a longer term ability to interoperate with related agencies and to reduce the Warfighter's CBRN footprint as technologies improve.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) SSA Integrated Architectures Support | 0.117 | 0.162 | 0.224 | 0.000 | 0.224 |
| *FY 2009 Accomplishments:*<br>Provided and updated program of record integrated architectures.<br><br>*FY 2010 Plans:*<br>Continue to provide and update program of record integrated architectures.<br><br>*FY 2011 Base Plans:*<br>Continue to provide and update program of record integrated architectures. | | | | | |
| 2) SSA Chemical, Biological, Radiological, Nuclear (CBRN) Data Model | 0.108 | 0.153 | 0.244 | 0.000 | 0.244 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IS7: *INFORMATION SYSTEMS (OP SYS DEV)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2009 Accomplishments:*<br>Analyzed requirements and assisted programs with implementation of the CBRN data model.<br><br>*FY 2010 Plans:*<br>Continue to analyze requirements and assist programs with implementation of the CBRN data model.<br><br>*FY 2011 Base Plans:*<br>Continue to analyze requirements and assist programs with implementation of the CBRN data model. | | | | | |
| 3) SSA CBRN Data Model Support<br>*FY 2009 Accomplishments:*<br>Provided CBRN Data Model Reference implementations.<br><br>*FY 2010 Plans:*<br>Continue to provide CBRN Data Model Reference implementations.<br><br>*FY 2011 Base Plans:*<br>Continue to provide CBRN Data Model Reference implementations. | 0.083 | 0.162 | 0.228 | 0.000 | 0.228 |
| 4) SSA CBRN Data Model Updates<br>*FY 2009 Accomplishments:*<br>Supported CBRN Data Model updates.<br><br>*FY 2010 Plans:*<br>Continue to support CBRN Data Model updates.<br><br>*FY 2011 Base Plans:*<br>Continue to support CBRN Data Model updates. | 0.051 | 0.100 | 0.140 | 0.000 | 0.140 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IS7: *INFORMATION SYSTEMS (OP SYS DEV)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 5) SSA Information Assurance Compliance Testing | 0.058 | 0.123 | 0.173 | 0.000 | 0.173 |
| *FY 2009 Accomplishments:*<br>Provided Information Assurance compliance testing for JPEO-CBD programs.<br><br>*FY 2010 Plans:*<br>Continue to provide Information Assurance compliance testing for JPEO-CBD programs.<br><br>*FY 2011 Base Plans:*<br>Continue to provide Information Assurance compliance testing for JPEO-CBD programs. | | | | | |
| 6) SSA Modeling and Simulation Support | 0.121 | 0.153 | 0.208 | 0.000 | 0.208 |
| *FY 2009 Accomplishments:*<br>Provided Modeling and Simulation IPT and Accreditation Steering Group support.<br><br>*FY 2010 Plans:*<br>Provide Modeling and Simulation IPT and Accreditation Steering Group support.<br><br>*FY 2011 Base Plans:*<br>Provide Modeling and Simulation IPT and Accreditation Steering Group support. | | | | | |
| 7) SSA Enterprise Information Support Plans | 0.116 | 0.179 | 0.248 | 0.000 | 0.248 |
| *FY 2009 Accomplishments:*<br>Provided Information Support Plan (ISP) development support for JPEO-CBD programs.<br><br>*FY 2010 Plans:*<br>Continue to provide ISP development support for JPEO-CBD programs. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IS7: *INFORMATION SYSTEMS (OP SYS DEV)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Continue to provide ISP development support for JPEO-CBD programs. | | | | | |
| 8) SSA Help Desk<br>*FY 2009 Accomplishments:*<br>Provided developmental Help Desk support for JPEO-CBD programs and users until they transitioned to sustainment funding. | 0.075 | 0.000 | 0.000 | 0.000 | 0.000 |
| 9) SSA<br>*FY 2009 Accomplishments:*<br>Provided Net-Centric Policy implementation assistance.<br>*FY 2010 Plans:*<br>Continue to provide Net-Centric Policy implementation assistance.<br>*FY 2011 Base Plans:*<br>Continue to provide Net-Centric Policy implementation assistance. | 0.066 | 0.087 | 0.123 | 0.000 | 0.123 |
| 10) SSA<br>*FY 2009 Accomplishments:*<br>Provided Common CBRN Sensor Interface (CCSI) reference implementation guidance.<br>*FY 2010 Plans:*<br>Provide CCSI reference implementation guidance.<br>*FY 2011 Base Plans:*<br>Provide CCSI reference implementation guidance. | 0.064 | 0.084 | 0.118 | 0.000 | 0.118 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IS7: *INFORMATION SYSTEMS (OP SYS DEV)* |

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 11) SSA | 0.038 | 0.083 | 0.115 | 0.000 | 0.115 |
| *FY 2009 Accomplishments:*<br>Supported CCSI updates.<br><br>*FY 2010 Plans:*<br>Support CCSI updates.<br><br>*FY 2011 Base Plans:*<br>Support CCSI updates. | | | | | |
| 12) SBIR | 0.000 | 0.016 | 0.000 | 0.000 | 0.000 |
| *FY 2010 Plans:*<br>Small Business Innovative Research. | | | | | |
| Accomplishments/Planned Programs Subtotals | 0.897 | 1.302 | 1.821 | 0.000 | 1.821 |

**C. Other Program Funding Summary ($ in Millions)**

N/A

**D. Acquisition Strategy**

SSA

The JPEO-CBD Software Support Activity (SSA) is a JPEO-CBD user support organization spanning and supporting all Joint Project Managers (JPMs) and JPEO-CBD Directorates. The SSA provides enterprise-wide services and coordination across all JPEO-CBD Programs of Record (PORs) that contain data or software, or are capable of linking to the Global Information Grid (GIG). The SSA facilitates interoperability, integration, and supportability of existing and developing IT and National Security Systems (NSS) across the JPEO and all JPMs.

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IS7: *INFORMATION SYSTEMS (OP SYS DEV)* |

Phase 1a identifies JPEO-CBD JPMs and programs that deal with data or software, and have an IT component. This will be followed by coordination with the JPMs and programs to facilitate the concepts of interoperability, integration and supportability of enterprise-wide services. Next follows work with user communities to develop and demonstrate enterprise-wide common architectures, products and services. [BA5 - System Development and Demonstration].

Phase 1b established management and control measures for tracking and reporting progress of the various elements described in Phases 1 and 2. This includes establishing, tracking, and performing configuration management of inventories and databases of IT systems and their states of interoperability and information assurance compliance. [BA6 - RDT&E Management Support].

Phase 2 will support the application of the enterprise-wide architectures, products and services into the programs, with verification of compliance with the defined products and services. [BA7 - Operational Systems Development].

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IS7: *INFORMATION SYSTEMS (OP SYS DEV)* |

**Product Development ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** SSA - Development Services | MIPR | SPAWAR System Center San Diego, CA | 0.602 | 0.393 | Oct 2009 | 0.609 | Oct 2010 | 0.000 | | 0.609 | 0.000 | 1.604 | 0.000 |
| | | Subtotal | 0.602 | 0.393 | | 0.609 | | 0.000 | | 0.609 | 0.000 | 1.604 | 0.000 |

**Remarks**

**Support ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** SSA - Develop Support Activities | MIPR | SPAWAR Systems Center San Diego, CA | 0.555 | 0.408 | Oct 2009 | 0.628 | Oct 2010 | 0.000 | | 0.628 | 0.000 | 1.591 | 0.000 |
| | | Subtotal | 0.555 | 0.408 | | 0.628 | | 0.000 | | 0.628 | 0.000 | 1.591 | 0.000 |

**Remarks**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IS7: *INFORMATION SYSTEMS (OP SYS DEV)* | |

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** SSA - Integration Verification and Valuation (IV&V) | MIPR | SPAWAR Systems Center San Diego, CA | 0.425 | 0.485 | Oct 2009 | 0.584 | Oct 2010 | 0.000 | | 0.584 | 0.000 | 1.494 | 0.000 |
| | | Subtotal | 0.425 | 0.485 | | 0.584 | | 0.000 | | 0.584 | 0.000 | 1.494 | 0.000 |

**Remarks**

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | MIPR | HQ AMC, Alexandria | 0.000 | 0.016 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.016 | 0.000 |
| | | Subtotal | 0.000 | 0.016 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.016 | 0.000 |

**Remarks**

| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | 1.582 | 1.302 | | 1.821 | | 0.000 | | 1.821 | 0.000 | 4.705 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IS7: *INFORMATION SYSTEMS (OP SYS DEV)* | |

| | Total Prior Years Cost | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|
| **Remarks** | | | | | | | | |

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IS7: *INFORMATION SYSTEMS (OP SYS DEV)* | |

| | FY 2009 | | | | FY 2010 | | | | FY 2011 | | | | FY 2012 | | | | FY 2013 | | | | FY 2014 | | | | FY 2015 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| ** SSA - Provide Data Model Implementation Guidance | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Provide Enterprise Architecture Products and Services | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Provide Information Assurance Site Compliance Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Provide Integration and Test, M&S, VV&A Certification and Accreditation | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Demonstrate Technology Transition Capabilities | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Provide CM Services for Common User Products and Services | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Provide Net-Centric Assessment and assist programs with implementation of policy | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Develop and provide CBRN Data Model implementation guidance, including reference implementations | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Architecture advisory services to support Warfighter Enterprise and Program Integrated Architectures | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Demonstrate, Verify, Test Technology Transition capabilities especially for Common Components and Services | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IS7: *INFORMATION SYSTEMS (OP SYS DEV)* | |

| | FY 2009 | | | | FY 2010 | | | | FY 2011 | | | | FY 2012 | | | | FY 2013 | | | | FY 2014 | | | | FY 2015 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Provide Information Assurance Certification/ Acceptance products/services, including compliance testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Provide Modeling, Simulation, VV&A, Integration/Test support and interoperability demonstrations. | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Provide FISMA and J6 Interoperability certification support | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Provide CBRN Interface Standards, including reference implementations, e.g. Common CBRN Sensor Interface | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Sustain CBRN Data Model | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Sustain CCSI, including investigation, as an industry standard | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IS7: *INFORMATION SYSTEMS (OP SYS DEV)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** SSA - Provide Data Model Implementation Guidance | 1 | 2008 | 4 | 2015 |
| Provide Enterprise Architecture Products and Services | 3 | 2007 | 4 | 2015 |
| Provide Information Assurance Site Compliance Testing | 3 | 2006 | 4 | 2015 |
| Provide Integration and Test, M&S, VV&A Certification and Accreditation | 2 | 2007 | 4 | 2015 |
| Demonstrate Technology Transition Capabilities | 1 | 2008 | 4 | 2015 |
| Provide CM Services for Common User Products and Services | 1 | 2008 | 4 | 2015 |
| Provide Net-Centric Assessment and assist programs with implementation of policy | 4 | 2007 | 4 | 2015 |
| Develop and provide CBRN Data Model implementation guidance, including reference implementations | 1 | 2008 | 4 | 2015 |
| Architecture advisory services to support Warfighter Enterprise and Program Integrated Architectures | 1 | 2008 | 4 | 2015 |
| Demonstrate, Verify, Test Technology Transition capabilities especially for Common Components and Services | 1 | 2008 | 4 | 2015 |
| Provide Information Assurance Certification/Acceptance products/services, including compliance testing | 1 | 2008 | 4 | 2015 |
| Provide Modeling, Simulation, VV&A, Integration/Test support and interoperability demonstrations. | 1 | 2008 | 4 | 2015 |
| Provide FISMA and J6 Interoperability certification support | 1 | 2008 | 4 | 2015 |
| Provide CBRN Interface Standards, including reference implementations, e.g. Common CBRN Sensor Interface | 1 | 2008 | 4 | 2015 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IS7: *INFORMATION SYSTEMS (OP SYS DEV)* |

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| Sustain CBRN Data Model | 1 | 2008 | 4 | 2015 |
| Sustain CCSI, including investigation, as an industry standard | 1 | 2008 | 4 | 2015 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>TE7: *TEST & EVALUATION (OP SYS DEV)* | |

| COST ($ in Millions) | FY 2009 Actual | FY 2010 Estimate | FY 2011 Base Estimate | FY 2011 OCO Estimate | FY 2011 Total Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TE7: *TEST & EVALUATION (OP SYS DEV)* | 7.037 | 4.870 | 4.813 | 0.000 | 4.813 | 4.779 | 4.750 | 5.660 | 5.615 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**A. Mission Description and Budget Item Justification**

This project provides revitalization and technology upgrades of existing instrumentation and equipment at Dugway Proving Ground (DPG), a Major Range and Test Facility Base (MRTFB), in support of their Chemical Biological test mission.

**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| 1) DPG - MRTFB | 1.790 | 0.904 | 0.866 | 0.000 | 0.866 |
| *FY 2009 Accomplishments:*<br>Provided upgrades of the Life Sciences Test Facility instrumentation and equipment at Dugway Proving Ground (DPG), in support of their CB defense mission. This is the only U.S. facility equipped to test with aerosolized Bio-Safety Level 3 (BSL-3) agents. Upgrades and technology enhancements included: (1) Replacement of old Scanning Electron Microscopes, light microscopes, and old Aerodynamic Particle Sizers with newer Fluorescent Aerodynamic Particle Sizers. These items are replaced using a phased approach over several years; (2) Development of biological aerosols in various conditions inside the test chambers; (3) Full characterization of biological aerosols in various conditions inside the test chambers; (4) An automated aerosol dissemination systems that will vary the concentration of the aerosol cloud; (5) New methods of sampling biologics using mimetics; (6) Development of a deployable Polymerase Chain Reaction sampling system for use in the field testing of biological detection systems; (7) Continued upgrades/improvements to the Containment Aerosol Chamber (CAC) with capability to create environmental conditions with varying combinations of air | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| temperature and relative humidity; and, (8) Continued procurement of microbiological laboratory equipment needed to utilize new Bio-Safety level 3 laboratories.<br><br>*FY 2010 Plans:*<br>Provides upgrades of the Life Sciences Test Facility instrumentation and equipment at Dugway Proving Ground (DPG), in support of their CB defense mission. This is the only U.S. facility equipped to test with aerosolized Bio-Safety Level 3 (BSL-3) agents. Upgrades and technology enhancements include the following: (1) Replacement of a Scanning Electron Microscope and light microscopes; (2) Replacement of Aerodynamic Particle Sizers with newer Fluorescent Aerodynamic Particle Sizers; (3) Full characterization of biological aerosols in various conditions inside the test chambers; (4) An automated liquid aerosol dissemination systems that will vary concentrations of aerosols in chamber and field clouds; (5) Procure aerosol samplers for chamber and field testing; (6) Continued upgrades/ improvements to the Containment Aerosol Chamber (CAC) with capability to create environmental conditions with varying combinations of air temperature and relative humidity; and, (7) Continued procurement of microbiological laboratory equipment needed to utilize new Bio-Safety level 3 laboratories.<br><br>*FY 2011 Base Plans:*<br>Provides upgrades of the Life Sciences Test Facility instrumentation and equipment at Dugway Proving Ground (DPG), in support of their CB defense mission. This is the only U.S. facility equipped to test with aerosolized Bio-Safety Level 3 (BSL-3) agents. Upgrades and technology enhancements include the following: (1) Regular replacement of aging Aerodynamic Particle Sizers with newer Fluorescent Aerodynamic Particle Sizers; (2) Full characterization of biological aerosols in various conditions out in the field; (3) An automated dry powder dissemination system that will vary the concentration of aerosols in test chambers and in the field; (4) Procure aerosol samplers for chamber and field tests; (5) Continue to enhance genotyping system and procure genotyping analysis software; (6) Upgrade aerosol particles generation capabilities for standoff and point detector characterization; | | | | | |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| and, (7) Continued procurement of microbiological laboratory equipment needed to fully utilize Bio-Safety level 3 laboratories. | | | | | |
| 2) DPG - MRTFB | 1.980 | 1.020 | 1.059 | 0.000 | 1.059 |
| *FY 2009 Accomplishments:*<br>Provided for modernization of existing instrumentation and equipment in the major test chambers at DPG, in support of the CB defense mission. These consisted of the following: (1) the Materiel Test Facility which is a unique test chamber where real-world decontamination operations can be tested; (2) Building 4165, which houses updated chemical-surety test facilities and laboratories used for the testing of chemical protective material with chemical agents and simulants; and, (3) Building 3445, which houses two large chambers where testing of large panel decontaminants, filter systems, and Individual Protection Equipment (IPE) in a chemical environment is conducted. Modernization of instrumentation in the chambers included: (1) Continued development of a chemical aerosol generation and sampling capability; and, (2) Characterization of improved and/or articulated testing fixtures. | | | | | |
| *FY 2010 Plans:*<br>Provides for modernization of existing instrumentation and equipment in the major test chambers at DPG, in support of the CB defense mission. These consist of the following: (1) the Materiel Test Facility which is a unique test chamber where real-world decontamination operations can be tested; (2) Building 4165, which houses updated chemical-surety test facilities and laboratories used for the testing of chemical protective material with chemical agents and simulants, and (3) Bldg 3445, which houses two large chambers where testing of large panel decontaminants, filter systems, and Individual Protection Equipment (IPE) in a chemical environment is conducted. Modernization of instrumentation in the chambers included: (1) Continued development of a chemical aerosol generation and sampling capability; (2) Characterization of improved and/or articulated testing fixtures; (3) Enhanced toxic industrial chemical detection and control capability; and (4) Initial enhancements in preparation for non traditional agent test capability. | | | | | |

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|---|---|---|
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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2011 Base Plans:*<br>Provides for modernization of existing instrumentation and equipment in the major test chambers at DPG, in support of the CB defense mission. These consist of the following: (1) the Materiel Test Facility which is a unique test chamber where real-world decontamination operations can be tested; (2) Building 4165, which houses updated chemical-surety test facilities and laboratories used for the testing of chemical protective material with chemical agents and simulants; and (3) Bldg 3445, which houses two large chambers where testing of large panel decontaminants, filter systems, and Individual Protection Equipment (IPE) in a chemical environment is conducted; and the (4) Aerosol Test Facility, which houses chemical simulant vapor test chamber and an aerosol test chamber. Modernization of instrumentation in the chambers included: (1) Continue development of a chemical aerosol generation and sampling capability; and (2) Characterization of improved and/or articulated testing fixtures; and (3) Continue enhancement of toxic industrial chemical detection and test capability; and (4) Non-traditional agent test and detection capability. | | | | | |
| 3) DPG - MRTFB<br>*FY 2009 Accomplishments:*<br>Enhanced existing instrumentation and equipment at the Target S, Downwind, and Tower CB Test Grids at DPG, in support of their CB defense mission. The CB Test Grids are critical for all Developmental Test/Operation Test of CB defense systems. Modernization efforts included: (1) Continued development of a realistic CB threat generation system where challenges for detectors will be done with explosives and dissemination devices that will be present in battlefield situations; (2) Continued modernization of the Aerosol Simulant Exposure Chamber for new simulants; (3) Implementation and integration of real-time data fusion systems for field testing with new weather-characterization and wind-profiling capabilities; and (4) Imitation of telemetric data-transfer capabilities to support field tests. | 1.227 | 1.058 | 1.059 | 0.000 | 1.059 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| *FY 2010 Plans:*<br>Enhance existing instrumentation and equipment at the Target S, Downwind, and Tower CB Test Grids at DPG, in support of their CB defense mission. The CB Test Grids are critical for all Developmental Test/Operation Test of CB defense systems. Efforts are to address requirements not addressed by the PD TESS Test Grid project. Modernization efforts will include: (1) Increased resolution and coverage areas for meteorological monitoring and unique testing requirements; (2) Required raptor management to support monitoring and testing without affecting eagles and migratory birds; (3) Wireless network to support meteorology equipment and other equipment outside of the standard PD TESS test grid frequency; and (4) Standoff referee systems for TICs and aerosols.<br><br>*FY 2011 Base Plans:*<br>Enhances existing instrumentation and equipment at the Target S, Downwind, and Tower CB Test Grids at DPG, in support of their CB defense mission. Efforts are to address requirements not addressed by the PD TESS Test Grid project. The CB Test Grids are critical for all Developmental Test/Operation Test of CB defense systems. Modernization efforts will include: (1) Development of NTA field simulants and monitoring equipment; (2) Increased TIC testing capability for both point and standoff referee systems; (3) Added testing capability to support expanded use of agent like organisms (ALO); and (4) Raptor management and control to support testing without affecting eagles and migratory birds. | | | | | |
| 4) DPG - MRTFB<br>*FY 2009 Accomplishments:*<br>Provided for revitalization and upgrade of existing instrumentation and equipment at the Combined Chemical Test Facility at Dugway Proving Ground (DPG), in support of their CB test mission. The Combined Chemical Test Facility tests the capability of detectors, decontaminants, and protective systems to defend against toxic chemical agents. This project upgraded analytical and field | 2.040 | 1.829 | 1.829 | 0.000 | 1.829 |

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**B. Accomplishments/Planned Program ($ in Millions)**

| | FY 2009 | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total |
|---|---|---|---|---|---|
| instrumentation with current technology to include: (1) Characterization of new and upgraded test fixtures; and, (2) Upgraded control systems for small chambers.<br><br>*FY 2010 Plans:*<br>Provides for revitalization and upgrade of existing instrumentation and equipment at the Combined Chemical Test Facility at Dugway Proving Ground (DPG), in support of their CB test mission. The Combined Chemical Test Facility tests the capability of detectors, decontaminants, and protective systems to defend against toxic chemical agents. This project upgrades analytical and field instrumentation with current technology to include: (1) Characterization of new and upgraded test fixtures such as the advanced air purification fixture and novel closures fixture; (2) Upgraded control systems for small chambers such as the small item decontamination fixture; (3) Installation support for a dynamic test chamber for work with surety agents and toxic chemicals under continuously-varying conditions; (4) Characterization of upgraded real time swatch capability; and (5) Enhancement of the toxic industrial chemical test capability.<br><br>*FY 2011 Base Plans:*<br>Provides for revitalization and upgrade of existing instrumentation and equipment at the Combined Chemical Test Facility at Dugway Proving Ground (DPG), in support of their CB test mission. The Combined Chemical Test Facility tests the capability of detectors, decontaminants, and protective systems to defend against toxic chemical agents. This project upgrades analytical and field instrumentation with current technology to include: (1) Characterization of new and upgraded test fixtures; (2) Upgraded control systems for small chambers; (3) Installation support for the next-generation Chemical Biological Agent Resistance Test (CBART) capability. | | | | | |
| 5) SBIR<br>*FY 2010 Plans:*<br>Small Business Innovative Research. | 0.000 | 0.059 | 0.000 | 0.000 | 0.000 |
| Accomplishments/Planned Programs Subtotals | 7.037 | 4.870 | 4.813 | 0.000 | 4.813 |

| Exhibit R-2A, RDT&E Project Justification: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>TE7: *TEST & EVALUATION (OP SYS DEV)* |

**C. Other Program Funding Summary ($ in Millions)**

N/A

**D. Acquisition Strategy**

T&E UPGRAD

T&E Range Instrumentation/Technology Upgrades is a continuing project. It provides for technical upgrades to DPG capabilities for Chemical and Biological training and testing DoD Chemical and Biological (CB) materiel, weapons, and weapons systems from concept through production.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>TE7: *TEST & EVALUATION (OP SYS DEV)* | |

**Test and Evaluation ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** T&E UPGRAD - Technology Upgrades - DPG, UT | C/FP | Dugway Proving Grounds DPG, UT | 13.924 | 4.811 | Jan 2010 | 4.813 | Jan 2011 | 0.000 | | 4.813 | 0.000 | 23.548 | 0.000 |
| | | Subtotal | 13.924 | 4.811 | | 4.813 | | 0.000 | | 4.813 | 0.000 | 23.548 | 0.000 |

**Remarks**

**Management Services ($ in Millions)**

| | | | | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | MIPR | HQ AMC, Alexandria | 0.000 | 0.059 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.059 | 0.000 |
| | | Subtotal | 0.000 | 0.059 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.059 | 0.000 |

**Remarks**

| | Total Prior Years Cost | FY 2010 | | FY 2011 Base | | FY 2011 OCO | | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | 13.924 | 4.870 | | 4.813 | | 0.000 | | 4.813 | 0.000 | 23.607 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>TE7: *TEST & EVALUATION (OP SYS DEV)* | |

| | Total Prior Years Cost | FY 2010 | FY 2011 Base | FY 2011 OCO | FY 2011 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|
| **Remarks** | | | | | | | | |

| Exhibit R-4, RDT&E Schedule Profile: PB 2011 Chemical and Biological Defense Program | | | DATE: February 2010 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>TE7: *TEST & EVALUATION (OP SYS DEV)* | |

| | FY 2009 | | | | FY 2010 | | | | FY 2011 | | | | FY 2012 | | | | FY 2013 | | | | FY 2014 | | | | FY 2015 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| ** T&E UPGRAD - LSTF Instrumentation & Equip Upgrades, DPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Modernization of Major Test Chambers, DPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Enhance Instrumentation & Equip at Target S, Downwind, & Tower CB Test Grids, DPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Revitalize & Upgrade Instrumentation & Equip at Combined Chemical Test Facility, DPG | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Exhibit R-4A, RDT&E Schedule Details: PB 2011 Chemical and Biological Defense Program | | DATE: February 2010 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | **R-1 ITEM NOMENCLATURE**<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | **PROJECT**<br>TE7: *TEST & EVALUATION (OP SYS DEV)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Event** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** T&E UPGRAD - LSTF Instrumentation & Equip Upgrades, DPG | 2 | 2008 | 2 | 2016 |
| Modernization of Major Test Chambers, DPG | 2 | 2008 | 2 | 2016 |
| Enhance Instrumentation & Equip at Target S, Downwind, & Tower CB Test Grids, DPG | 2 | 2008 | 2 | 2016 |
| Revitalize & Upgrade Instrumentation & Equip at Combined Chemical Test Facility, DPG | 2 | 2008 | 2 | 2016 |