# Department of Defense
# Fiscal Year (FY) 2013 President's Budget Submission

February 2012

## Chemical and Biological Defense Program

*Justification Book Volume 4*

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

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## Table of Volumes

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Defense-Wide
FY 2013 President's Budget
Exhibit R-1 FY 2013 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Jan 2012

| Summary Recap of Budget Activities | FY 2011 Actuals | FY 2012 Base | FY 2012 OCO | FY 2012 Total |
|---|---|---|---|---|
| Basic Research | 48,663 | 52,617 | | 52,617 |
| Applied Research | 171,000 | 219,873 | | 219,873 |
| Advanced Technology Development (ATD) | 218,323 | 229,200 | | 229,200 |
| Advanced Component Development & Prototypes | 267,867 | 213,155 | | 213,155 |
| System Development and Demonstration (SDD) | 294,837 | 316,608 | | 316,608 |
| RDT&E Management Support | 132,651 | 92,806 | | 92,806 |
| Operational Systems Development | 6,521 | 15,956 | | 15,956 |
| Total Research, Development, Test & Evaluation | 1,139,862 | 1,140,215 | | 1,140,215 |

| Summary Recap of FYDP Programs | | | | |
|---|---|---|---|---|
| Research and Development | 1,139,862 | 1,140,215 | | 1,140,215 |
| Total Research, Development, Test & Evaluation | 1,139,862 | 1,140,215 | | 1,140,215 |

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| Summary Recap of Budget Activities | FY 2013 Base | FY 2013 OCO | FY 2013 Total |
|---|---|---|---|
| Basic Research | 50,566 | | 50,566 |
| Applied Research | 223,269 | | 223,269 |
| Advanced Technology Development (ATD) | 234,280 | | 234,280 |
| Advanced Component Development & Prototypes | 179,023 | | 179,023 |
| System Development and Demonstration (SDD) | 311,071 | | 311,071 |
| RDT&E Management Support | 92,849 | | 92,849 |
| Operational Systems Development | 14,745 | | 14,745 |
| Total Research, Development, Test & Evaluation | 1,105,803 | | 1,105,803 |
| **Summary Recap of FYDP Programs** | | | |
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Defense-Wide
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25 Jan 2012

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

| Line No | Program Element Number | Item | Act | FY 2011 Actuals | FY 2012 Base | FY 2012 OCO | FY 2012 Total | Sec |
|---|---|---|---|---|---|---|---|---|
| 6 | 0601384BP | Chemical and Biological Defense Program | 01 | 48,663 | 52,617 | | 52,617 | U |
| | | Basic Research | | 48,663 | 52,617 | | 52,617 | |
| 16 | 0602384BP | Chemical and Biological Defense Program | 02 | 171,000 | 219,873 | | 219,873 | U |
| | | Applied Research | | 171,000 | 219,873 | | 219,873 | |
| 36 | 0603384BP | Chemical and Biological Defense Program - Advanced Development | 03 | 218,323 | 229,200 | | 229,200 | U |
| | | Advanced Technology Development (ATD) | | 218,323 | 229,200 | | 229,200 | |
| 81 | 0603884BP | Chemical and Biological Defense Program - Dem/Val | 04 | 267,867 | 213,155 | | 213,155 | U |
| | | Advanced Component Development & Prototypes | | 267,867 | 213,155 | | 213,155 | |
| 117 | 0604384BP | Chemical and Biological Defense Program - EMD | 05 | 294,837 | 316,608 | | 316,608 | U |
| | | System Development and Demonstration (SDD) | | 294,837 | 316,608 | | 316,608 | |
| 152 | 0605384BP | Chemical and Biological Defense Program | 06 | 132,651 | 92,806 | | 92,806 | U |
| | | RDT&E Management Support | | 132,651 | 92,806 | | 92,806 | |
| 188 | 0607384BP | Chemical and Biological Defense (Operational Systems Development) | 07 | 6,521 | 15,956 | | 15,956 | U |
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| Total Research, Development, Test & Eval, DW | | | | 1,139,862 | 1,140,215 | | 1,140,215 | |

R-1C: FY 2013 President's Budget (Published Version), as of January 25, 2012 at 15:12:56

Defense-Wide
FY 2013 President's Budget
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## Program Element Table of Contents (by Budget Activity then Line Item Number)

***Budget Activity 01: Basic Research***
***Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide***



***Budget Activity 02: Applied Research***
***Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide***



***Budget Activity 03: Advanced Technology Development (ATD)***
***Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide***

***Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)***
***Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide***



***Budget Activity 05: Development & Demonstration (SDD)***
***Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide***



***Budget Activity 06: RDT&E Management Support***
***Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide***

***Budget Activity 07: Operational Systems Development***
***Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide***

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

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

**Fiscal Year (FY) 2013 Budget Estimate**

**The Chemical and Biological Defense Program's (CBDP) Fiscal Year (FY) 2013 President's Budget provides a framework for the allocation of fiscal resources against valid capability requirements to achieve a strategy-driven balance of risk in accordance with National Defense Strategies, Department-level objectives, and Service force development priorities.**

**The overarching goal of the CBDP's FY 2013 President's Budget is to develop and field improved chemical, biological, and radiological (CBR) defense capabilities to the Joint Force in support of the 2010 Quadrennial Defense Review (QDR), Defense Planning Guidance (DPG), the CBDP FY 2012-2017 Program Strategy Guidance (PSG), and warfighter priorities. This budget will strengthen and expand programs that prevent, protect, mitigate, respond to, and recover from CBR threats as part of a layered, integrated defense and improve the warfighter's ability to find, track, interdict, and eliminate CBRN weapons or emerging threats**

**Focused efforts within this budget are captured in a number of emphasis areas that are a collection of mutually-supporting S&T efforts, systems acquisition programs, and T&E capabilities aimed at delivering comprehensive CBR defense capabilities (prevent, protect, mitigate, respond, and recover) to the warfighter. Emphasis areas are derived from National Strategies, senior leader guidance, and CBDP community priorities. Four key emphasis areas are: medical countermeasuress (MCMs), diagnostics and analytics, global biosurveillance, and non-traditional agent (NTA) defenses.**

**MCM Emphasis Area**

**The National Strategy for Countering Biological Threats emphasized the importance of developing MCMs to reduce impacts of outbreaks of infectious disease whether of natural, accidental, or deliberate origin. Homeland Security Presidential Directive (HSPD)-10, "Biodefense for the 21st Century," and HSPD-18, "MCMs Against Weapons of Mass Destruction," directed U.S. government agencies to "conduct joint development and procurement of medical countermeasures" throughout the Interagency and with international partner nations.**

**MCMs include capabilities to protect the warfighter against CBR threats and mitigate illness, suffering, and death. . MCMs will provide end-to-end countermeasures against emerging infectious diseases, genetically engineered threats, naturally occurring biological phenomena, novel chemical agents, and radiological threats.**

**Contributing programs or efforts include core medical efforts aimed at developing and delivering pretreatments/prophylaxes and therapeutics to the warfighter. MCMs in development by the CBDP traditionally fall into one of two categories: 1) pretreatments/prophylaxes such as a plague vaccine and 2) post-exposure, pre/post-symptomatic therapeutics such as the Hemorrhagic Fever Virus therapeutic.**

**This area also includes the DoD response to an Administration request to complete the following: (1) establish agile and flexible Advanced Development and Manufacturing (ADM) capabilities to support the rapid and efficient development, licensure, and production of MCMs; (2) fund S&T efforts to develop the next generation of manufacturing systems and regulatory science technologies; and (3) establish an MCM T&E facility to address national demand for animal T&E studies and related requirements. These efforts build on existing MCM initiative and programs at the Department of Health and Human Services (Centers for Innovation in ADM) and DoD.**

**The CBDP is currently charged with addressing all of the components listed above in order to achieve the DoD objectives, streamline inter-related ADM activities, and advance and integrate new manufacturing methods that may increase yield and reduce production time of priority MCMs. Initially, these needs were first addressed by the CBDP during FY 12 and resulted in a core level of funding needed to establish the S&T and advanced development components as part of the general ADM capability (formerly titled MCMI).**

**Diagnostics and Analytics Emphasis Area**

**Diagnostic and analytic-related efforts are a centerpiece of the CBDP's comprehensive capability to counter CBR threats and characterize CBR attacks or events by diagnosing causative agents of disease and providing situational awareness of threat agents in the environment. The CBDP has resourced a robust portfolio that includes S&T of CBR diagnostics, systems development and procurement of point-of-need/point-of-care diagnostic equipment, and continuous assay development and procurement to support fielded and developmental diagnostic or analytic platforms (i.e., JBAIDS (Joint Biological Agent Identification and Diagnostic System), NGDS (Next Generation Diagnostic System), and CALS (Common Analytical Laboratory System)).**

**Global Biosurveillance Emphasis Area**

**The CBDP contributes to the DoD's efforts to provide a layered and integrated response to the biological defense challenges facing the warfighter and homeland; the ability to strengthen and integrate capabilities that provide awareness of endemic pathogens in the environment along with warning and characterization of biological attacks or events (analysis and diagnostics) for decision-making; the ability to find, track, interdict, and eliminate biological weapons and threats directed against our warfighters and citizens; and the means to strengthen our ability to conduct forensics and attribution and to prevent re-attack.**

**The CBDP capabilities represent both pre-event (early warning and indications) and post-event (effective consequence management and persistent surveillance for re-emergence) activities necessary to improve early warning and characterization of man-made (i.e., genetically engineered/synthetic biological agents) and naturally occurring (i.e., emerging infectious diseases and the re-emergence of pathogens from zoonotic reservoirs) disease outbreaks in near real-time. Included in these efforts are the Critical Reagents Program, Joint Biological Point Detection System, Biosurveillance, the Next Generation Diagnostics System, and the Joint Biological Agent Identification and Diagnostic System.**

**Non Traditional Agent (NTA) Defense Emphasis Area**

**The 2010 QDR directed the DoD to increase resources for R&D of countermeasures and defenses to NTAs in concert with interagency partners. The CBDP works to:**

- **Develop technologies that address existing and emerging NTAs in the near-, mid-, and far-term, including the ability to address multiple capability gaps and provide multi-layered and integrated defenses to NTAs**
- **Strengthen and integrate capabilities that provide warning of attack, barrier protection, and both pretreatments/prophylaxes and post-exposure treatments**
- **Field faster, more flexible consequence management capabilities on the battlefield and in the homeland**
- **Develop capabilities, policies, and plans that enable us to act swiftly to save lives and restore the effectiveness of contaminated areas.**

**In order to adequately align efforts with the four emphasis areas, CBDP S&T efforts reported in the FY 2013 budget estimate have been restructured from previous budget estimates. Specific realignments are noted throughout Budget Activities (BAs) 1 through 3.**

**This FY 2013 budget estimate achieves a structured, executable, and integrated medical and non-medical joint CB Defense Program balanced to address national priorities. The 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 far-term investment in technologies.**

| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Chemical and Biological Defense Program | | | | | | | | | | DATE: February 2012 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 2011** | **FY 2012** | **FY 2013 Base** | **FY 2013 OCO** | **FY 2013 Total** | **FY 2014** | **FY 2015** | **FY 2016** | **FY 2017** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 48.663 | 52.617 | 50.566 | - | 50.566 | 53.478 | 51.436 | 61.040 | 61.101 | Continuing | Continuing |
| CB1: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | 31.697 | - | - | - | - | - | - | - | - | 0.000 | 31.697 |
| IS1: *CHEM/BIOLO DEFENSE - INFORMATION SCIENCES (BASIC RESEARCH)* | - | 2.259 | - | - | - | - | - | - | - | 0.000 | 2.259 |
| LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)* | - | 24.838 | 34.563 | - | 34.563 | 36.147 | 33.814 | 40.389 | 40.389 | Continuing | Continuing |
| PS1: *CHEM/BIO DEFENSE - PHYSICAL SCIENCES (BASIC RESEARCH)* | - | 18.064 | 16.003 | - | 16.003 | 17.331 | 17.622 | 20.651 | 20.712 | Continuing | Continuing |
| TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)* | 13.544 | 7.456 | - | - | - | - | - | - | - | 0.000 | 21.000 |
| TC1: *MEDICAL CHEMICAL DEFENSE (BASIC RESEARCH)* | 2.644 | - | - | - | - | - | - | - | - | 0.000 | 2.644 |
| TR1: *MEDICAL RADIOLOGICAL DEFENSE (BASIC RESEARCH)* | 0.778 | - | - | - | - | - | - | - | - | 0.000 | 0.778 |

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

This Program Element supports the Joint Service basic research program for 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 physical, life and information sciences. A portion of this program element directly supports basic research efforts for the transformational medical technologies program. The work in this program element is consistent with the Chemical Biological Defense Program Research, Development and Acquisition (RDA) Plan. Basic research technological breakthroughs support applied research (PE 0602384BP) activities. Basic research activities described in this budget justification leverage existing research programs and activities within the DoD and other government agencies and promotes cross-pollination between government and academia, as well as sponsors promising efforts of world class scientists. 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 2013 Chemical and Biological Defense Program | DATE: February 2012 |
|---|---|
| **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)* |

The Projects within this BA change in FY12 to reflect the research areas of Information Sciences (IS1), Life Sciences (LF1), and Physical Sciences (PS1), but Medical Biological Defense (TB1) is retained. The projects of CB1 (Chemical/Biological Defense), TC1 (Medical Chemical Defense), and TR1 (Medical Radiological Defense), will not be used after FY11. The TB1 (Medical Biological Defense) project will not be used after FY12, with efforts moving into Project LF1 (Life Sciences).

| B. Program Change Summary ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 49.508 | 52.617 | 54.573 | - | 54.573 |
| Current President's Budget | 48.663 | 52.617 | 50.566 | - | 50.566 |
| Total Adjustments | -0.845 | - | -4.007 | - | -4.007 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | -0.593 | - | | | |
| • Other Adjustments | -0.252 | - | -4.007 | - | -4.007 |

**Change Summary Explanation**

Funding: Adjustments less than 10% of total program.

Schedule: N/A

Technical: N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CB1: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | 31.697 | - | - | - | - | - | - | - | - | 0.000 | 31.697 |

**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, and 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 advance fundamental knowledge and understanding of the sciences. These efforts may be transitioned to applied research or advanced technology 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 Research) or Budget Activity 3 (Advanced Technology Demonstrations). The basic research efforts promote cross-pollination between government and academia, as well as sponsorship of promising efforts of world class scientists while promoting the development of young researchers.

In FY12, all Project CB1 research will be realigned to Project LF1 - Life Sciences (Basic Research), PS1 - Physical Sciences (Basic Research), and IS1 - Information Systems (Basic Research).

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Basic Research Core | 8.340 | - | - |
| ***Description:*** Chemical, Biological, and Bio-Inspired Science: Focuses on discovering fundamental phenomena that could impact chemical and biological defense. In FY12, all Chemical, Biological, and Bio-Inspired Science efforts are re-aligned to a new project within BA1 - Life Sciences (Basic Research) (LF1). | | | |
| ***FY 2011 Accomplishments:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continued developing novel tools to investigate cells and cell mechanisms. Continued to investigate and leverage developments in bioscience, bio-inspired science, and chemical sciences to support and improve fundamental scientific understanding. Leveraged and merged developments with other basic research areas such as information sciences and surface and signature sciences. Initiated efforts in response to identified science gaps. | | | |
| ***Title:*** 2) Basic Research Core<br>***Description:*** Information Science: Leverages new developments in information and computation to impact modeling and other chemical and biological defense efforts. In FY12, all Information Science efforts are re-aligned to a new project within BA1 - Information Sciences (Basic Research) (IS1).<br>***FY 2011 Accomplishments:***<br>Continued investigating genetic algorithms and studying effects of heightened sensory input during chemical biological warfare events. Utilized efforts in information sciences to inform other areas of core chemical and biological defense programs, such as modeling and computational efforts. | 5.692 | - | - |
| ***Title:*** 3) Basic Research Core<br>***Description:*** Surface and Signature Sciences: The study of physical and chemical properties that seeks to improve physical capabilities, such as, detection and decontamination. In FY12, all Surface and Signature Sciences efforts are re-aligned to a new project within BA1 - Physical Sciences (Basic Research) (PS1).<br>***FY 2011 Accomplishments:***<br>Continued studying interactions of chemical and biological agents with biological and environmental matrices, and developed novel tools to investigate surface and signature sciences to address capability gaps. Studied signature sciences and surface interactions. | 8.965 | - | - |
| ***Title:*** 4) Basic Research Core<br>***Description:*** Nano-Scale Sciences: Improve understanding of nano-scale materials (scale of 1-100 nanometers in length) for use in chemical and biological defense. In FY12, all Nano-Scale Science efforts are re-aligned to a new project within BA1 - Physical Sciences (Basic Research) (PS1).<br>***FY 2011 Accomplishments:***<br>Completed investigations into new textiles with a higher resistance to oily substances or with adjustable porosity. Completed study of compounds which mimic biological organisms and nano-scale sensing technologies for identification of agents. Studied interfaces between nano-materials and living cells, and study systems found in nature for creative solutions for future protection concepts. Advancements made in nano-scale sciences may apply to and be leveraged by other basic research areas such as | 8.700 | - | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| biosciences and bio-inspired sciences, surface and signature science, informational science, and threat agent science (TAS) activities funded in Budget Activity 2. | | | |
| **Accomplishments/Planned Programs Subtotals** | 31.697 | - | - |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • IS1: *CHEM/BIOLO DEFENSE - INFORMATION SCIENCES (BASIC RESEARCH)* | 0.000 | 2.259 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.259 |
| • LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)* | 0.000 | 24.838 | 34.563 | | 34.563 | 36.147 | 33.814 | 40.389 | 40.389 | Continuing | Continuing |
| • PS1: *CHEM/BIO DEFENSE - PHYSICAL SCIENCES (BASIC RESEARCH)* | 0.000 | 18.064 | 16.003 | | 16.003 | 17.331 | 17.622 | 20.651 | 20.712 | Continuing | Continuing |
| • CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 85.789 | 97.774 | 44.331 | | 44.331 | 41.819 | 40.951 | 52.243 | 52.243 | Continuing | Continuing |
| • CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* | 21.219 | 23.818 | 20.034 | | 20.034 | 18.343 | 18.893 | 17.357 | 17.357 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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>IS1: *CHEM/BIOLO DEFENSE - INFORMATION SCIENCES (BASIC RESEARCH)* | |

| COST ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IS1: *CHEM/BIOLO DEFENSE - INFORMATION SCIENCES (BASIC RESEARCH)* | - | 2.259 | - | - | - | - | - | - | - | 0.000 | 2.259 |

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

This project (IS1) advances fundamental knowledge in mathematics, modeling and bioinformatics. Research efforts include exploration of macro- and micro-scale meteorological effects on CB agent transport and dispersion that can lead to new and improved algorithms for hazard prediction and new CB decision support tools; and computational algorithm development of biological processes that can lead to new or improved medical countermeasures.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Information Sciences (Basic Research)<br>***Description:*** Information Science (Basic Research) focuses on advancing knowledge of in-silico modeling techniques for both physical and physiological environments to enable a greater understanding of CB threats.<br>***FY 2012 Plans:***<br>Develop quantitative computational models for metabolic networks of pathogens which include interactions with host cell environments. Use computational models to identify interactions that are candidate targets for medical countermeasures. | - | 2.227 | - |
| ***Title:*** 2) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.032 | - |
| **Accomplishments/Planned Programs Subtotals** | - | 2.259 | - |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CB1: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | 31.697 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 31.697 |
| • CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 85.789 | 97.774 | 44.331 | | 44.331 | 41.819 | 40.951 | 52.243 | 52.243 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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>IS1: *CHEM/BIOLO DEFENSE - INFORMATION SCIENCES (BASIC RESEARCH)* |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* | 21.219 | 23.818 | 20.034 | | 20.034 | 18.343 | 18.893 | 17.357 | 17.357 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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>LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)* | |

| COST ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)* | - | 24.838 | 34.563 | - | 34.563 | 36.147 | 33.814 | 40.389 | 40.389 | Continuing | Continuing |

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

This project (LF1) supports research efforts in fundamental science phenomenology in microbiology, biochemistry, pathogenic mechanisms, cell and molecular biology, and immunology that are investigating molecular signatures, mechanisms of action, recognition, catalysis, and biomimetics. Efforts in Life Sciences (Basic Research) include: innovative biotechnology approaches with potential application for rapidly identifying, diagnosing, preventing, and treating disease resulting from exposure to biological or chemical agents, or from radiological exposure; biological and bio-inspired science addressing concepts such as synthetic biology, biomimetics; and other emerging areas of science to build a foundation for developing novel materials. Ultimately, knowledge gained through research in this area supports the development of medical and physical countermeasures against biological or chemical agents in areas such as diagnostics, detection, biosurveillance, protection (both physical and vaccine) and therapeutic intervention.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Life Sciences (Basic Research) | - | 24.540 | 34.563 |

***Description:*** Life Sciences (Basic Research) focuses on fundamental efforts to investigate molecular signatures, mechanisms of action, recognition, catalysis and biomimetics, as well as agent interactions and evolution.

***FY 2012 Plans:***

Elucidate interactions between biological (bacterial, viral or toxin) or chemical agents and their host and host cells to understand mechanisms of pathogenesis and/or protective immunity. Examine polymicrobial interactions that may impact the growth of biological agents and/or their course of disease. Investigate immunological and physiological bases for tolerance to, or protection against, organophosphorous agents. Characterize the host response to ionizing radiation and mechanisms of injury. Study the evolution of viral and bacterial families at the genomic and phenotypic levels and characterize molecular signatures of virulence and/or manipulation in the laboratory (e.g., genetic modification and culturing). Explore the mechanisms by which viruses modulate virulence and target host species. Understand mechanisms behind the functionality of biological systems. Explore novel techniques for the design and synthesis of biomimetic reagents for affinity and reactivity.

***FY 2013 Plans:***

Continue previous work emphasizing efforts to understand pathogens, novel threats and host responses (including human and zoonotic). Investigate and evaluate systemic biological responses following exposure of living systems to CB agents. Improve understanding of polymicrobial interactions influencing response to or course of disease. Exploit advances in systems biology to mine "omics" experimental designs involving agents and hosts to provide new biomarkers, targets and options. "omics" informally

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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>LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| refers to a field of study in biology ending in -omics, such as genomics or proteomics. Explore materials in biotic/abiotic interface and biomimetics to enable functional molecular development (such as robust synthetic enzymes). | | | |
| ***Title:*** 2) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.298 | - |
| **Accomplishments/Planned Programs Subtotals** | - | 24.838 | 34.563 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CB1: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | 31.697 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 31.697 |
| • TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)* | 13.544 | 7.456 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 21.000 |
| • TC1: *MEDICAL CHEMICAL DEFENSE (BASIC RESEARCH)* | 2.644 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.644 |
| • TR1: *MEDICAL RADIOLOGICAL DEFENSE (BASIC RESEARCH)* | 0.778 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.778 |
| • CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 85.789 | 97.774 | 44.331 | | 44.331 | 41.819 | 40.951 | 52.243 | 52.243 | Continuing | Continuing |
| • TB2: *MEDICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 51.158 | 86.679 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 137.837 |
| • TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* | 31.970 | 34.614 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 66.584 |
| • TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* | 0.000 | 0.000 | 118.208 | | 118.208 | 110.294 | 97.308 | 130.654 | 130.654 | Continuing | Continuing |
| • TR2: *MEDICAL RADIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 2.083 | 0.806 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.889 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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>LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)* | |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* | 21.219 | 23.818 | 20.034 | | 20.034 | 18.343 | 18.893 | 17.357 | 17.357 | Continuing | Continuing |
| • TB3: *MEDICAL BIOLOGICAL DEFENSE (ATD)* | 153.437 | 172.394 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 325.831 |
| • TC3: *MEDICAL CHEMICAL DEFENSE (ATD)* | 25.486 | 21.789 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 47.275 |
| • TR3: *MEDICAL RADIOLOGICAL DEFENSE (ATD)* | 2.402 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.402 |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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>PS1: *CHEM/BIO DEFENSE - PHYSICAL SCIENCES (BASIC RESEARCH)* | |

| COST ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PS1: *CHEM/BIO DEFENSE - PHYSICAL SCIENCES (BASIC RESEARCH)* | - | 18.064 | 16.003 | - | 16.003 | 17.331 | 17.622 | 20.651 | 20.712 | Continuing | Continuing |

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

This project (PS1) advances fundamental scientific knowledge in physical science areas that include chemistry, physics, materials science, environmental sciences, and nanotechnology that could potentially lead to transformational CB defensive capabilities enhancing Warfighter performance and safety. Research results in physics, chemistry and materials sciences have potential application in point and standoff detection, as well as protection and decontamination. Surface and environmental sciences focus on the study of physical and chemical properties and phenomena of interactions, especially with regard to Non Traditional Agents (NTAs), that seek to improve capabilities such as detection, protection, and decontamination. Research in nanotechnology and nanoscale sciences, such as nanoelectromechanical systems, molecular motors, nanomechanical resonance sensing, and nanometer imaging, has potential application across CB capability areas to provide significant enhancement by, for example, decreasing detection response times, increasing medical countermeasure effectiveness against a wider array of threat agents, and providing currently unavailable modalities like detection imbedded in fabrics.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Physical Sciences (Basic Research) | - | 17.805 | 16.003 |
| ***Description:*** Physical Sciences (Basic Research) focuses on fundamental scientific phenomena including chemistry, physics, materials science, environmental science, and nanotechnology.<br><br>***FY 2012 Plans:***<br>Explore improved surface and interfacial analytical methods for chemical and biological detection, particularly nanoscale chemical and biological sensing/detection, with the goal of more sensitive and selective recognition of molecular or surface interaction signatures. Investigate advances in materials science that might ultimately contribute to enhanced protection and improved detection capabilities. Initiate studies in the design, synthesis, and fundamental understanding of novel materials for improved filtration and decontamination of chemical or biological threats. Initiate studies in spectroscopic methods, novel detection approaches, and materials science for detecting chemical or biological threats on surfaces. Initiate studies to improve fundamental understanding of fluidic behavior at the nanoscale, as well as new spectra for potentially improved point detection capabilities. Explore how computational chemistry and physics, including theoretical predictions of optical and THz signatures, might contribute to improved analytical methods and materials science.<br><br>***FY 2013 Plans:***<br>Explore development of multifunctional material design and synthesis that identifies materials that integrate functionality with durability to improve CB protection by increasing protection factors (resistance or filtration) and reducing physical burden. Create | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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>PS1: *CHEM/BIO DEFENSE - PHYSICAL SCIENCES (BASIC RESEARCH)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| novel decontamination options (through design and synthesis of novel materials/solutions) that are more broadly applicable to multiple chemicals or biologicals with less potential to harm equipment. Seek advanced options (through both experimental and theoretical efforts) for threat identification such as new spectra of signatures (THz and more) as well as other recognition elements (e.g., fluidic behavior) that reduce the requirements for consumables or logistics while increasing specificity. Explore integration of functionality that may provide dynamic capabilities for CB defense countermeasures. | | | |
| ***Title:*** 2) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.259 | - |
| **Accomplishments/Planned Programs Subtotals** | - | 18.064 | 16.003 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CB1: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)* | 31.697 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 31.697 |
| • CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 85.789 | 97.774 | 44.331 | | 44.331 | 41.819 | 40.951 | 52.243 | 52.243 | Continuing | Continuing |
| • CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* | 21.219 | 23.818 | 20.034 | | 20.034 | 18.343 | 18.893 | 17.357 | 17.357 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)* | 13.544 | 7.456 | - | - | - | - | - | - | - | 0.000 | 21.000 |

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

This project (TB1) supports basic research of vaccines, diagnostic tools, and therapeutic drugs to provide effective medical defense against validated biological threat agents including bacteria, toxins, and viruses. Research efforts advance promising innovative biotechnology approaches with the potential to rapidly identify, diagnose, prevent, and treat disease due to exposure to biological threat agents. This project supports core science efforts that may be applied to biological defense capability areas, such as Pretreatments, Diagnostics, and Therapeutics.

This project includes basic research to support Transformational Medical Technologies (TMT) efforts. The program was launched to respond to the threat of emerging or intentionally bioengineered biological threats. Research efforts evaluate the molecular characteristics of the interaction between host and pathogen, characterize the host's response to infection/intoxication and identify common mechanisms and/or pathways. The research also studies the correlates of immunity (common response against different pathogens), and looks for pre-symptomatic bio-markers.

In FY12, all Project TB1 research (other than Transformational Medical Technologies (TMT) efforts are realigned to Project LF1 - Life Sciences (Basic Research). In FY13, all remaining Project TB1 research (Transformational Medical Technologies (TMT)) will be realigned to Project LF1 - Life Sciences (Basic Research).

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Biological Based (Basic Research) | 8.494 | - | - |
| ***Description:*** Research to understand biological agents of interest, their pathways, virulence, immunization factors and identification. In FY12, all Biological Based (Basic Research) efforts are realigned to Life Sciences (Basic Research) (LF1).<br><br>***FY 2011 Accomplishments:***<br>Conducted studies of pathogenic mechanisms for viral and bacterial biothreat agents and toxins. Clarified mechanisms of host-pathogen interaction to identify mechanisms of pathogenesis and/or correlates of protective immunity against biothreat agents. Defined novel and/or shared antigens from viral and bacterial threat agents to be used in the design of future treatment options. Defined the contribution of post-translational modification to the structure and biology of BoNT. Researched novel constructs for affinity reagents for the identification of biological warfare agents and biomarkers. | | | |
| ***Title:*** 2) Transformational Medical Technologies | - | 7.349 | - |
| ***Description:*** Platform Technologies are stand-alone enabling technologies that support MCM development and when strategically aligned, provide a system of systems response capability to an adverse biological event - from the identification of an unknown pathogen to the development of an approved countermeasure ready for delivery to the Warfighter and the nation. | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| The enabling technologies are divided into five platform areas: Pathogen Characterization, Target Identification, Countermeasure Discovery, Countermeasure Evaluation, and Bioinformatics.<br><br>***FY 2012 Plans:***<br>Continue basic research efforts previously funded under the Transformational Medical Technologies Initiative. Continue to increase investment in the exploration of genetic approaches to describe host susceptibility to infectious disease and immune response. Investigate alternatives to animal models using markers of virulence, and therapeutic toxicity and efficacy. Assess developments in technologies for formulation and delivery of MCMs. In FY13, all research in this area is re-aligned into Life Sciences (Basic Research) (LF1). | | | |
| ***Title:*** 3) Transformational Medical Technologies Initiative<br><br>***Description:*** Platform Technologies are stand-alone enabling technologies that support MCM development and when strategically aligned, provide a system of systems response capability to an adverse biological event - from the identification of an unknown pathogen to the development of an approved countermeasure ready for delivery to the Warfighter and the nation. The enabling technologies are divided into five platform areas: Pathogen Characterization, Target Identification, Countermeasure Discovery, Countermeasure Evaluation, and Bioinformatics. Effective FY12 this effort is funded as the Transformational Medical Technologies.<br><br>***FY 2011 Accomplishments:***<br>Continued to investigate new drug-based platforms which may be able to generate families of broad spectrum drugs to protect against bio-threat agents. Developed components to evaluate which technologies are appropriate for each aspect of the countermeasure development. Continued to support discovery of conserved host and pathogen directed targets for the development of broad spectrum drugs against BW agents. Continued to develop leading edge technologies to assist in pathogen characterization, target identification, countermeasure discovery and countermeasure evaluation. | 5.050 | - | - |
| ***Title:*** 4) SBIR<br><br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.107 | - |
| **Accomplishments/Planned Programs Subtotals** | 13.544 | 7.456 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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)* | |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)* | 0.000 | 24.838 | 34.563 | | 34.563 | 36.147 | 33.814 | 40.389 | 40.389 | Continuing | Continuing |
| • TB2: *MEDICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 51.158 | 86.679 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 137.837 |
| • TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* | 0.000 | 0.000 | 118.208 | | 118.208 | 110.294 | 97.308 | 130.654 | 130.654 | Continuing | Continuing |
| • TB3: *MEDICAL BIOLOGICAL DEFENSE (ATD)* | 153.437 | 172.394 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 325.831 |
| • TM3: *TECHBASE MED DEFENSE (ATD)* | 0.000 | 0.000 | 182.330 | | 182.330 | 171.399 | 147.651 | 136.326 | 136.326 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TC1: *MEDICAL CHEMICAL DEFENSE (BASIC RESEARCH)* | 2.644 | - | - | - | - | - | - | - | - | 0.000 | 2.644 |

**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 FY12, all Project TC1 research will be realigned to Project LF1 - Life Sciences (Basic Research).

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Chemical Based (Basic Research) (CBBR) | 2.644 | - | - |
| ***Description:*** Research focuses on understanding chemical agents, their mechanism of action, toxicity, cellular injury, and identification. In FY12, all Chemical Based (Basic Research) efforts are re-aligned to a new project within BA1 - Life Sciences Basic Research (LF1).<br><br>***FY 2011 Accomplishments:***<br>Researched pathways of molecular mechanisms of injury associated with chemical warfare agents. Conducted mechanistic studies using appropriate in vitro models to identify the biochemical cascade of effects following chemical agent exposure. Generated basic information for initial design and synthesis of medical countermeasures, located in Budget Activity 2, Project TC2. | | | |
| **Accomplishments/Planned Programs Subtotals** | 2.644 | - | - |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)* | 0.000 | 24.838 | 34.563 | | 34.563 | 36.147 | 33.814 | 40.389 | 40.389 | Continuing | Continuing |
| • TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* | 31.970 | 34.614 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 66.584 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* | 0.000 | 0.000 | 118.208 | | 118.208 | 110.294 | 97.308 | 130.654 | 130.654 | Continuing | Continuing |
| • TC3: *MEDICAL CHEMICAL DEFENSE (ATD)* | 25.486 | 21.789 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 47.275 |
| • TM3: *TECHBASE MED DEFENSE (ATD)* | 0.000 | 0.000 | 182.330 | | 182.330 | 171.399 | 147.651 | 136.326 | 136.326 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TR1: *MEDICAL RADIOLOGICAL DEFENSE (BASIC RESEARCH)* | 0.778 | - | - | - | - | - | - | - | - | 0.000 | 0.778 |

**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.

In FY12, all Project TR1 research will be realigned to Project LF1 - Life Sciences (Basic Research).

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Medical Radiological Defense | 0.778 | - | - |
| ***Description:*** Research focuses on understanding mechanisms of injury from radiation exposure. In FY12, all Medical Radiological Defense efforts are re-aligned to a new project with BA1 - Life Sciences (Basic Research) (LF1).<br><br>***FY 2011 Accomplishments:***<br>Continued projects begun in FY10 to understand cellular and molecular responses to ionizing radiation and identify biomarkers of radiation exposure. | | | |
| **Accomplishments/Planned Programs Subtotals** | 0.778 | - | - |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)* | 0.000 | 24.838 | 34.563 | | 34.563 | 36.147 | 33.814 | 40.389 | 40.389 | Continuing | Continuing |
| • TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* | 0.000 | 0.000 | 118.208 | | 118.208 | 110.294 | 97.308 | 130.654 | 130.654 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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)* | |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TR2: *MEDICAL RADIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 2.083 | 0.806 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.889 |
| • TM3: *TECHBASE MED DEFENSE (ATD)* | 0.000 | 0.000 | 182.330 | | 182.330 | 171.399 | 147.651 | 136.326 | 136.326 | Continuing | Continuing |
| • TR3: *MEDICAL RADIOLOGICAL DEFENSE (ATD)* | 2.402 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.402 |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Chemical and Biological Defense Program | | | | | | | | | | DATE: February 2012 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 2011** | **FY 2012** | **FY 2013 Base** | **FY 2013 OCO** | **FY 2013 Total** | **FY 2014** | **FY 2015** | **FY 2016** | **FY 2017** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 171.000 | 219.873 | 223.269 | - | 223.269 | 208.611 | 191.966 | 246.035 | 246.035 | Continuing | Continuing |
| CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 85.789 | 97.774 | 44.331 | - | 44.331 | 41.819 | 40.951 | 52.243 | 52.243 | Continuing | Continuing |
| NT2: *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (APPLIED RESEARCH)* | - | - | 60.730 | - | 60.730 | 56.498 | 53.707 | 63.138 | 63.138 | Continuing | Continuing |
| TB2: *MEDICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 51.158 | 86.679 | - | - | - | - | - | - | - | 0.000 | 137.837 |
| TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* | 31.970 | 34.614 | - | - | - | - | - | - | - | 0.000 | 66.584 |
| TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* | - | - | 118.208 | - | 118.208 | 110.294 | 97.308 | 130.654 | 130.654 | Continuing | Continuing |
| TR2: *MEDICAL RADIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 2.083 | 0.806 | - | - | - | - | - | - | - | 0.000 | 2.889 |

**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 the development of antidotes, drug treatments, disease surveillance and point-of-need diagnostic devices, patient decontamination and medical technologies management. The Medical Countermeasures Initiative (MCMI) was established to provide the capability for the advancement of regulatory science and flexible manufacturing of biological MCM to address CBR threats, including novel and previously unrecognized, naturally-occurring emerging infectious diseases. 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.

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).

In FY13, all NTA efforts (both Medical and Non-Medical) within the PE are re-aligned to Project NT2 - Techbase Non-Traditional Agents Defense. Also in FY13, all Medical efforts currently included in Project TB2 (Medical Biological Defense), Project TC2 (Medical Chemical Defense) and Project TR2 (Medical Radiological Defense), will be re-aligned to Project TM2 (Techbase Med Defense).

| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Chemical and Biological Defense Program | DATE: February 2012 |
|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 169.287 | 219.873 | 217.812 | - | 217.812 |
| Current President's Budget | 171.000 | 219.873 | 223.269 | - | 223.269 |
| Total Adjustments | 1.713 | - | 5.457 | - | 5.457 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.314 | - | | | |
| • SBIR/STTR Transfer | -2.087 | - | | | |
| • Other Adjustments | 4.114 | - | 5.457 | - | 5.457 |

**Change Summary Explanation**

Funding: Adjustments less than 10% of total program.

Schedule: N/A

Technical: N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 85.789 | 97.774 | 44.331 | - | 44.331 | 41.819 | 40.951 | 52.243 | 52.243 | 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. Capability areas in this project include: detection; information systems technology; protection/hazard mitigation; and threat agent science. 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, and pathogenicity. This project focuses on horizontal integration of CB defensive technologies in support of the Joint Services.

Starting in FY11, all NTA-dedicated research was re-aligned into specific capability areas within this project in order to ensure a focused effort on this high priority area. In FY13, all NTA-dedicated research is re-aligned to Project NT2 - Techbase NTA Defense.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Detection | 5.271 | 8.795 | - |
| ***Description:*** 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. | | | |
| ***FY 2011 Accomplishments:***<br>Continued concept development of nano-scale biological agent identification and sensing technologies. Continued feasibility studies of nanoscale detection systems. Demonstrated Microelectromechanical System (MEMS) Fourier Transform Infrared Spectroscopy (FTIR) sensor system. Demonstrated technology to completely sequence entire pathogen genomes with automated sample preparation. Completed studies to increase understanding of critical biological antigen variability. | | | |
| ***FY 2012 Plans:***<br>Continue concept development of nano-scale biological agent identification and sensing technologies. Continue feasibility studies of nanoscale detection systems. Continue integration studies for the Next Generation Chemical Point Detector (NGCPD) based | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| on MEMS components for gas chromatography (GC), Infrared (IR), and mass spectrometry (MS). Continue development of breadboard prototype for complete sequencing of entire pathogen genomes with automated sample preparation which also applies to biosurveillance. In FY13, all research in this area is re-aligned into Techbase Non-Med Defense - Physical Science Applied Research (PSAR) (CB2). | | | |
| ***Title:*** 2) Detection<br><br>***Description:*** Chemical and Biological Stand-off Detection Technology: Emphasis 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><br>***FY 2011 Accomplishments:***<br>Completed algorithm development to increase range capabilities and reduce false positives. Completed work on first generation active infrared (IR) standoff biological classification capabilities. Completed evaluation and assessment of technology for scattering optical techniques, non-scattering optical standoff techniques, and off-gassing for down-selection of breadboard design. | 9.043 | - | - |
| ***Title:*** 3) Detection NTA<br><br>***Description:*** Primary focus is to assess the potential of optical technologies to meet the needs to detect the presence of NTAs.<br><br>***FY 2011 Accomplishments:***<br>Completed a scientific analysis on the technical impacts of the detection of agents on surfaces due to the presence of NTAs. Completed assessment of chemical fate of chemicals in potable water. Continued feasibility development of plant sentinel concept, enabling a plant to serve as a detector for substances of interest, to provide an inexpensive, widespread detection technology that can be used in both interior and exterior settings. Initiated development from technology concepts and models to meet the needs to detect contamination on surfaces in pre and post decontamination application. Initiated concept designs for chemical aerosols point detection system.<br><br>***FY 2012 Plans:***<br>Continue feasibility development of plant sentinel concept. Continue development from technology concepts and models to meet the needs to detect contamination on surfaces in pre and post decontamination application. Complete designs for chemical aerosols point detection system. Initiate integration studies for chemical aerosol detection into the NGCPD. In FY13, all research in this area is re-aligned into Techbase Non-Traditional Agents Defense Non-Medical (Applied Research) (NT2). | 9.625 | 12.879 | - |
| ***Title:*** 4) Information Systems Technology | 3.743 | 5.951 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** Warning and Reporting Information & Analysis: 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><br>***FY 2011 Accomplishments:***<br>Refined advanced Source Term Estimation (STE) and Hazard Refinement (HR) algorithms for use in complex environments (e.g., variable terrain, urban, water), based on results of field trial-based Validation and Verification (V&V) effort. Completed testing and V&V of first-generation networked CB detector false alarm reduction capability for an advanced development program (JWARN). Expanded and improved data assimilation techniques for linking chemical, environmental, medical surveillance, and other disparate sensor data with computer based applications. Completed development of Source Term Estimation (STE), Hazard Refinement (HR), and Sensor Placement Tool (SPT) for use in complex environments. Continued to enhance coupling between environmental parameters and advanced development programs. Finalized 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 2012 Plans:***<br>Initiate study on integration of biosurveillance data with disease spread models to enable early warning and reporting capabilities. Investigation will include approaches and tools to automatically access, process and store biosurveillance data, architecture to search stored raw and processed biosurveillance data including adapting existing taxonomies or ontologies to facilitate interoperability, and approaches to facilitate using the architecture in near real time to update disease spread models with new biosurveillance data. Complete 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. Continue to expand and improve data assimilation techniques for linking chemical, environmental, medical surveillance, and other disparate sensor data with computer based applications. Complete enhanced coupling between environmental parameters and advanced development programs. In FY13, all research in this area is re-aligned into Techbase Non-Med Defense - Physical Science Applied Research (PSAR) (CB2). | | | |
| ***Title:*** 5) Information Systems Technology<br><br>***Description:*** Hazard Prediction and Information Analysis: 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 agents or industrial materials from CB attack or accidents.<br><br>***FY 2011 Accomplishments:***<br>Continued to develop a high altitude post-missile intercept hazard prediction model for chemical, biological, and nuclear dispersion and integrated with advanced development programs. Continued to develop models for waterborne transport and dispersion | 3.039 | 3.143 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| of chemical agents. Continued to improve and optimize transport and dispersion models in open and urban environments. Implemented source backtracking in advanced urban models. Implemented methods for foreign regions as well as dynamic climatology.<br><br>***FY 2012 Plans:***<br>Continue development of a waterborne transport tool by beginning investigation of transport methods for biological agents and other materials as well as beginning a feasibility study of waterborne inverse species transport module. Continue to develop a high altitude post-missile intercept hazard prediction model for eventual integration into the JEM supplemented by small scale testing for model validation. Assume management of and complete human and health effects modeling - shifted from the Simulation, Analysis and Planning research area - informed by other hazard prediction projects. Initiate enhancement of urban dispersion models to include source characterization/backtracking for eventual integration into the Joint Effects Model. Initiate implementation and testing of new numerical schemes for future establishment of 64-bit/multi-core capable models. Transfer high-altitude post-missile intercept, urban transport and dispersion, and 64-bit/multi-core capable model development to CB3 M&S funding in FY13. In FY13, all research in this area is re-aligned into Techbase Non-Med Defense - Physical Science Applied Research (PSAR) (CB2). | | | |
| ***Title:*** 6) Information Systems Technology<br><br>***Description:*** Operations Planning & Information Analysis: 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, population modeling, and human knowledge management.<br><br>***FY 2012 Plans:***<br>Continue development of efforts previously funded under Simulation Analysis and Planning in FY11 (continue integration of CB operational effects in tactical and operational level models, continue development of IM/CM tools, capabilities that leverage and integrate existing early detection and disease surveillance data for inclusion into advanced development efforts). Initiate studies on social/cultural norms for application in agent based models. Initiate study of social reaction to disease and disease mitigation strategies to support biosurveillance. Initiate development of human cognitive models that incorporate the effects of chemical biological agent interaction with other battle stressors to facilitate operational decision making. Continue operational effects research and analysis efforts. In FY13, all research in this area is re-aligned into Techbase Non-Med Defense - Physical Science Applied Research (PSAR) (CB2). | - | 4.597 | - |
| ***Title:*** 7) Information Systems Technology<br><br>***Description:*** Systems Performance Information & Analysis: Develop Chemical, Biological, Radiological and Nuclear (CBRN) data sharing capabilities and simulation tools. | 3.112 | 0.569 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2011 Accomplishments:***<br>Constructed a plan for development of the Chemical and Biological Warfare Agent Effects Manual Number 1 (CB-1), an authoritative source capturing analytical methods for evaluating the effects of CB warfare agents on equipment, personnel, and operations. Demonstrated initial versions of Systems Performance Models. Continued to develop collective protection, individual protection, contamination avoidance and decontamination models for test and evaluation. Continued to build requirements for system performance model integration and program-wide exploitation.<br>***FY 2012 Plans:***<br>Initiate development of an authoritative manual capturing analytical methods for evaluating the effects of chemical and biological warfare on equipment, personnel, and operations. In FY13, all research in this area is re-aligned into Techbase Non-Med Defense - Physical Science Applied Research (PSAR) (CB2). | | | |
| ***Title:*** 8) Information Systems Technology<br>***Description:*** Medical & Surveillance Information & Analysis: Integrate existing disparate military and civilian datasets into advanced warning systems, and leverage and enhance epidemiological models and algorithms for disease prediction, impact and biological threat assessment. Contribute to the development of global, near real time, disease monitoring and surveillance systems that address secondary infection, fuse medical syndromic, environmental, and clinical data, and feed into agent-based epidemiological modeling, medical resource estimation and decision support tools. Focus areas include health/human effects modeling including casualty estimation, agent-based epidemiological modeling and fusion of disease surveillance data.<br>***FY 2012 Plans:***<br>Continue effort on biosurveillance data stream evaluation and analysis. Initiate effort to devise structured expansion roadmap for agent-based epidemiological models for Outside Contiguous United States (OCONUS). Initiate research on agent-based modeling platforms and policy assessment. In FY13, all research in this area is re-aligned into Techbase Med Bio - Diagnostics (TM2). | - | 5.525 | - |
| ***Title:*** 9) Information Systems Technology<br>***Description:*** 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 2011 Accomplishments:***<br>Completed development of refined versions of secondary infection models and human effects models to reflect revision of NATO's AMedP-8. Initiated research in human and health effects for additional casualty estimation modules for agents not in NATO's | 7.594 | - | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| AMedP-8, including Non-Traditional Agents and shifted this work into the Hazard Prediction Information & Analysis area beginning in FY12. Completed development of contagious/infectious disease models. Continued 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 developed IM/CM tools and capabilities. Initiated development of capabilities that leverage and integrate existing early detection and disease surveillance data for inclusion into advanced development efforts. Developed route planning and evacuation/shelter-in-place decision aids. Shift all research, other than human and health effects research, in this area into the Operations Planning & Information Analysis research area beginning in FY12. | | | |
| ***Title:*** 10) Information Systems Technology NTA<br>***Description:*** Modeling & Simulation for Non-Traditional Agents (NTA): Provide modeling of NTA materials for hazard prediction. Develop NTA source term algorithms for intentionally functioning weapons, counter-proliferation scenarios (bomb on target), and missile intercept. "Intentionally Functioning Weapons" refers to the case where a missile has released its chemical or biological payload as it was designed, rather than where the release was caused by missile interdiction. Investigate NTA agent fate for secondary effects, environmental/atmospheric chemistry, atmospheric and waterborne transport and dispersion, human effects, model V&V, scaled testing, casualty estimation, and supporting data management<br>***FY 2012 Plans:***<br>Establish initial methodologies of defining NTA source terms for relevant scenarios. Begin establishment of a classified database for linking NTA types to weapon system types for NTA source term modeling. Expand material file collection to include those NTAs on which there is sufficient initial data. Create initial priority list of remaining agents with data gaps. Initiate the establishment of capabilities for data collection on NTA data gaps. Initiate planning and implementation of small scale testing for NTA simulants for use in creating and verifying NTA modeling source terms. In FY13, all research in this area is re-aligned into Techbase Non-Traditional Agents Defense Non-Medical(Applied Research) (NT2). | - | 1.422 | - |
| ***Title:*** 11) Protection & Hazard Mitigation<br>***Description:*** 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>***FY 2012 Plans:***<br>Continuation of Innovative Systems Concepts and Analysis projects from FY10. | - | 0.345 | - |
| ***Title:*** 12) Protection & Hazard Mitigation<br>***Description:*** Lightweight Integrated Fabric: Development of lightweight chemical and biological protective textiles that can be used as an integrated combat duty uniform. | 1.546 | 1.829 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2011 Accomplishments:***<br>Incorporated lessons learned from the Individual Protection Advanced Technology Demonstration (see TT3 E&TD), which supported the Lightweight CB Ensemble (LCBE), and incorporated lessons into further development of integrated fabric. Completed work on network-enabled fabric agent indicators. Continued development work on ultra light and tactile barrier materials for gloves and boots and continued fabrication and testing of prototype integrated fabrics to determine protection, mechanical properties, and heat transfer characteristics. Continued development and scaling of nanofiber/textile production technologies for transition to Uniform Integrated Protection Ensemble (UIPE) and/or Joint Service Lightweight Integrated Suit Technology (JSLIST) program. Continued use of computational methods for assessment and refinement of prototypes. Continued development of ensemble design conceptual work based on lessons gathered in the human performance project for transition to UIPE/JSLIST.<br>***FY 2012 Plans:***<br>Continue development work, fabrication, and testing of prototype integrated fabrics to determine protection, mechanical properties, and comfort characteristics (such as heat and water vapor transfer properties). Continue use of computational methods to assess and refine prototypes. Develop improved thermal modeling simulations. Develop and scale an advanced adsorbent nanofiber/textile production technology and/or a "smart material" technology for possible transition to a UIPE program. Continue development of ensemble design conceptual work based on the lessons gathered in the human performance projects for transition to UIPE/JSLIST. In FY13, all research in this area is re-aligned into Techbase Non-Med Defense - Physical Science Applied Research (PSAR) (CB2). | | | |
| ***Title:*** 13) Protection & Hazard Mitigation | 3.526 | 3.905 | - |
| ***Description:*** 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 (TIC).<br>***FY 2011 Accomplishments:***<br>Incorporated lessons learned from the Individual Protection Advanced Technology Demonstration, which supported the Uniform Integrated Protective Ensemble (UIPE), and incorporated lessons into further development of low resistance/profile filtration. Continued project to develop the next generation filter for individual protection from CB agents and TICs. Integrated metal-organic frameworks, other novel adsorbent and nanofiber HEPA filters into "breadboard" prototypes. Continued reactive hybrid approaches for individual protection filtration and evaluated the performance. As a result of the IP Demo, refined prototype concept filters for advanced development programs such as the Joint Service General Purpose Mask (JSGPM), Joint Service | | | |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| 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.<br>***FY 2012 Plans:***<br>Continue development of low resistance/profile filtration. Continue effort to develop the next generation novel filtration media for individual protection from CB agents and TICs (NTAs are addressed in Protection & Hazard Mitigation NTA). Transition these technologies to the Joint Service General Purpose Mask (JSGPM) and Joint Service Aircrew Mask (JSAM) programs. Integrate metal-organic frameworks and other novel adsorbent into "system" prototypes. Integrate nanofiber HEPA filters into system prototypes. Continue reactive hybrid approaches for individual protection filtration and evaluate performance. In FY13, all research in this area is re-aligned into Techbase Non-Med Defense - Physical Science Applied Research (PSAR) (CB2). | | | |
| ***Title:*** 14) Protection & Hazard Mitigation<br>***Description:*** 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>***FY 2011 Accomplishments:***<br>Incorporated lessons learned from the Individual Protection Advanced Technology Demonstration, which supported the Uniform Integrated Protective Ensemble (UIPE), and incorporated lessons learned into further development of human performance prediction and assessment. Completed human performance model for CB protective equipment. As a result of the IP Demo, transitioned model data and analysis to individual protection advanced development programs. Continued anthropometric sizing study to support size tariff development.<br>***FY 2012 Plans:***<br>Continue development of human performance prediction and assessment by investigating the interactive effects of competing burdens on human cognitive performance. Studies will be conducted to quantify the cumulative effects of the two primary factors researched to date: thermal burden (via moisture vapor transport rate) and breathing resistance. Transition data on Human Performance Assessment that will allow the prediction and design of individual protective gear. | 0.711 | 0.484 | - |
| ***Title:*** 15) Protection & Hazard Mitigation<br>***Description:*** 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>***FY 2011 Accomplishments:***<br>Incorporated lessons learned from the Individual Protection Advanced Technology Demonstration, which supported the Uniform Integrated Protective Ensemble (UIPE), and incorporated lessons into further development of a low-burden air purifying respirator. | 2.619 | 2.551 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Completed the assessment of the key development parameters associated with respiratory protective systems and incorporated data and lessons from the human performance project. Incorporated lessons learned from the IP Demonstration into protective mask prototypes. Completed integration analysis with ground Warfighter helmet systems. Continued to integrate work on the dual-cavity respirator concepts into the final design.<br>***FY 2012 Plans:***<br>Continue development of a low-burden air purifying respirator. Advanced concept CBRN technologies will be integrated within the confines of the Chem/Bio protection component of the Helmet Electronics and Display System - Upgradable Protection (HEADS-UP) Army Technology Objective (ATO) program, which has multi-service participation for ground applications. Various levels of comfort versus protection will be integrated into prototype helmets. Work will focus on revolutionary, innovative design concepts (such as a dual-cavity respirator) in the final design in order to support decisions to initiate future helmet/mask developmental programs. In FY13, all research in this area is re-aligned into Techbase Non-Med Defense - Physical Science Applied Research (PSAR) (CB2). | | | |
| ***Title:*** 16) Protection & Hazard Mitigation<br>***Description:*** 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>***FY 2011 Accomplishments:***<br>Continued development of reactive membrane and regenerative post treatment media technologies for applications in building protection and vehicular/platform systems.<br>***FY 2012 Plans:***<br>Continue development of reactive membrane and regenerative post treatment media technologies for applications in building protection and vehicular/platform systems. | 1.937 | 0.966 | - |
| ***Title:*** 17) Protection & Hazard Mitigation<br>***Description:*** 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>***FY 2011 Accomplishments:***<br>Completed 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 | 2.858 | 1.561 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Budget Activity 3, Project TT3, Experiment & Technology Demonstrations), also known as the Decontamination Family of Systems Demonstration. Continued focused enzymatic decontamination development.<br>***FY 2012 Plans:***<br>Continue focused enzymatic decontamination development. Complete study and transition data on agent fate of contaminated human remains and transition to the Human Remains Decontamination System program. In FY13, all research in this area re-aligned to "Decontamination Family-of-Systems". | | | |
| ***Title:*** 18) Protection & Hazard Mitigation<br>***Description:*** Decontamination Family-of-Systems (DFoS): Development and analysis of non-traditional decontamination technologies and approaches which gain significantly improved effectiveness by complementary application.<br>***FY 2011 Accomplishments:***<br>Developed data to define performance envelop of system components and transitioned to HaMMER. Initiated a study on impact of application methods of decontaminants to complex surfaces.<br>***FY 2012 Plans:***<br>Transition mature DFoS technologies including reactive coatings; continue developing other promising technologies. Continue the optimization of decontamination applicators. Continue investigation of microwave interaction with coating embedded particles and functionalities for directed energy decontamination. Coatings efforts will also examine durable and temporary coatings that pursue reactive and barrier options. Continue studies on effect of delivery and application methods on decontamination efficacy on complex surfaces. In FY13, all research in this area is re-aligned into Techbase Non-Med Defense - Physical Science Applied Research (PSAR) (CB2). | 4.348 | 4.929 | - |
| ***Title:*** 19) Protection & Hazard Mitigation<br>***Description:*** Smart Hazard Mitigation: Development of decontamination technologies that sense, respond (decontaminate) and signal in the presence of chemical and biological contamination.<br>***FY 2011 Accomplishments:***<br>Continued development of molecular switches that respond and react to the presence of CB agents and signal results. Continued development of rotaxane chemistry as artificial tunable G and V receptors that sense and react to chemical and biological agents.<br>***FY 2012 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. | 1.388 | 1.477 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Conduct comparative analysis/technology readiness assessment of smart system candidate technologies to select candidates for further development. In FY13, all research in this area re-aligned to "Decontamination Family-of-Systems". | | | |
| ***Title:*** 20) Protection and Hazard Mitigation NTA<br>***Description:*** NTA Air Purification: Study and assessment of filter technologies.<br><br>***FY 2011 Accomplishments:***<br>Completed assessment of military carbon against NTAs, including performance when exposed to battlefield contaminants such as petroleum, oil, lubricants, and sweat. Developed and tested novel materials to improve performance against NTAs. Provided results for upgrades into developmental programs. Continued project to develop the next generation filter for individual protection from NTAs.<br>***FY 2012 Plans:***<br>Continue development and testing of novel materials to improve performance against NTAs. Materials explored will include crystalline nano-porous framework materials, catalytic, nano-fibrous, and composite materials. In FY13, all research in this area is re-aligned into Techbase Non-Traditional Agents Defense Non-Medical(Applied Research) (NT2). | 2.397 | 1.024 | - |
| ***Title:*** 21) Protection & Hazard Mitigation NTA<br>***Description:*** NTA Percutaneous Protection<br><br>Study and assessment of protective technologies.<br><br>***FY 2011 Accomplishments:***<br>Developed technologies to improve overall protective clothing performance against NTAs. Developed and assessed improved ensemble closures and evaluated current individual protective (IP) barrier materials. Developed component aerosol test methods for performance standards of IP ensembles. Modified and verified material swatch test methods for liquid and aerosol for performance standards of IP materials. Developed breathable aerosol barrier materials and self-detoxifying fabrics. Developed and evaluated improved barrier materials for protective gloves and boots. Completed assessment of expedient approaches and skin barrier treatments. Developed and tested performance enhancements that improve material agent resistance and garment closure performance.<br>***FY 2012 Plans:***<br>Continue development of technologies to improve overall protective clothing performance against NTAs. Perform component and system modeling in order to (1) evaluate and utilize aerosol-based closure testing; and (2) model aerosol transport within individual protective equipment ensembles. Design and test novel closures in accordance with modeling results/predictions. | 3.113 | 2.551 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Fabricate prototype systems and then test/measure their aerosol performance. In FY13, all research in this area is re-aligned into Techbase Non-Traditional Agents Defense Non-Medical(Applied Research) (NT2). | | | |
| ***Title:*** 22) Protection & Hazard Mitigation NTA<br>***Description:*** NTA Decontamination: Study and assessment of decontamination technologies.<br><br>***FY 2011 Accomplishments:***<br>Assessed performance of current and developmental decontamination technologies against NTAs. Developed decontamination technologies and formulations that are optimized against NTAs. Modified and verified test procedures for NTAs. Developed and tested decontamination formulations and system-of-systems approaches that improve performance against NTAs and manage process residuals.<br><br>***FY 2012 Plans:***<br>Continue development of decontamination technologies against NTAs. Continue to develop decontamination technologies and formulations that are optimized against NTAs. Continue development and test decontamination formulations and system-of-systems approaches that improve performance against NTAs and manage process residuals, including effluent control. Continue development of durable and temporary, reactive and barrier coatings to mitigate NTA contamination. In FY13, all research in this area is re-aligned into Techbase Non-Traditional Agents Defense Non-Medical(Applied Research) (NT2). | 3.241 | 2.324 | - |
| ***Title:*** 23) Applied Research<br>***Description:*** 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 2013 Plans:***<br>Complete concept development of nano-scale biological agent identification and sensing technologies. Complete feasibility studies of nanoscale detection systems. Continue integration studies for Next Generation Chemical Point Detection (NGCPD) based on MEMS components for GC and MS. Complete development of breadboard prototype for complete sequencing entire pathogen genomes with automated sample preparation which also applies to biosurveillance. Continue algorithm development to increase range capabilities, reduce false positives, and provide decision capabilities for large data sets. Funding for this research area is realigned from Tech Base Non-Med - Detection (CB2). | - | - | 7.579 |
| ***Title:*** 24) Applied Research | - | - | 3.603 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** Threat Agent Science: Supports defensive countermeasure development against current and new threats by delivering the scientific understanding and relevant estimates of the hazards posed to humans by exposure to chemical or biological agents. Toxicological and/or infectious-dose information and environmental response supports development and/or enhancing both operational risk and exposure guidelines; limits for detection and protection; goals for decontamination; and medical countermeasures. Funding for this research is realigned from Tech Base Non-Med - Threat Agent Science (CB2).<br><br>***FY 2013 Plans:***<br>Develop a systems approach to toxicological understanding of physiological injury by threat agents. Determine infectious dose of biological agents of interest and potential emergent threats from reservoir hosts or other technological breakthroughs such as Do-it-Yourself (DIY) biology. DIY biology is a growing movement in which individuals, or sometimes small informal organizations, change the genetics of life forms, with small resources, and often little or no formal training, oversight by professionals, or regulation by governments. Continue investigations that describe fundamental mechanisms that contribute to BWA persistence and transport. Define particle properties and predict aerosolization behavior to inform hazard assessment. Study emerging technological breakthroughs such as DIY biology that may impact novel threat emergence. Study agent modulation in natural or laboratory environments to inform forensic examination of threats. Funding for this research area is realigned from Tech Base Non-Med - Threat Agent Science (CB2). | | | |
| ***Title:*** 25) Applied Research<br><br>***Description:*** Hazard Prediction Information & Analysis: 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 agents or industrial materials from CB or accidents.<br><br>***FY 2013 Plans:***<br>Complete development of a waterborne transport tool investigation of transport methods for biological agents and other materials. Initiate development of waterborne inverse species transport module based on feasibility study results. Funding for this research area is realigned from Tech Base Non-Med - Modeling & Simulation (CB2). | - | - | 4.485 |
| ***Title:*** 26) Applied Research<br><br>***Description:*** Operations Planning Information & Analysis: 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, population modeling, and human knowledge management.<br><br>***FY 2013 Plans:*** | - | - | 5.529 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue studies on social/cultural norms for application in agent based models. Continue study of social reaction to disease and disease mitigation strategies to support biosurveillance. Continue development of human cognitive models that incorporate the effects of chemical biological agent interaction with other battle stressors to facilitate operational decision making. Initiate special population analysis to model emerging disease and the effects of targeted countermeasures. Continue operational effects research and analysis efforts. Funding for this research area is realigned from Tech Base Non-Med - Modeling & Simulation (CB2). | | | |
| ***Title:*** 27) Applied Research<br>***Description:*** Systems Performance Information & Analysis: Develop CBRN data sharing capabilities and simulation tools.<br><br>***FY 2013 Plans:***<br>Continue to develop the Chemical and Biological Warfare Agent Effects Manual Number 1 (CB-1), an authoritative source capturing analytical methods for evaluating the effects of CB warfare agents on equipment, personnel, and operations. Conclude development of initial versions of systems performance models in collective protection, individual protection, contamination avoidance and decontamination. Initiate system performance model integration and advanced development for program-wide exploitation. Funding for this research area is realigned from Tech Base Non-Med - Modeling & Simulation (CB2). | - | - | 3.312 |
| ***Title:*** 28) Applied Research<br>***Description:*** Warning and Reporting Information & Analysis: 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><br>***FY 2013 Plans:***<br>Initiate study on animal and human effects from time-varying toxic industrial chemical concentration exposures. Initiate development of a generalized Virtual Testing and Evaluation testbed for evaluating/stressing source characterization and hazard refinement techniques, under a wide range of operational conditions. Initiate interior building transport and dispersion modeling effort to improve modeling of indoor-to-outdoor dispersion and to enhance the indoor modeling capabilities of advanced development programs. Continue study on integration of biosurveillance data with disease spread models to enable early warning and reporting capabilities, performing R&D to improve performance of novel data assimilation algorithm used to integrate global biosurveillance data. Funding for this research area is realigned from Tech Base Non-Med - Modeling & Simulation (CB2). | - | - | 5.354 |
| ***Title:*** 29) Applied Research<br>***Description:*** Protection & Hazard Mitigation | - | - | 3.303 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Lightweight Integrated Fabric: Development of lightweight chemical and biological protective textiles that can be used as an integrated combat duty uniform.<br><br>***FY 2013 Plans:***<br>Continue to develop new low burden fabrics and ensemble designs to support the UIPE/JSLIST programs. Continue with development areas that include: evaluation of superoleophobic materials, refinement of "man in simulant test" sensors, continuation of aerosol system testing, advanced adsorbent nanofiber/textile production technology, and smart materials. Funding for this research area is realigned from Tech Base Non-Med - Protection and Hazard Mitigation(CB2). | | | |
| ***Title:*** 30) Applied Research<br>***Description:*** Protection & Hazard Mitigation<br><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.<br><br>***FY 2013 Plans:***<br>Continue development of next generation filtration technology. Continue focus on low resistance/low profile novel filter media with augmented performance against TICs and chemical agents. Continue to replace legacy filter media with novel media that offers broad spectrum protection. Continue with technology areas to include: metal organic frameworks, novel adsorbents and reactive hybrids. Transition these technologies to the Joint Service General Purpose Mask (JSGPM) and Joint Service Aircrew Mask (JSAM) programs. Funding for this research area is realigned from Tech Base Non-Med - Protection and Hazard Mitigation(CB2). | - | - | 3.294 |
| ***Title:*** 31) Applied Research<br>***Description:*** Protection & Hazard Mitigation<br><br>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 2013 Plans:***<br>Continue development of next generation low burden respirator technology. Develop and integrate novel seal, anti-fogging, and dual cavity technologies. Develop and verify methods for a Respiratory Battlefield Evaluation System (RBEs). Funding for this research area is realigned from Tech Base Non-Med - Protection and Hazard Mitigation(CB2). | - | - | 2.046 |
| ***Title:*** 32) Applied Research | - | - | 5.826 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** Protection & Hazard Mitigation<br><br>Decontamination Family-of-Systems (DFoS): Development and analysis of non-traditional decontamination technologies and approaches which gain significantly improved effectiveness by complementary application.<br><br>***FY 2013 Plans:***<br>Continue the development of new formulations adjusted for agent, material substrate, and environment; combine with optimized application systems and initiate additional efforts based on the results of the dial-a-decon analysis of alternatives. Continue coatings efforts to examine durable and temporary coatings that pursue reactive and barrier options and initiate efforts based on the results of the coatings analysis of alternatives. Continue development of delivery and application methods on decontamination efficacy on complex surfaces. Continue to develop decontamination assurance sprays for biological agents and other agents of interest. Continue development of enzymes for sensitive equipment/platform decon (previously under General Purpose Formulations in FY12). Initiate radiological/nuclear decontamination/hazard mitigation effort. Funding for this research area is realigned from Tech Base Non-Med - Protection and Hazard Mitigation(CB2). | | | |
| ***Title:*** 33) Threat Agent Science<br><br>***Description:*** Physiological Response: Delivers the scientific understanding and relevant estimates of the hazards posed to humans by exposure to chemical or biological agents. Toxicological and/or infectious-dose information supports developing and/or enhancing both operational risk and exposure guidelines; limits for detection and protection; goals for decontamination; and medical countermeasures.<br><br>***FY 2011 Accomplishments:***<br>Continued research efforts on BWA toxicokinetic and toxicodynamic modeling.<br><br>***FY 2012 Plans:***<br>Expand research efforts on BWA toxicokinetic and toxicodynamic modeling for specific priority viral agents. Investigate potential reservoir hosts for biological agents. Other work will improve understanding of bioavailability following dermal exposures for chemical agents, as well as study in vitro and in vivo binding of agents and analogues. Identification of toxicity of decontamination breakdown products may inform development of decontamination technologies. | 0.108 | 1.497 | - |
| ***Title:*** 34) Threat Agent Science<br><br>***Description:*** 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 support development of detection capabilities, information systems, including hazard prediction tools, and protection and hazard mitigation activities. | 0.101 | - | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2011 Accomplishments:***<br>Utilized empirical data to inform prediction of persistence and degradation of select CWAs and BWAs; transition data to JEM. Characterized interaction between biological agents and environmental surfaces, including the impact of ambient conditions (e.g., temperature, relative humidity) and mechanical disturbances. In FY12, all Agent Fate projects realigned to Agent Characterization within this Project(CB2). | | | |
| ***Title:*** 35) Threat Agent Science | 0.095 | 2.980 | - |
| ***Description:*** Agent Characterization: Examines critical characteristics of chemical and biological warfare agents (CWAs and BWAs, beginning with physiochemical properties and subsequently determining the challenge levels to military personnel in operationally relevant environments that provides key information to development or improvement of both physical and medical countermeasures and decision support tools. Research focuses on: characterizing the realistic threat posed by CWA and BWA aerosol and particulate agent dissemination; examining the fundamental mechanisms that contribute to BWAs persistence and transport; understanding the fundamental interactions between CWA ad BWA agents and substrates; investigating aqueous transport of CWA and BWA agents and the underlying mechanisms of binding CB agents onto hydrated surfaces; and identifying agent decomposition products harmful to military personnel.<br>In FY12, this area will include research formerly performed under Agent Fate.<br><br>***FY 2011 Accomplishments:***<br>Continued BWA research to improve understanding of the relationship of genotype variations on organism virulence, infectivity, and persistence. Sustained efforts to support T&E applications by continued development of CWA and BWA simulants and refined simulant application by expanding agent-simulant correlation studies.<br><br>***FY 2012 Plans:***<br>Expand investigations of fundamental mechanisms that contribute to BWA persistence and transport; transfer information from previous studies to operational models. Identify markers of cultured versus naturally occurring agents, as well as markers of persistence of biological agents. Continue to support test and evaluation needs for both CWA and BWA simulants. Characterize environmental factors affecting persistence and binding to environmental elements such as soil. Advance the understanding of fundamental interactions between agents and substrates in order to improve predictive modeling that supports other capability areas, such as detection and hazard mitigation. In FY13, all research in this area is re-aligned to CB2 Physical Sciences Applied Research (PSAR). | | | |
| ***Title:*** 36) Threat Agent Science NTA | 16.374 | 25.128 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** 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. This preliminary assessment provides the basis for all countermeasure development and assessment.<br><br>***FY 2011 Accomplishments:***<br>Established human NTA operational toxicity estimates and interim human health risk assessments. Characterized the effects of alternate toxicological pathways. Expanded agent fate studies to additional agent-substrate interactions. Correlated agent adsorption/absorption coefficients to chemical properties. Expanded research on NTA liquid and solid phase transport to include re-suspension of particulates. Applied computational tools to identify data requirements and accelerate QSAR application to NTA interactions with operational substrates and toxicology issues. Correlated human effects to contact with operationally-relevant surfaces. Furthered research on NTA chemistry. Continued development of NTA simulants and simulant correlation studies.<br><br>***FY 2012 Plans:***<br>Continue efforts from FY11, working through the list of priority agents. Provide necessary operational and residual contact hazards as well as aerosol and percutaneous toxicity standards for NTAs. Deliver prioritized fundamental analysis, including physicochemical properties such as volatility, solubility, mass transport, reactivity, stability and other factors. Examine physical parameters that govern NTA stability on operational materials. In FY13, all NTA-dedicated Research is re-aligned to Non-Medical Techbase Non-Traditional Agents Defense Non-Medical(Applied Research) (NT2). | | | |
| ***Title:*** 37) SBIR<br><br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 1.342 | - |
| **Accomplishments/Planned Programs Subtotals** | 85.789 | 97.774 | 44.331 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* | 21.219 | 23.818 | 20.034 | | 20.034 | 18.343 | 18.893 | 17.357 | 17.357 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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)* |

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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>NT2: *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (APPLIED RESEARCH)* | |

| COST ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NT2: *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (APPLIED RESEARCH)* | - | - | 60.730 | - | 60.730 | 56.498 | 53.707 | 63.138 | 63.138 | Continuing | Continuing |

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

This project (NT2) provides early applied research to enhance and develop defensive capabilities against Non-Traditional Agents (NTAs). This project focuses on expanding scientific knowledge required to develop defensive capabilities and to demonstrate fast and agile scientific responses to enhance or develop capabilities that address emerging threats. Efforts in this project support an integrated approach to counter emerging threats through innovative S&T solutions for detection, protection, decontamination, and medical countermeasures. This project is a comprehensive and focused effort for developing NTA defense capabilities, coordinated with specific interagency partners for doctrine, equipment, and training for the Warfighter and civilian population for defense against NTAs.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Techbase Medical Defense - NTA | - | - | 3.371 |
| ***Description:*** Chemical Medical Pretreatments NTA: Develops pretreatments that provide protection against non-traditional agents. Enzymes 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 2013 Plans:***<br>Continue developing effective pretreatments against NTAs originating in FY12 in Chemical Pretreatments NTA (TC2 NTA). Continue studies to determine efficacy of bioscavenger for all NTA exposure. Continue to determine efficacy of enzyme candidates for all NTA exposure. Funding for this research area is realigned from Tech Base Med Defense - Med Chem Pretreatments NTA (TC2). | | | |
| ***Title:*** 2) Techbase Medical Defense - NTA | - | - | 13.050 |
| ***Description:*** Chemical Medical Therapeutics NTA: 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. Develops, assesses, evaluates, and validates therapeutics for treatment resulting from exposure to Non-Traditional Agents (NTA).<br><br>***FY 2013 Plans:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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>NT2: *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (APPLIED RESEARCH)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue efforts originating in FY12 in Chemical Therapeutics NTA (TC2 NTA). Initiate investigation of other compounds of interest including mechanism of action and toxicity, and initiate search for effective countermeasures. Funding for this research area is realigned from Tech Base Med Defense - Med Chem Therapeutics NTA (TC2). | | | |
| ***Title:*** 3) Techbase Medical Defense - NTA<br>***Description:*** Chemical Medical Diagnostics NTA: Focuses on developing state-of-the-art laboratory/fieldable methods to detect exposure to non-traditional agents 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. Non-NTA Chem Diagnostics support the analytics for traditional agent diagnostics and hand-held diagnostic technologies that might be applied to NTA diagnostics.<br>***FY 2013 Plans:***<br>Continue 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 for additional compounds of interest. Funding for this research area is realigned from Tech Base Med Defense - Med Chem Diagnostics NTA (TC2). | - | - | 0.386 |
| ***Title:*** 4) Techbase Non-Med NTA<br>***Description:*** Detection NTA: Primary focus is to assess the potential of optical technologies to meet the needs to detect the presence of NTAs.<br>***FY 2013 Plans:***<br>Complete and demonstrate feasibility development of plant sentinel concept. Continue development from technology concepts and models to meet the needs to detect contamination on surfaces in pre and post decontamination application. Continue integration studies for chemical aerosol detection into the NGCPD. Funding for this research area is realigned from Tech Base Non-Med Defense - Detection NTA (CB2). | - | - | 11.580 |
| ***Title:*** 5) Techbase Non-Med NTA<br>***Description:*** Threat Agent Science NTA: Provide enabling science and technology on threat agents to prepare for surprise and inform development and testing of NTA defense technology such as detection, decontamination, protection, hazard assessment, and more. This preliminary assessment of new threats provides the basis for all countermeasure development and assessment.<br>***FY 2013 Plans:***<br>Expand assessment of novel threats into new classes of agents providing operationally relevant exposure limits using an integrated systems toxicology approach. Define critical physical/chemical properties and characterize/predict agent reactivity and interaction with environmental substrates. Provide supportable data to enable countermeasure development and testing as well | - | - | 26.261 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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>NT2: *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (APPLIED RESEARCH)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| as inform concept of operations policy, doctrine and procedure. Funding for this research area is realigned from Tech Base Non-Med Defense - Threat Agent Science NTA (CB2). | | | |
| ***Title:*** 6) Techbase Non-Med NTA<br>***Description:*** Modeling & Simulation NTA: Provide modeling of NTA materials for hazard prediction. Develop NTA source term algorithms for intentionally functioning weapons, counter-proliferation scenarios (bomb on target), and missile intercept. "Intentionally Functioning Weapons" refers to the case where a missile has released its chemical or biological payload as it was designed, rather than where the release was caused by our missile interdiction. Investigate NTA agent fate for secondary effects, environmental/atmospheric chemistry, atmospheric and waterborne transport and dispersion, human effects, model Validation and Verification (V&V), scaled testing, casualty estimation, and supporting data management.<br>***FY 2013 Plans:***<br>Continue with actual experimentation involving small scale testing for NTA simulants for use in creating and verifying NTA modeling source terms. Continue to develop NTA source term models. Funding for this research area is realigned from Tech Base Non-Med Defense - Modeling & Simulation NTA (CB2). | - | - | 1.464 |
| ***Title:*** 7) Techbase Non-Med NTA<br>***Description:*** Protection and Hazard Mitigation NTA: NTA Air Purification: Study and assessment of filter technologies.<br>***FY 2013 Plans:***<br>Continue development and testing of novel materials to improve performance against NTAs. Replace legacy filter media with novel media that offers broad spectrum NTA protection. Continue with technology areas that include: crystalline nano-porous framework materials, novel adsorbents, catalytic, nano-fibrous, composite materials and reactive hybrids. Transition these technologies to the Joint Service General Purpose Mask (JSGPM) and Joint Service Aircrew Mask (JSAM) programs. Funding for this research area is realigned from Tech Base Non-Med Defense - Protection & Hazard Mitigation NTA (CB2). | - | - | 1.262 |
| ***Title:*** 8) Techbase Non-Med NTA<br>***Description:*** Protection & Hazard Mitigation NTA - NTA Percutaneous Protection: Study and assessment of protective technologies.<br>***FY 2013 Plans:***<br>Continue development of low burden technologies to improve overall protective clothing performance against NTAs leading toward verification, demonstration and transition. Funding for this research area is realigned from Tech Base Non-Med Defense - Protection & Hazard Mitigation NTA (CB2). | - | - | 2.084 |
| ***Title:*** 9) Techbase Non-Med NTA | - | - | 1.272 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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>NT2: *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (APPLIED RESEARCH)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** Protection & Hazard Mitigation NTA - NTA Decontamination: Study and assessment of decontamination technologies.<br><br>***FY 2013 Plans:***<br>Continue development of decontamination technologies against NTAs. Continue to develop decontamination technologies and formulations that are optimized against NTAs. Continue to develop, demonstrate, and transition enzyme technology for low-impact decon of NTAs. Continue to integrate with the Decontamination Family-of-Systems effort. Funding for this research area is realigned from Tech Base Non-Med Defense - Protection & Hazard Mitigation NTA (CB2). | | | |
| **Accomplishments/Planned Programs Subtotals** | - | - | 60.730 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • NT3: *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (ATD)* | 0.000 | 0.000 | 31.916 | | 31.916 | 30.864 | 30.927 | 31.603 | 31.603 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
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| 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)* | |

| COST ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TB2: *MEDICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 51.158 | 86.679 | - | - | - | - | - | - | - | 0.000 | 137.837 |

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

This project (TB2) funds applied research on vaccines, therapeutic drugs, and diagnostic capabilities to provide effective medical defense against validated biological threat agents or emerging infectious disease threats 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. Categories for 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 biological agents.

This project includes the Transformational Medical Technologies Initiative (TMTI), (funded as the Transformational Medical Technologies (TMT) program in FY12). The program was launched to respond to the threat of emerging or intentionally engineered biological threats. TMT'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 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 biological agents (e.g. developing new and innovative ways to mass produce drugs in the event of a biological incident).

The Medical Countermeasures Initiative (MCMI) was established to coordinate inter-related advanced development and flexible manufacturing capabilities, based on partnerships between the government and industry, providing a dedicated, cost-effective, reliable, and sustainable MCM process that meets the warfighter and national security needs. Specifically, the MCMI will provide the capability for the advanced development and flexible manufacturing of biological MCM (to include TMT developed MCMs) to address CBRN threats, including novel and previously unrecognized, naturally-occurring emerging infectious diseases. MCMI efforts within S&T are concentrated in two areas: 1) advancement of regulatory science, and 2) advancements in flexible manufacturing technologies for MCMs.

In FY13, all Project TB2 research is re-aligned into Project TM2 - Techbase Medical Defense.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Medical Countermeasures Initiative (MCMI) | - | 6.568 | - |
| ***Description:*** Medical Countermeasures Initiative (MCMI): Coordinate inter-related advanced development and flexible manufacturing capabilities, based on partnerships between the government and industry, providing a dedicated, cost-effective, reliable, and sustainable MCM process that meets the warfighter and national security needs. Specifically, the MCMI will provide the capability for the advanced development and flexible manufacturing of biological MCM (to include TMT developed MCMs) | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| to address CBRN threats, including novel and previously unrecognized, naturally-occurring emerging infectious diseases. MCMI efforts within S&T are concentrated in two areas: 1) advancement of regulatory science, and 2) advancements in flexible manufacturing technologies for MCMs.<br><br>***FY 2012 Plans:***<br>Conduct studies to explore increasing the efficiency, responsiveness and speed of biopharmaceutical manufacturing through use of more flexible, non-traditional host-vector systems. Initiate and refine development of multi-product/multi-use platform technologies for flexible manufacturing processes for MCMs. Evaluate and exploit the regulatory advantages of such systems, with the intent that approval of the platform for one product will simplify subsequent approvals of other products based on the same system. In FY13, all research in this area is re-aligned into Techbase Med Defense - Medical Countermeasures Initiative (TM2). | | | |
| ***Title:*** 2) Diagnostics (Biosurveillance)<br><br>***Description:*** Diagnostic Technologies: Development and verification of rapid, sensitive, and specific tests for the identification of Biological Warfare Agents (BWAs) and their expressed pathogens or toxins in clinical specimens from 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 2011 Accomplishments:***<br>Developed high-throughput technologies for identification, evaluation, and validation of agent-specific genetic and immunological assay targets using sequencers and microarrays. Completed development and assessed performance of affinity-based protein expression amplification methods. Continued to discover and develop pre-symptomatic diagnostic signatures for additional agents and investigate diagnostic utility as early indicators of exposure/infection in animal models. Evaluated nano diagnostic technologies for ease-of-use, sensitivity, specificity and cost. Continued development and application of rapid sequencing technology and target enrichment for deployable field environment. Investigated advancement of technologies and procedures for broad multiplex detection of agent gene expression, proteomic and antibiotic resistance profiles. Developed a geographically representative strain collection and assay(s) capable of detecting an emerging threat agent of high genetic variability.<br><br>***FY 2012 Plans:***<br>Verify performance of informative genetic and affinity probes and optimize number of probes required to capture predictive signature coverage. Verify performance of pre-symptomatic diagnostic biomarker panels in blinded BWA and emerging threat pathogen-exposed animal samples. Develop pan-emerging threat agent genotyping assay for fieldable sequence-based genetic | 6.377 | 13.754 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| analyzer to supplement/replace strain-specific assays. In FY13, all research in this area is re-aligned into Techbase Med Defense - Diagnostics (TM2). | | | |
| ***Title:*** 3) Pretreatments | 6.235 | 5.011 | - |
| ***Description:*** 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 animal models.<br><br>***FY 2011 Accomplishments:***<br>Continued aerosol efficacy studies in mice for Brucella and Burkholderia vaccine candidates. Worked 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. Began 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). Tested the ability of antibiotics to remove residual Burkholderia from vaccinated animals to prevent reactivation of disease. Identified measures of immunity elicited by vaccine candidates against Brucella and Burkholderia. Tested the efficacy of novel next-generation, multi-valent anthrax vaccines in small animal models against aerosol challenge. Determined 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. Investigated 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.<br><br>***FY 2012 Plans:***<br>Identify correlates of immunity, elicited by Burkholderia species vaccine candidates, which predict vaccine efficacy. In a concurrent effort, open investigative avenues in search of vaccine candidates directed against Burkholderia species. Continue efforts designed to examine the efficacy of adjuvants co-administered with existing vaccine candidates against Burkholderia species. Continue efforts to boost immune response to the currently licensed anthrax vaccine using novel adjuvants which might have applicability to other vaccine candidates in the future. Additionally, research will continue to produce vaccine candidates designed to protect against emerging or genetically engineered anthrax strains. Examine the efficacy of rationally designed, next-generation Type A Francisella tularensis vaccine against aerosol challenge in rat and non-human primate models. Continue research designed to evaluate outer membrane proteins isolated from Type A Francisella tularensis as vaccine candidates against aerosol challenge with the pathogen in small and large animal models. In FY13, all research in this area is re-aligned to Techbase Med Defense - Bio CM (TM2) | | | |
| ***Title:*** 4) Pretreatments | 0.682 | 0.484 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** 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><br>***FY 2011 Accomplishments:***<br>Further defined immune correlates of protection for alphavirus (i.e., EEE and WEE) vaccine candidates. Continued 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. Assessed the immune stimulation and effectiveness of vaccine candidates against a new strain of the Ebola virus, Ebola Bundibugyo, in animal challenge models.<br><br>***FY 2012 Plans:***<br>Continue to characterize the innate, humoral and cellular immune response of the Ebola/Marburg vaccine candidates in the relevant animal models. Produce, characterize, optimize and test reagents for Filovirus immunological assays. Develop assays to measure innate, cellular, and humoral immune responses to Alphaviruses (i.e., EEE, WEE and VEE) which predict protective immunity. Produce, characterize, optimize and test reagents for Alphavirus immunological assays. In FY13, all research in this area is re-aligned to Techbase Med Defense - Bio CM (TM2). | | | |
| ***Title:*** 5) Pretreatments<br><br>***Description:*** 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 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 2011 Accomplishments:***<br>Continued 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. Compared an intra-dermal versus intra-muscular electric field device for delivery of DNA vaccines against bio-threat agents in small animals. Continued 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. Completed optimization of the production of high affinity antibodies by the MIMIC in response to biodefense vaccines, and developed a sensitive fluorescent-based assay to assess the functionality of the antibodies generated. Adapted the MIMIC to function as an infectious disease model for alphaviruses and filoviruses. Used these MIMIC in infectious disease models to define human correlates of protective immunity against alphaviruses and filoviruses. Initiated studies to develop methodologies that render | 5.552 | 4.487 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| different types of vaccine platforms (i.e., viral vector, inactivated virus, virus like particles, and attenuated bacteria, etc.) stable in variable and extreme temperatures.<br>***FY 2012 Plans:***<br>Continue to develop new platform technologies that support the presentation of multiple antigens to the immune system. Develop relevant animal models for the evaluation of the immune response to multi-antigen platforms. Continue studies to develop alternative methodologies for vaccine delivery (i.e., electroporation) via intra-muscular or intra-dermal administration. Continue studies to advance the surrogate human immune system, MIMIC, which provides an in vitro assessment of the human immune response. Complete studies to assess the cross-reactivity of antigens present in different Filoviruses and Alphaviruses. Use MIMIC to define human correlates of immunity in responses to various bio-threat agents. Continue studies to develop methodologies which remove the need for cold storage and transport for vaccines and renders them stable in variable and extreme temperatures. In FY13, all research in this area is re-aligned to Techbase Med Defense - Bio CM (TM2). | | | |
| ***Title:*** 6) Therapeutics<br>***Description:*** Viral Therapeutics: Identify, optimize and evaluate lead candidate therapeutics for efficacy against viral pathogens.<br>***FY 2011 Accomplishments:***<br>Identified FDA approved drug combinations with efficacy against alphavirus infection. Identified and developed small molecule inhibitors to specific host factors required for alphavirus pathogenesis. Conducted structure-based screening of chemical libraries to identify inhibitors of alphavirus proteins. Utilized medicinal chemistry to optimize antiviral activity of lead compounds. Identified therapeutic inhibitors of orthopoxvirus infection by targeting required host and viral tyrosine phosphatases.<br>***FY 2012 Plans:***<br>Validate FDA approved drug combinations against alphavirus infection. Continue optimization of pathogen and host directed small molecule inhibitors for alphaviruses. Identify and evaluate novel broad-spectrum host and pathogen directed small molecule therapeutics for emerging infectious diseases (i.e. alphavirus, filovirus, flavivirus, arenavirus, bunyavirus). Optimize therapeutic inhibitors of host and viral tyrosine phosphatases for orthpoxvirus infection. In FY13 all research in this area is re-aligned to Techbase Med Defense-Bio CM (TM2). | 1.600 | 5.722 | - |
| ***Title:*** 7) Therapeutics<br>***Description:*** Bacterial Therapeutics: Identify, optimize and evaluate lead therapeutic candidates effective against designated bacterial threat agents.<br>***FY 2011 Accomplishments:*** | 4.100 | 5.862 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continued the identification of commercially available antimicrobials in advanced clinical development with laboratory assayed activity against bacterial threat agents. Assessed compounds identified in high content imaging assays for their antimicrobial activity in relevant animal challenge models.<br>***FY 2012 Plans:***<br>Expand FDA approved drug screening program for Burkholderia, Francisella tularensis and determine in vitro susceptibilities. Continue evaluation of novel compounds against bacterial biological warfare agents. Optimize lead series of MurB compounds targeting cell wall biosynthesis. Determine synergy between MurB antibacterial agents and conventional antibiotics against B. anthracis and Y. pestis. Identify and validate compounds that inhibit bacterial SOS induction thereby potentiating the effects of FDA approved drugs. Select a second FDA approved drug to focus on for Burkholderia and F. Tularensis. In FY13, all research in this area is re-aligned to Techbase Med Defense-Bio CM (TM2). | | | |
| ***Title:*** 8) Therapeutics<br>***Description:*** Toxin Therapeutics: Identify, optimize and evaluate therapeutic candidates that are effective against biological toxin agents.<br>***FY 2011 Accomplishments:***<br>Developed transgenic mice expressing genetically-encoded reporters of BoNT activity in neurons for use in high-throughput screening of BoNT therapeutics. Validated neurite outgrowth analysis for the identification of BoNT inhibitors. Identified host proteins responsible for BoNT light chain stabilization. Conducted co-crystallization studies of BoNT-inhibitor complexes. Performed experiments to determine toxicity and pharmacokinetics of selected ricin inhibitors. Identified host proteins involved in ricin dislocation as potential host-directed drug targets. Determined efficacy of identified ricin inhibitors in mice.<br>***FY 2012 Plans:***<br>Validate host proteins responsible for BoNT light-chain stabilization. Continue co-crystallization studies of BoNT-inhibitor complexes. Characterize host proteins that interact with BoNT and identify small molecule inhibitors preventing host-toxin interactions. Validate differential expression of host genes involved in neuron response to BoNT intoxication. Identify and develop therapies that target host proteins involved in BoNT persistence in the neuron. Validate host proteins involved in ricin dislocation as potential drug targets. Continue development of small molecule inhibitors to toxin threat agents (BoNT, ricin, and staphylococcal enterotoxin B). In FY13, all research in this area is re-aligned to Techbase Med Defense-Bio CM(TM2). | 9.171 | 5.717 | - |
| ***Title:*** 9) Transformational Medical Technologies<br>***Description:*** Multiagent (Broad Spectrum) Medical Countermeasures (MCM): Continues efforts previously funded under the Transformational Medical Technologies Initiative. It supports existing and new efforts in the drug discovery phase of drug development. Applied research efforts also include the investigation of existing drugs to explore their efficacy against BW agents. | - | 32.468 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| This involves the initiation of experiments to identify markers, correlates of protection, assays, and endpoints for further non-clinical and clinical studies and development of a scalable and reproducible manufacturing process amenable to Food and Drug Administration (FDA) Good Manufacturing Practices (GMP).<br><br>***FY 2012 Plans:***<br>Continue to support new MCM discovery efforts to refresh the Hemorrhagic Fever Virus (HFV) and Intracellular Bacterial Pathogen (IBP) product pipelines. Continue to identify and initiate the development of intervention strategies targeting host response to biological pathogens, inclusive of enhancing the immune system and treating symptoms to reduce the severity of disease. In FY13 all research in this area is re-aligned to Project TM2 - Techbase Med Defense-Bio CM. | | | |
| ***Title:*** 10) Transformational Medical Technologies<br><br>***Description:*** Development of Platform Technologies: Continues efforts previously funded under the Transformational Medical Technologies Initiative. Platform Technologies are standalone enabling technologies that support MCM development and when strategically aligned, provide a system of systems response capability to an adverse biological event - from the identification of an unknown pathogen to the development of an approved countermeasure ready for delivery to the Warfighter and the nation. The enabling technologies are divided into five platform areas: Pathogen Characterization, Target Identification, Countermeasure Discovery, Countermeasure Evaluation, and Bioinfomatics. Applied research efforts include the maturation of 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.<br><br>***FY 2012 Plans:***<br>Investment to further develop host and pathogen based platforms to higher levels of maturity and fund Biosurveillance indications and warnings of a fused nature in accordance with the Platform Technologies objectives of pathogen characterization, target identification, and bioinformatics. Continue to mature pathogen identification and characterization capabilities, including genetic sequencing, integrate existing capabilities. Continue to develop genetic sequencing and analysis technologies to characterize advanced threats. Continue integration of leading edge technologies with existing technologies to enhance pathogen characterization, target identification, countermeasure discovery and countermeasure evaluation platform areas. In FY13 all research in this area is re-aligned to Techbase Med Defense - Diagnostics (TM2). | - | 5.449 | - |
| ***Title:*** 11) Transformational Medical Technologies Initiative<br><br>***Description:*** 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. This involves the | 12.585 | - | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| initiation of experiments to identify markers, correlates of protection, assays, and endpoints for further non-clinical and clinical studies and development of a scalable and reproducible manufacturing process amenable to Food and Drug Administration (FDA) good manufacturing processes.<br><br>***FY 2011 Accomplishments:***<br>Continued to support new MCM discovery efforts entering the product pipeline. Continued to evaluate and mature novel drugs as post-exposure prophylaxis and treatment for HFVs and IBP infections. Identified and initiated the development of intervention strategies targeting host pathogen response, inclusive of enhancing the immune system and addressing symptoms to reduce the severity of disease. | | | |
| ***Title:*** 12) Transformational Medical Technologies Initiative<br><br>***Description:*** Development of Platform Technologies: Platform Technologies are standalone enabling technologies that support MCM development and when strategically aligned, provide a system of systems response capability to an adverse biological event - from the identification of an unknown pathogen to the development of an approved countermeasure ready for delivery to the Warfighter and the nation. The enabling technologies are divided into five platform areas: Pathogen Characterization, Target Identification, Countermeasure Discovery, Countermeasure Evaluation, and Bioinfomatics. Applied research efforts include the maturation of 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.<br><br>***FY 2011 Accomplishments:***<br>Continued the development of host and pathogen based platforms to higher levels of maturity. Continued to explore pathogen identification and characterization capabilities, including genetic sequencing, integrate existing capabilities. Continued to assess future sequence and analysis needs to characterize advanced threats. Continued to integrate leading edge technologies with existing technologies to enhance pathogen characterization, target identification, countermeasure discovery and countermeasure evaluation platform areas. | 4.856 | - | - |
| ***Title:*** 13) SBIR<br><br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 1.157 | - |
| **Accomplishments/Planned Programs Subtotals** | 51.158 | 86.679 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* | 0.000 | 0.000 | 118.208 | | 118.208 | 110.294 | 97.308 | 130.654 | 130.654 | Continuing | Continuing |
| • TM3: *TECHBASE MED DEFENSE (ATD)* | 0.000 | 0.000 | 182.330 | | 182.330 | 171.399 | 147.651 | 136.326 | 136.326 | Continuing | Continuing |
| • MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* | 129.682 | 116.653 | 133.254 | | 133.254 | 194.502 | 155.024 | 81.188 | 23.593 | Continuing | Continuing |
| • MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* | 75.657 | 216.715 | 214.056 | | 214.056 | 246.295 | 187.101 | 213.001 | 238.653 | Continuing | Continuing |
| • MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)* | 0.000 | 5.448 | 0.498 | | 0.498 | 0.499 | 3.266 | 0.496 | 9.355 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* | 31.970 | 34.614 | - | - | - | - | - | - | - | 0.000 | 66.584 |

**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, diagnostics, skin decontaminants and therapeutic drugs against identified and emerging chemical warfare threat agents to include a class of agents called Non Traditional Agents (NTAs). 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. In FY13, all research in this area is re-aligned into Techbase Medical Defense (TM2).

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Diagnostics | 1.584 | 0.916 | - |
| ***Description:*** 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.<br><br>***FY 2011 Accomplishments:***<br>Continued to determine whether existing CWA biomarkers are appropriate for early detection and validation of CWA exposure in clinical samples. Determined if biomarkers that appear after exposure to sulfur mustard can be used to identify an appropriate treatment option prior to the onset of symptoms. Continued 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.<br><br>***FY 2012 Plans:***<br>Complete studies of existing CWA biomarkers to determine effectiveness for early detection. Complete sulfur mustard biomarker studies for identifying pre-symptomatic treatment options. Continue investigation of a novel sensor using a phage library display. In FY13, all research in this area is re-aligned into Techbase Med Defense - Diagnostics (TM2). | | | |
| ***Title:*** 2) Chem Diagnostics NTA | 0.392 | 0.571 | - |
| ***Description:*** Focuses on developing state-of-the-art laboratory/fieldable methods to detect exposure to non-traditional agents in clinical samples. Identifies biomolecular targets that can be leveraged as analytical methodologies, as well as, laboratory and | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| animal studies characterizing time-course and longevity of a particular analyte/biomarker. Non-NTA Chem Diagnostics support the analytics for traditional agent diagnostics and hand-held diagnostic technologies that might be applied to NTA diagnostics.<br><br>***FY 2011 Accomplishments:***<br>Continued studies to identify biomarkers to create an enhanced capability to pre-symptomatically diagnose NTA exposure. Continued method development for identification and validation of NTAs in clinical samples.<br><br>***FY 2012 Plans:***<br>Further 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. Initiate method development for identification and validation of NTAs in clinical samples for additional compounds of interest. In FY13, all research in this area is re-aligned into Project NT2 - Techbase Med Defense - NTA Diagnostics. | | | |
| ***Title:*** 3) Pretreatments<br><br>***Description:*** Nerve Agent, Pretreatments: Develops pretreatments that provide protection against all organophosphorous nerve agents. Enzymes should have the ability to rapidly bind and detoxify nerve agents, and have broad binding specificity and high enzymatic efficiency for the destruction of agents.<br><br>***FY 2011 Accomplishments:***<br>Further refined methods and expression systems for screening, production and purification of designed catalytic bioscavengers. Initiated development of animal expression systems for delivery of newly designed improved catalytic bioscavengers. Initiated efficacy studies of small molecule approaches towards acetylcholinesterase AChE protection.<br><br>***FY 2012 Plans:***<br>Utilize novel methods to develop candidate proteins capable of destroying CWAs. Assess processes to produce, screen, and purify newly designed enzymes. Evaluate efficacy of small molecule approaches toward AChE protection. In FY13, all research within this area is re-aligned into Project TM2 - Techbase Medical Defense - Chemical CM. | 7.776 | 6.616 | - |
| ***Title:*** 4) Chem Pretreatments NTA<br><br>***Description:*** Develops pretreatments that provide protection against non-traditional agents. Enzymes 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 2011 Accomplishments:*** | 1.467 | 3.307 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continued efforts to investigate ways to decrease the development time to deliver a bioscavenger (stoichiometric/catalytic) to protect the Warfighter. Continued studies to determine efficacy of bioscavenger for all NTA exposure.<br>***FY 2012 Plans:***<br>Determine efficacy of enzyme candidates for all NTA exposure. In FY13, all research in this area is re-aligned to Project NT2 - Techbase Medical Defense - NTA. | | | |
| ***Title:*** 5) Therapeutics<br>***Description:*** Cutaneous and Ocular: Focuses on therapeutic strategies to effectively minimize injuries to dermal (i.e., skin) 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 develop potential candidates that will ultimately be submitted for FDA licensure or new indications for previously licensed products for use in the treatment of chemical warfare casualties.<br>***FY 2011 Accomplishments:***<br>Continued development of novel drug delivery approaches for candidate countermeasures. Continued to determine the effectiveness of multiple anti-inflammatory approaches in vitro against blister agent exposure. Continued investigation of potential therapeutic approaches to mitigate the chronic effects of blister agent exposure.<br>***FY 2012 Plans:***<br>Further evaluate the effectiveness of multiple anti-inflammatory approaches in vitro and in vivo against sulfur mustard exposure. Continue to develop molecular biology approaches to assess candidate countermeasures against skin and eye injury caused by sulfur mustard. Further evaluate most effective therapeutic approaches to mitigate the chronic effects of sulfur mustard exposure. In FY13, all research within this project is re-aligned to Project TM2 - Techbase Medical Defense - Chemical CM. | 0.884 | 1.256 | - |
| ***Title:*** 6) Therapeutics<br>***Description:*** 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. This work is designed to develop potential candidates that will ultimately be submitted for FDA licensure or new indications for previously licensed products for use in the treatment of chemical warfare casualties.<br>***FY 2011 Accomplishments:***<br>Continued to investigate the mechanism of reactivation of nerve-agent inhibited acetylcholinesterase (AChE) in order to identify or design compounds that allow for a longer time frame between exposure and the administration of the therapeutic without | 4.933 | 8.768 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| decreasing its effectiveness. Continued to explore approaches for neuroprotection against nerve agent exposure. Developed therapeutic strategies to effectively minimize neurologic injuries resulting from exposure to CWAs by testing in silico and in vitro.<br>***FY 2012 Plans:***<br>Utilizing mechanistic understanding of reactivation, identify compounds capable of reactivating nerve-agent inhibited AChE at delayed times after exposure. Identify more effective approaches for neuroprotection, as defined by the minimization of chronic functional decrement due to nerve agent exposure. Conduct in silico and in vitro evaluation of novel and/or Food and Drug Administration licensed products for treatment of acute nerve agent exposure. In FY13, all research within this area is re-aligned to Project TM2 - Techbase Medical Defense - Chemical CM. | | | |
| ***Title:*** 7) Therapeutics<br>***Description:*** 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 2011 Accomplishments:***<br>Continued 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. Continued to investigate down-selected potential candidate countermeasures based on molecular biology approaches to CWA lung injury. Continued to study long-term health effects due to CWA exposure. Research in this area has been completed. | 1.934 | - | - |
| ***Title:*** 8) Chem Therapeutics NTA<br>***Description:*** 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. Develops, assesses, evaluates, and validates therapeutics for treatment resulting from exposure to Non-Traditional Agents (NTA).<br>***FY 2011 Accomplishments:***<br>Continued binding studies to support the design and synthesis of an improved reactivator. Continued evaluation of improved products to treat NTA exposure. Continued investigation of pathophysiological effects to identify debilitating syndromes caused by exposure to NTAs. Continued 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.<br>***FY 2012 Plans:*** | 13.000 | 12.784 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| 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. Conduct in silico and in vitro evaluation of novel and/or Food and Drug Administration licensed products for treatment of NTA exposure. Study mechanisms of NTA injury for therapeutic intervention. In FY13, all research in this area is re-aligned into Techbase Medical Defense - NTA (NT2). | | | |
| ***Title:*** 9) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.396 | - |
| **Accomplishments/Planned Programs Subtotals** | 31.970 | 34.614 | - |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* | 0.000 | 0.000 | 118.208 | | 118.208 | 110.294 | 97.308 | 130.654 | 130.654 | Continuing | Continuing |
| • TM3: *TECHBASE MED DEFENSE (ATD)* | 0.000 | 0.000 | 182.330 | | 182.330 | 171.399 | 147.651 | 136.326 | 136.326 | Continuing | Continuing |
| • MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* | 4.134 | 7.804 | 0.000 | | 0.000 | 16.947 | 20.395 | 37.513 | 25.134 | Continuing | Continuing |
| • MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* | 3.801 | 2.407 | 9.642 | | 9.642 | 41.257 | 45.477 | 50.862 | 58.935 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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>TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* | |

| COST ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* | - | - | 118.208 | - | 118.208 | 110.294 | 97.308 | 130.654 | 130.654 | Continuing | Continuing |

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

This project (TM2) funds applied research for innovative technology approaches to advance medical systems designed to rapidly identify, diagnose, prevent, and treat disease due to exposure to nuclear, chemical and biological threat agents. Categories for this project include core science efforts in Medical Chemical, Medical Biological, Diagnostics, and the Medical Countermeasures Initiative (MCMI). This project funds applied research for the investigation of new medical countermeasures to include prophylaxes, pretreatments, antidotes, skin decontaminants, and therapeutic drugs against identified and emerging biological and chemical warfare agents. This project provides investment for the development of pretreatments (prophylaxis) and post-irradiation therapeutics against radiological/nuclear exposure. Diagnostic research focuses on providing high quality data closer to the point-of-need comprising devise innovation, panels of biomarkers driven by bioinformatics, and epidemiological modeling tools. 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 and biological (CB) agents.

The Medical Countermeasures Initiative (MCMI) was established to coordinate inter-related advancement development and flexible manufacturing capabilities, providing a dedicated, cost-effective, reliable, and sustainable MCM process that meets the warfighter and national security needs. Specifically, the MCMI will provide the capability for the advancement of regulatory science and flexible manufacturing of biological MCM to address CBRN threats, including novel and previously unrecognized, naturally-occurring emerging infectious diseases.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Techbase Med Defense - Bio CM | - | - | 5.600 |
| ***Description:*** Disease Surveillance/Epidemiological and Predictive Modeling: Integrate existing disparate military and civilian datasets, investigate methodologies to appropriately integrate open source data into advanced warning systems, and leverage and enhance advanced epidemiological models and algorithms for disease prediction, impact and biological threat assessment. Contribute to the development of global, near real time, disease monitoring and surveillance systems that address secondary infection, fuse medical syndromic, environmental, and clinical data, and feed into agent-based epidemiological modeling, medical resource estimation and decision support tools. Focus on agent-based epidemiological modeling and fusion of disease surveillance data. | | | |
| ***FY 2013 Plans:***<br>Continue efforts in FY12 from Information Systems Technology, Medical & Surveillance Information and Analysis (CB2 - M&S). Continue effort on biosurveillance data stream evaluation and analysis to identify most useful biosurveillance data streams for prediction and early warning. Continue effort to devise structured OCONUS expansion roadmap for agent-based epidemiological models and increase OCONUS analytic capability through targeted areas. Continue research into data integration platforms and | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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>TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| expand biosurveillance portfolio to support in-context, rapid detection, identification and response capabilities on the global scale. Funding for this research area is realigned from Tech Base Med Bio - Diagnostics (TB2). | | | |
| ***Title:*** 2) Techbase Med Defense - Chem Diagnostics<br>***Description:*** Chemical Diagnostics: Focuses on developing state-of-the-art laboratory/fieldable methods that detect exposure to chemical warfare agents (CWA) (e.g., nerve agents and vesicants) or radiological agents 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.<br>***FY 2013 Plans:***<br>Develop assays for enhancing the ability to identify exposure (sublethal) to emerging chemical agent threats using newly-identified biomolecular targets. Funding for this research area is realigned from Tech Base Med Chem - Diagnostics (TC2). | - | - | 1.175 |
| ***Title:*** 3) Techbase Med Defense - Diagnostics<br>***Description:*** Biological Diagnostic Technologies: Development and verification of rapid, sensitive, and specific tests for the identification of Biological Warfare Agents (BWAs) and their expressed pathogens and toxins in clinical specimens from Warfighters for the diagnosis of exposure/infection. Discovery of host biomarkers generated in response to exposure to biological threat agents.<br>***FY 2013 Plans:***<br>Optimize processes and platform technologies employed in laboratory characterization of host and pathogen biomarker signatures of exposure and disease processes. Mature pipeline of genomics, proteomics, systems biology, and bioinformatics tools and methods to simultaneously support companion diagnostic tests, the development of MCMs and the analytic processes required to identify known, emerging, and re-emerging pathogens. Funding for this research area is realigned from Tech Base Med Bio - Diagnostics (TB2) and Techbase Med Bio - TMT Platform Technologies (TB2). | - | - | 16.652 |
| ***Title:*** 4) Techbase Med Defense - Diagnostics<br>***Description:*** Next Generation Technologies: Development of next generation diagnostic technologies including portable diagnostic platforms, highly parallel and informative testing formats, and nanotechnology applications. Development of novel assay formats and hardware solutions to enable point of need diagnostic capabilities, allowing for rapid guidance of medical decisions.<br>***FY 2013 Plans:***<br>Discover and verify panel of pre-symptomatic differential diagnostic biomarkers of exposure to virulent bacterial and viral bio- and emerging threat class and agents. Development of portable diagnostic devices capable of use by minimally trained personnel, | - | - | 7.561 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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>TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| aiding in rapid diagnostics at the point of need. Funding for this research area is realigned from Tech Base Med Bio - Diagnostics (TB2) and Techbase Med Bio - TMT Platform Technologies (TB2). | | | |
| ***Title:*** 5) Techbase Med Defense - Diagnostics<br>***Description:*** Biological Diagnostic Devices: Diagnostic device development to include systems able to harness next generation technologies to revolutionize clinical diagnostics in care facilities and in hospital laboratories. This investment will incorporate capabilities such as next generation sequencing and advanced biomolecular methods to harness both host and pathogen biomarkers in a threat agnostic approach that will serve all echelons of military medical care.<br>***FY 2013 Plans:***<br>Develop and mature point of need diagnostic platform technologies with orthogonal capabilities. Implement design control phased development and acceptance criteria to identify a minimum of two Next Generation Diagnostic Systems, Increment 2, candidate device platforms. Funding for this research area is realigned from Tech Base Med Bio - Diagnostics (TB2) and Techbase Med Bio - TMT Platform Technologies (TB2). | - | - | 9.047 |
| ***Title:*** 6) Techbase Med Defense - Medical Countermeasures Initiative<br>***Description:*** Medical Countermeasures Initiative (MCMI): Integrate the regulatory science and manufacturing technologies and processes developed into the Advanced Development and Manufacturing Centers of Excellence (ADM COE) as enablers of the advanced development and flexible manufacturing capability.<br>***FY 2013 Plans:***<br>Investigate organotypic platforms for MCM evaluation: ex-vivo liver, kidney, alveolar lung sacs with the goal of enhancing the product development process. Construct next generation high yield protein expression platforms for biotechnology-based MCMs. Develop high capacity downstream technologies and process analytic technologies to enhance rapid manufacturing process development and control with the goal of accelerating the manufacturing of biotechnology-based MCMs. Funding for this research area is realigned from MCMI - Medical Countermeasures Initiative (TB2). | - | - | 12.972 |
| ***Title:*** 7) Techbase Med Defense - Bio CM<br>***Description:*** Pretreatments - 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 animal models.<br>***FY 2013 Plans:***<br>Refine appropriate animal models for aerosolized Burkholderia mallei and pseudomallei as well as Type A Francisella tularensis with regulatory guidance. Evaluate multiple novel subunit Burkholderia vaccine candidates in small or large animal models with | - | - | 7.063 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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>TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| and without adjuvants. Define predictive value of correlates of immunity, elicited by Burkholderia species vaccine candidates. Evaluate the tolerability of novel adjuvants using the Anthrax vaccine for proof of concept, but which may potentially have applicability to other vaccine candidates. Additionally, research will continue to produce vaccine candidates designed to protect against emerging or genetically engineered anthrax strains. Test multiple novel subunit vaccine candidates for protection against aerosolized Type A Francisella tularenesis infection in appropriate small and large animal models. Funding for this research area is realigned from Tech Base Med Bio - Pretreatments (TB2). | | | |
| ***Title:*** 8) Techbase Med Defense - Bio CM<br><br>***Description:*** Pretreatments - 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 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 2013 Plans:***<br>Utilize relevant animal models for the evaluation of the immune response to novel multi-antigen platforms. Further refine the capabilities of the surrogate human immune system, MIMIC (i.e., Modular Immune In vitro Construct), which provides an in vitro assessment of the human immune response. Initiate studies designed to lend regulatory credence to functional assays on the MIMIC to evaluate cross-reactivity of different Filovirus and Alphavirus strains. Increase efforts to develop methodologies which remove the need for cold storage and transport for vaccines and render them stable in variable and extreme temperatures. Funding for this research area is realigned from Tech Base Med Bio - Pretreatments (TB2). | - | - | 3.098 |
| ***Title:*** 9) Techbase Med Defense - Bio CM<br><br>***Description:*** Therapeutics - Viral Therapeutics: Identify, optimize and evaluate lead candidate therapeutics for efficacy against viral pathogens.<br><br>***FY 2013 Plans:***<br>Evaluate FDA approved drug combinations against arenavirus, bunyavirus, and flavivirus infection. Conduct structure-based drug discovery for alphaviruses. Identify and evaluate novel broad-spectrum host and pathogen directed small molecule therapeutics for emerging infectious diseases (i.e. alphavirus, filovirus, flavivirus, arenavirus, bunyavirus). A portion of TB2/TBMDB TMT Multiagent (Broad Spectrum) Medical Countermeasures will be continued in viral therapeutics (TB2/TBMDB THER). Funding for this research area is realigned from Tech Base Med Bio - Therapeutics (TB2). | - | - | 8.150 |
| ***Title:*** 10) Techbase Med Defense - Bio CM | - | - | 7.150 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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>TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** Therapeutics - Bacterial Therapeutics: Identify, optimize and evaluate lead therapeutic candidates effective against designated bacterial threat agents.<br><br>***FY 2013 Plans:***<br>Expand FDA approved drug screening program for Burkholderia, Francisella tularensis and determine in vitro susceptibilities. Continue evaluation of novel compounds against bacterial biological warfare agents. Develop lead series of MurB compounds targeting cell wall biosynthesis. Determine synergy between MurB antibacterial agents and conventional antibiotics against B. anthracis and Y. pestis. Evaluate the electron transport chain, multidrug efflux systems, and purine pathways as a target for broad-spectrum antibacterial development. A portion of TB3/TBMDB TMT Multiagent (Broad Spectrum) Medical Countermeasures will be continued in bacterial therapeutics (TB2/TBMDB THER). Funding for this research area is realigned from Tech Base Med Bio - Therapeutics (TB2). | | | |
| ***Title:*** 11) Techbase Med Defense - Bio CM<br><br>***Description:*** Therapeutics - Toxin Therapeutics: Identify, optimize and evaluate therapeutic candidates that are effective against biological toxin agents.<br><br>***FY 2013 Plans:***<br>Characterize host proteins that interact with BoNT and identify small molecule inhibitors preventing host-toxin interactions. Validate differential expression of host genes involved in neuron response to BoNT intoxication. Identify and develop therapies that target host proteins involved in BoNT persistence in the neuron. Continue co-crystallization studies of BoNT-inhibitor complexes. Funding for this research area is realigned from Tech Base Med Bio - Therapeutics (TB2). | - | - | 2.395 |
| ***Title:*** 12) Techbase Med Defense - Bio CM<br><br>***Description:*** Multiagent (Broad Spectrum) Medical Countermeasures (MCM): Continues efforts previously funded under the Transformational Medical Technologies Initiative. It supports existing and new efforts in the discovery phase of drug development. Applied research efforts also include the investigation of existing drugs to explore their efficacy against BW agents. This involves the initiation of experiments to identify markers, correlates of protection, assays, and endpoints for further non-clinical and clinical studies and development of a scalable and reproducible manufacturing process amenable to Food and Drug Administration (FDA) Good Manufacturing Practices (GMP).<br><br>***FY 2013 Plans:***<br>Continue to support new MCM discovery efforts to refresh the Hemorrhagic Fever Virus (HFV) and Intracellular Bacterial Pathogen (IBP) product pipelines. Continue to identify and initiate the development of intervention strategies targeting host | - | - | 18.235 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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>TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| response to biological pathogens, inclusive of enhancing the immune system and treating symptoms to reduce the severity of disease. Funding for this research area is realigned from Tech Base Med Bio - TMT Broad Spectrum MCM (TB2) (TB2). | | | |
| ***Title:*** 13) Techbase Med Defense - Chem CM<br><br>***Description:*** Chemical Medical Pretreatments - Nerve Agent, Pretreatments: Develops pretreatments that provide protection against all organophosphorous nerve agents. Enzymes should have the ability to rapidly bind and detoxify nerve agents, and have broad binding specificity and high enzymatic efficiency for the destruction of agents.<br><br>***FY 2013 Plans:***<br>Initiate search for Catalytic Bioscavenger of V agents. Assess feasibility and begin initial studies to develop a broad spectrum cocktail of V and G agent catalytic bioscavengers. Funding for this research area is realigned from Tech Base Med Chem - Pretreatments (TC2). | - | - | 7.452 |
| ***Title:*** 14) Techbase Med Defense - Chem CM<br><br>***Description:*** Chemical Medical Therapeutics - Cutaneous and Ocular: Focuses on therapeutic strategies to effectively minimize injuries to dermal (i.e., skin) 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 develop potential candidates that will ultimately be submitted for FDA licensure or new indications for previously licensed products for use in the treatment of chemical warfare casualties.<br><br>***FY 2013 Plans:***<br>Continue to utilize molecular biology approaches to elucidate drug targets and gain further mechanistic understanding of delayed ocular injury due to sulfur mustard exposure. Funding for this research area is realigned from Tech Base Med Chem - Therapeutics (TC2). | - | - | 1.270 |
| ***Title:*** 15) Techbase Med Defense - Chem CM<br><br>***Description:*** Chemical Medical Therapeutics - 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. This work is designed to develop potential candidates that will ultimately be submitted for FDA licensure or new indications for previously licensed products for use in the treatment of chemical warfare casualties.<br><br>***FY 2013 Plans:***<br>Continue investigating potential for broad spectrum/centrally active reactivator. Continue search for Neuroprotectant effective up to 4 hours after seizure initiation. Funding for this research area is realigned from Tech Base Med Chem - Therapeutics (TC2). | - | - | 9.775 |
| ***Title:*** 16) Techbase Med Defense - Rad CM | - | - | 0.613 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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>TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** Radiation Medical Countermeasures: Develop medical countermeasures to protect the Warfighter against acute 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.<br><br>***FY 2013 Plans:***<br>Continue evaluation of novel biomarkers useful for biodosimetry and identification of potential therapeutic approaches. Funding for this research area is realigned from Tech Base Med Rad - Radiation Countermeasures (TR2). | | | |
| **Accomplishments/Planned Programs Subtotals** | - | - | 118.208 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TB2: *MEDICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 51.158 | 86.679 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 137.837 |
| • TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)* | 31.970 | 34.614 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 66.584 |
| • TR2: *MEDICAL RADIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 2.083 | 0.806 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.889 |
| • TB3: *MEDICAL BIOLOGICAL DEFENSE (ATD)* | 153.437 | 172.394 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 325.831 |
| • TC3: *MEDICAL CHEMICAL DEFENSE (ATD)* | 25.486 | 21.789 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 47.275 |
| • TM3: *TECHBASE MED DEFENSE (ATD)* | 0.000 | 0.000 | 182.330 | | 182.330 | 171.399 | 147.651 | 136.326 | 136.326 | Continuing | Continuing |
| • TR3: *MEDICAL RADIOLOGICAL DEFENSE (ATD)* | 2.402 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.402 |
| • MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* | 129.682 | 116.653 | 133.254 | | 133.254 | 194.502 | 155.024 | 81.188 | 23.593 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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>TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* | |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* | 4.134 | 7.804 | 0.000 | | 0.000 | 16.947 | 20.395 | 37.513 | 25.134 | Continuing | Continuing |
| • MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* | 75.657 | 216.715 | 214.056 | | 214.056 | 246.295 | 187.101 | 213.001 | 238.653 | Continuing | Continuing |
| • MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* | 3.801 | 2.407 | 9.642 | | 9.642 | 41.257 | 45.477 | 50.862 | 58.935 | Continuing | Continuing |
| • MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)* | 0.000 | 5.448 | 0.498 | | 0.498 | 0.499 | 3.266 | 0.496 | 9.355 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TR2: *MEDICAL RADIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 2.083 | 0.806 | - | - | - | - | - | - | - | 0.000 | 2.889 |

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

This project (TR2) funds applied research to develop medical countermeasures to protect the Warfighter against acute 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. In FY13, all research in this area is re-aligned into Techbase Medical Defense (TM2).

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Radiological Medical Countermeasures | 2.083 | 0.795 | - |
| ***Description:*** Radiation Medical Countermeasures: Develop medical countermeasures to protect the Warfighter against acute 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.<br><br>***FY 2011 Accomplishments:***<br>Continued to evaluate novel and FDA-approved drugs for efficacy against radiation exposure maintaining a focus on potential mechanisms of action. Identified biochemical/physiological mechanisms that could be exploited for expanding the scope of potential therapeutic approaches. Continued to focus approaches on the GI and lung injury related to radiation exposure. Continued evaluation and identification of unique, novel and promising biomarkers useful for biodosimetry and potential pathways for therapeutic approaches.<br><br>***FY 2012 Plans:***<br>Continue the evaluation of novel biomarkers for biodosimetry and identification of potential therapeutic approaches. In FY13, all Project TR2 research is re-aligned into Techbase Medical Defense - RAD CM (TM2). | | | |
| ***Title:*** 2) SBIR | - | 0.011 | - |
| ***FY 2012 Plans:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Small Business Innovative Research. | | | |
| Accomplishments/Planned Programs Subtotals | 2.083 | 0.806 | - |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* | 0.000 | 0.000 | 118.208 | | 118.208 | 110.294 | 97.308 | 130.654 | 130.654 | Continuing | Continuing |
| • TM3: *TECHBASE MED DEFENSE (ATD)* | 0.000 | 0.000 | 182.330 | | 182.330 | 171.399 | 147.651 | 136.326 | 136.326 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Chemical and Biological Defense Program | | | | | | | | | | DATE: February 2012 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 2011** | **FY 2012** | **FY 2013 Base** | **FY 2013 OCO** | **FY 2013 Total** | **FY 2014** | **FY 2015** | **FY 2016** | **FY 2017** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 218.323 | 229.200 | 234.280 | - | 234.280 | 220.606 | 197.471 | 185.286 | 185.286 | Continuing | Continuing |
| CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* | 21.219 | 23.818 | 20.034 | - | 20.034 | 18.343 | 18.893 | 17.357 | 17.357 | Continuing | Continuing |
| NT3: *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (ATD)* | - | - | 31.916 | - | 31.916 | 30.864 | 30.927 | 31.603 | 31.603 | Continuing | Continuing |
| TB3: *MEDICAL BIOLOGICAL DEFENSE (ATD)* | 153.437 | 172.394 | - | - | - | - | - | - | - | 0.000 | 325.831 |
| TC3: *MEDICAL CHEMICAL DEFENSE (ATD)* | 25.486 | 21.789 | - | - | - | - | - | - | - | 0.000 | 47.275 |
| TE3: *TEST & EVALUATION (ATD)* | 11.346 | 11.199 | - | - | - | - | - | - | - | 0.000 | 22.545 |
| TM3: *TECHBASE MED DEFENSE (ATD)* | - | - | 182.330 | - | 182.330 | 171.399 | 147.651 | 136.326 | 136.326 | Continuing | Continuing |
| TR3: *MEDICAL RADIOLOGICAL DEFENSE (ATD)* | 2.402 | - | - | - | - | - | - | - | - | 0.000 | 2.402 |
| TT3: *TECHBASE TECHNOLOGY TRANSITION* | 4.433 | - | - | - | - | - | - | - | - | 0.000 | 4.433 |

**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, protection, and decontamination. 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.

In FY13, all NTA-dedicated research (both medical and non-medical) is re-aligned to Project NT3 - Techbase Non-Traditional Agents Defense (ATD). Also all non-NTA Medical Biological and Medical Chemical Defense efforts (Projects TB3 and TC3) are re-aligned to Project TM3 - Techbase Medical Defense (ATD).

| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Chemical and Biological Defense Program | DATE: February 2012 |
|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 177.113 | 229.235 | 244.608 | - | 244.608 |
| Current President's Budget | 218.323 | 229.200 | 234.280 | - | 234.280 |
| Total Adjustments | 41.210 | -0.035 | -10.328 | - | -10.328 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.518 | - | | | |
| • SBIR/STTR Transfer | -2.667 | - | | | |
| • Other Adjustments | 44.395 | -0.035 | -10.328 | - | -10.328 |

**Change Summary Explanation**

Funding: FY11
-$1.207M Congressional General Reductions
(-$1.132M) Section 8117 (CB3 -$159K; TB3 -$681K; TC3 -$125K; TE3 -$97K; TR3 -$33K; TT3 -$37K)
(-$ .075M) FFRDC (TE3 -$75K)
+$45.600M Congressional Directed Transfer (TB3 +$45,600K) Medical Realignment from BA5
-$.516M Reprogrammings (CB3 +$6,344K; TB3 -$5,107K; TC3 -$3,228K; TE3 -$132K; TR3 +$1,554K; TT3 +$53K)
-$2.667M SBIR Transfers (CB3 -$376K; TB3 -$1,607K; TC3 -$295K; TE3 -$225K; TR3 -$77K; TT3 -$87K)
-$2.457M Other Adjustments (Efficiency Initiatives) (MB3 -$2,288K; TE3 -$167K)

Schedule: N/A

Technical: N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* | 21.219 | 23.818 | 20.034 | - | 20.034 | 18.343 | 18.893 | 17.357 | 17.357 | 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). 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/radiological/nuclear 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).

In FY13, all NTA-dedicated research from this Project is re-aligned to Project NT3 - Techbase Non-Traditional Agents Defense (ATD).

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Detection | 0.502 | 7.642 | 5.852 |

***Description:*** 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.

***FY 2011 Accomplishments:***

Completed field trial validation of chemical signatures for chemical standoff detection and identification capabilities. Completed phase I validation of actual biological IR signatures in support of the Joint Biological Standoff Detection System Increment 2. Continued development of test methodology for next generation chemical standoff technology. Initiated the process of validating ground truth systems for field assessments.

***FY 2012 Plans:***

Close out development of test methodology for next generation chemical standoff technology. Begin processes of validating ground truth systems for point technologies (genomic and proteomic technology) field assessments.

***FY 2013 Plans:***

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue processes of validating ground truth systems for point technologies (genomic and proteomic technology) field assessments. | | | |
| ***Title:*** 2) Detection NTA<br>***Description:*** Detection NTA: Focuses on technologies to provide Non-Traditional Agents (NTA) detection capabilities.<br>***FY 2011 Accomplishments:***<br>Continued the supporting efforts necessary to provide the Initial Operating Capabilities for test facilities. The effort focused on detection and analytical methodologies to determine sensitivities/thresholds necessary to establish exposure standards needed to create standard operating procedures for the facility.<br>***FY 2012 Plans:***<br>Initiate the development of test methodology to validate signatures for chemical aerosols threat materials. In FY13, all research in this area is re-aligned to Project NT3 - Techbase Non-Med - Detection NTA. | 4.083 | 7.346 | - |
| ***Title:*** 3) Technology Transition<br>***Description:*** 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>***FY 2011 Accomplishments:***<br>Completed transition of the Integrated CB Agent Hazard Mitigation with systems and neutralization efficiency testing in an operational environment. Completed assessment and down-select to two or three best technologies that provides the highest enhancements to capabilities. | 4.555 | - | - |
| ***Title:*** 4) Information Systems Technology<br>***Description:*** Warning and Reporting Information and Analysis: 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 2011 Accomplishments:***<br>Transitioned next-generation outdoor Source Term Estimation (STE), Hazard Refinement (HR), and Sensor Placement Tool (SPT) to advanced development programs (Joint Effects Model (JEM) - see BA4 Project IS4). Transitioned first-generation false alarm | 1.396 | 0.878 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| reduction capability and first generation rapid STE algorithms to advanced development program (Joint Warning and Reporting Network (JWARN)).<br>***FY 2012 Plans:***<br>Conduct Verification and Validation (V&V) of STE and HR algorithms for use in complex environments (e.g., variable terrain, urban, water, and building interiors). Transition report on the use of meteorological ensemble predictions in dispersion models to JEM. | | | |
| ***Title:*** 5) Information Systems Technology<br>***Description:*** Hazard Prediction & Information Analysis: 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 from weapons and accidents.<br>***FY 2011 Accomplishments:***<br>Continued to further refine the Geographic and Environmental Database Information System (GEDIS) data requirements tool. Completed optimization of methods to significantly improve performance of transport and dispersion hazard models for the Joint Effects Model (JEM). Continued development and implementation of a configuration management prototype for transition of project results to advanced development programs. Continued advanced development of JEM algorithms to portray and predict Non-Traditional Agent (NTA) hazards in operational environments.<br>***FY 2012 Plans:***<br>Continue development of the high altitude post-missile intercept effects model for eventual integration into hazard prediction and counterproliferation model frameworks by drawing upon existing modeling of other agencies and handling both successfully intercepted weapons as well as intentionally functioning weapons of a chemical, biological or nuclear payload. Continue work on configuration management prototype to implement standard module interfaces to comply with advanced development program requirements. Establish field transport and dispersion databases and websites for accessible permanent test archiving.<br>***FY 2013 Plans:***<br>Continue implementation of new numerical schemes for transport and dispersion models. Continue enhancement of urban transport and dispersion models which transitioned from CB2 efforts in FY12. Continue with work on configuration management prototype to establish upgraded capabilities listed as valid requirements for JEM. Complete development on the high altitude post-missile intercept effects model. Continue with field transport and dispersion databases and websites for accessible permanent test archiving. Continue implementation and testing of new numerical schemes for future establishment of 64-bit/multi-core capable models. | 2.307 | 0.913 | 4.747 |
| ***Title:*** 6) Information Systems Technology | 0.427 | 1.412 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** Operations Planning & Information Analysis: 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, population modeling, and human knowledge management.<br><br>***FY 2011 Accomplishments:***<br>Transitioned decision support tools for CBRN to the Joint Warning and Reporting Network (JWARN). Transitioned refined secondary infection and contagious/infectious disease models to the Joint Effects Model (JEM). Transitioned updated and expanded human effects models. Transitioned Incident Management/Consequence Management (IM/CM) tools and capabilities in consequence systems. Transitioned a fully optimized sensor placement tool.<br><br>***FY 2012 Plans:***<br>Transition medical countermeasure models, to include: One Chemical Model: Organophosphate and Five Biological Models: Anthrax, Plague, Lassa Fever, Burkholderia Pseudomallei, and Tularemia models. | | | |
| ***Title:*** 7) Information Systems Technology<br><br>***Description:*** Systems Performance & Information Analysis: Develop Chemical, Biological, Radiological and Nuclear (CBRN) data sharing capabilities.<br><br>***FY 2012 Plans:***<br>Perform improvements in CBRN data management capabilities, with emphasis on enabling access to information for analysis within CBDP systems performance models. Enhance analysis toolset which provides the ability to evaluate decontaminants and decontamination systems.<br><br>***FY 2013 Plans:***<br>Continue to develop the Chemical and Biological Warfare Agent Effects Manual Number 1 (CB-1), an authoritative source capturing analytical methods for evaluating the effects of CB warfare agents on equipment, personnel, and operations, which was initiated in Information Systems Technology, Systems Performance & Information Analysis (CB2 - M&S). Conclude development of initial versions of systems performance models in collective protection, individual protection, contamination avoidance and decontamination. Initiate system performance model integration with advanced development for program-wide exploitation. A portion of this effort is funded in Test & Evaluation (TE3). | - | 0.750 | 1.985 |
| ***Title:*** 8) Information Systems Technology<br><br>***Description:*** Medical Surveillance & Information Analysis: Integrate existing disparate military and civilian datasets into advanced warning systems, and leverage and enhance epidemiological models and algorithms for disease prediction, impact and biological threat assessment. Contribute to the development of global, near real time, disease monitoring and surveillance systems that | - | 0.867 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| address secondary infection, fuse medical syndromic, environmental, and clinical data, and feed into agent-based epidemiological modeling, medical resource estimation and decision support tools. Focus areas include health/human effects modeling (casualty estimation, agent-based epidemiological modeling and fusion of disease surveillance data).<br><br>***FY 2012 Plans:***<br>Begin Validation and Verification (V&V) efforts for existing agent-based epidemiological models, to include underlying population data and disease spread algorithms, with regard to use in robust adaptive decision making. In FY13, all research in this area is realigned into Techbase Med Bio-Diagnostics (TM3). | | | |
| ***Title:*** 9) Protection & Hazard Mitigation<br><br>***Description:*** Lightweight Integrated Fabric: Demonstration of lightweight chemical and biological protective textiles that can be used as an integrated combat duty uniform.<br><br>***FY 2011 Accomplishments:***<br>Incorporated lessons from Individual Protection Advanced Technology Demonstration (IP Demo) and developed final data packages for transition to Uniform Integrated Protective Ensemble(UIPE) and/or Joint Service Lightweight Integrated Suit Technology (JSLIST) programs. Verified and transitioned CBART, a new methodology to assess agent resistance of material swatches that more closely simulates environmental conditions, significantly reduces experimental variability, and better supports assessment and comparison of new generations of materials compared to current methods. Completed and transitioned swatch reference materials to consistently baseline performance of new materials. Continued development and assessment of real-time Man-in-Simulant Test (MIST) sensor tags to support development and testing of future UIPE increments.<br><br>***FY 2012 Plans:***<br>Incorporate next phase of integrated textile systems into a complete second generation candidate ensemble for the Uniform Integrated Protective Ensemble (UIPE) Phase II program as well as other applicable Advanced Technology Demonstrations that may materialize. Provide a trade-space analysis of all government, industrial, and academic candidate materials for use in future UIPE phase initiations. Transition human performance initial tool set to Joint Program Manager (JPM) Protection that can be used in the optimization of protective ensemble design.<br><br>***FY 2013 Plans:***<br>Continue to integrate next phase of integrated textile systems into a complete second generation candidate ensemble for the Uniform Integrated Protective Ensemble (UIPE) Phase II program as well as other applicable Advanced Technology Demonstrations that may materialize. Continue the trade-space analysis of all government, industrial, and academic candidate | 3.990 | 0.637 | 1.637 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| materials for use in future UIPE phase initiations. Continue to transition the human performance tool set to JPM Protection that can be used in the optimization of protective ensemble design. | | | |
| ***Title:*** 10) Protection & Hazard Mitigation<br><br>***Description:*** 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.<br><br>***FY 2011 Accomplishments:***<br>Incorporated 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). Continued prototype development in support of Joint Expeditionary Collective Protection (JECP) and support of collective protection in vehicular/platform systems in Major Defense Acquisition Program (MDAP). Initiated advanced development of non-carbon adsorptive media ZZAT (Zirconium Oxide, Zinc, Silver and Triethylenediamine) with improved performance against toxic industrial chemicals in support of future generation JSGPM filters.<br><br>***FY 2012 Plans:***<br>Continue 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. Transition these technologies to the JSGPM and JSAM programs.<br><br>***FY 2013 Plans:***<br>Continue the integration and demonstration of latest generation 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. Transition these technologies to the JSGPM and JSAM programs. | 1.772 | 0.636 | 1.292 |
| ***Title:*** 11) Protection & Hazard Mitigation<br><br>***Description:*** 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 2012 Plans:***<br>Advanced concept CBRN technologies will be integrated within the confines of the Chem/Bio protection component of the Helmet Electronics and Display System - Upgradable Protection (HEADS-UP) Army Technology Objective (ATO) program, which has multi-service participation for ground applications. | - | 0.688 | - |
| ***Title:*** 12) Protection & Hazard Mitigation | - | 0.188 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** 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 2012 Plans:***<br>Demonstrate breadboard concepts of a residual life indicator (RLI) for collective filtration systems. | | | |
| ***Title:*** 13) Protection & Hazard Mitigation<br><br>***Description:*** Decontamination Family-of-Systems (DFoS): Demonstration of non-traditional decontamination technologies and approaches which gain significantly improved effectiveness by complementary application.<br><br>***FY 2011 Accomplishments:***<br>Completed additional data packages and technical assessments of technologies for transition to be into the Decontamination Family of Systems (DFoS) Program of Record. Continued advanced development of self-decontaminating and agent shedding coatings for aircraft. Initiated systems analysis studies that will better define technology objectives and integration issues with non-CB coatings requirements. Initiated development of Integrated Decontamination Test and Evaluation System (IDTES), a test fixture that will assess decontamination sub-scale processes on small-items and complex surfaces.<br><br>***FY 2012 Plans:***<br>Continue demonstration of non-traditional decontamination technologies and approaches which gain significantly improved effectiveness by complementary application. Integrate robust surface chemistry and decontamination process analysis using ultra high vacuum system into technology maturation process for hazard mitigation. Demonstrate IDTES live agent testing facility that allows scaled relevant environment evaluations. Pursue the optimization of reactive coatings (durable). Transition research efforts "Surfactant Technology for Surface Chemical/Biological Agent Removal" and "Decontamination Assurance Spray."<br><br>***FY 2013 Plans:***<br>Continue the development, demonstration, and transition of non-traditional decontamination technologies and approaches which gain significantly improved effectiveness by complementary application. Continue to integrate and demonstrate robust surface chemistry and decontamination process analysis using ultra high vacuum system into technology maturation process for hazard mitigation. Continue to develop coatings, innovative chemistries/processes, enzyme approaches to hazard mitigation, human remains decontamination processes, and radiological/nuclear decontamination/hazard mitigation capabilities. Transition quantitatively evaluated interim capability for radiological/nuclear decontamination/hazard mitigation. | 1.183 | 1.173 | 0.397 |
| ***Title:*** 14) Protection & Hazard Mitigation | 1.004 | 0.334 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** 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 2011 Accomplishments:***<br>Focused efforts on most promising approaches and initiate component development to support prototyping and demonstrations. Technologies included 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. Completed testing and transitioned novel approach for a rapidly deployable Contamination Control Area (CCA)/Airlock (AL) for vehicular systems. System supports integrated collective protection in MDAP programs as well as enabling retrofits of legacy systems (vehicular or stand-alone).<br><br>***FY 2012 Plans:***<br>Transition research effort "Reactive Airlock for Armored Vehicles, Shipboard and Shelter Applications." | | | |
| ***Title:*** 15) Test and Evaluation (T&E)<br><br>***Description:*** Test and Evaluation, Information System Technology: Develop CBRN data sharing capabilities and simulation tools.<br><br>***FY 2013 Plans:***<br>Continue to develop the Test & Evaluation components of the Chemical and Biological Warfare Agent Effects Manual Number 1 (CB-1), an authoritative source capturing analytical methods for evaluating the effects of CB warfare agents on equipment, personnel, and operations. Conclude development of initial versions of systems performance models in collective protection, individual protection, contamination avoidance and decontamination. This project is being partially funded by CB3 Tech Base Non Med - Modeling and Simulation. | - | - | 4.124 |
| ***Title:*** 16) SBIR<br><br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.354 | - |
| **Accomplishments/Planned Programs Subtotals** | 21.219 | 23.818 | 20.034 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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)* | |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 85.789 | 97.774 | 44.331 | | 44.331 | 41.819 | 40.951 | 52.243 | 52.243 | Continuing | Continuing |
| • TE3: *TEST & EVALUATION (ATD)* | 11.346 | 11.199 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 22.545 |
| • CA4: *CONTAMINATION AVOIDANCE (ACD&P)* | 57.121 | 33.952 | 3.038 | | 3.038 | 19.803 | 38.588 | 39.729 | 34.595 | Continuing | Continuing |
| • DE4: *DECONTAMINATION SYSTEMS (ACD&P)* | 6.933 | 24.749 | 12.374 | | 12.374 | 10.247 | 9.779 | 12.751 | 6.083 | Continuing | Continuing |
| • IS4: *INFORMATION SYSTEMS (ACD&P)* | 11.032 | 7.420 | 13.831 | | 13.831 | 5.672 | 10.496 | 0.260 | 0.000 | 0.000 | 48.711 |
| • TE4: *TEST & EVALUATION (ACD&P)* | 19.054 | 5.438 | 4.994 | | 4.994 | 12.771 | 20.408 | 15.872 | 13.044 | Continuing | Continuing |
| • TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)* | 26.051 | 3.022 | 3.377 | | 3.377 | 4.096 | 7.296 | 7.821 | 7.821 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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>NT3: *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (ATD)* | |

| COST ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NT3: *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (ATD)* | - | - | 31.916 | - | 31.916 | 30.864 | 30.927 | 31.603 | 31.603 | Continuing | Continuing |

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

This project (NT3) develops future capabilities against emerging and novel threats and verifies current capabilities against Non-Traditional Agents (NTAs). This project focuses on demonstrating fast and agile scientific responses to enhance or develop capabilities that address emerging threats. Efforts in this project support an integrated approach to develop new or enhanced countermeasures against novel and emerging threats through innovative S&T solutions for detection, protection, decontamination and medical countermeasures (MCMs). Efforts supply test methodologies and supporting science to verify capabilities, develop protection and hazard mitigation options, expand hazard assessment tools, and develop MCMs against NTAs. This project is a comprehensive and focused effort for developing NTA defense capabilities, coordinated with specific interagency partners for doctrine, equipment, and training for the Warfighter and civilian population for defense against NTAs. This project funds advanced technology development of NTA defense science and technology initiatives and transitions them to Budget Activities 4 and 5.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Techbase Medical Defense - NTA Diagnostics | - | - | 0.404 |
| ***Description:*** Chem Diagnostics NTA: Focuses on state-of-the-art laboratory/fieldable methods that detect exposure to non-traditional agents 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. | | | |
| ***FY 2013 Plans:***<br>Continue development of mature technologies that can quickly diagnose pre-symptomatic NTA exposure. Funding for this research area is realigned from Tech Base Med Defense - Diagnostics NTA (TC3). | | | |
| ***Title:*** 2) Techbase Medical Defense - NTA Pretreatments | - | - | 0.503 |
| ***Description:*** Chemical Medical Pretreatments NTA: Develop nerve agent enzyme pretreatments that provide protection against non-traditional agents. Enzymes 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. For enzyme approaches, one molecule of catalytic bioscavenger should be capable of detoxifying numerous molecules of nerve agents resulting in the capability for a small quantity of catalytic bioscavenger to protect against a large dose of nerve agent. | | | |
| ***FY 2013 Plans:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue exploitation of alternative expression systems for production of rBuChE. Complete study of use of plasma derived huBChE as prophylactic for all nerve agents. Funding for this research area is realigned from Tech Base Med Chem - Pretreatments NTA (TC3). | | | |
| ***Title:*** 3) Techbase Medical Defense - NTA Therapeutics<br>***Description:*** Chemical Medical Therapeutics NTA: Determine the toxic effects of agents by probable routes of field exposure and refine standard experimental routes. Physiological parameters and pathological assessment will be used to establish the general mode and mechanisms of toxicity.<br>***FY 2013 Plans:***<br>Continue formulation and stability studies. Begin safety studies in small animal model using selected formulation. Funding for this research area is realigned from Tech Base Med Chem - Therapeutics NTA (TC3). | - | - | 10.055 |
| ***Title:*** 4) Techbase Non-Medical - Detection<br>***Description:*** Detection NTA: Focuses on technologies to provide NTA detection capabilities.<br>***FY 2013 Plans:***<br>Continue the development of test methodology to validate signatures for chemical aerosol threat materials. Funding for this research area is realigned from Tech Base Non-Med Defense - Detection NTA (CB3). | - | - | 13.373 |
| ***Title:*** 5) Techbase Non-Medical - Protection & Hazard Mitigation<br>***Description:*** Protection & Hazard Mitigation - NTA Air Purification: Study and assessment of filter technologies.<br>***FY 2013 Plans:***<br>Continue development, verification and demonstration of novel materials to improve performance against NTAs. Transition these technologies to the Joint Service General Purpose Mask (JSGPM) and Joint Service Aircrew Mask (JSAM) programs. Funding for this research area is realigned from Tech Base Non-Med Defense - Protection & Hazard Mitigation NTA (CB3). | - | - | 0.348 |
| ***Title:*** 6) Techbase Non-Medical - Protection & Hazard Mitigation<br>***Description:*** Protection & Hazard Mitigation - NTA Percutaneous Protection: Study and assessment of protective technologies<br>***FY 2013 Plans:*** | - | - | 0.349 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue verification, demonstration and transition of low burden technologies to improve overall protective clothing performance against NTAs. Funding for this research area is realigned from Tech Base Non-Med Defense - Protection & Hazard Mitigation NTA (CB3). | | | |
| ***Title:*** 7) Techbase Non-Medical - Protection & Hazard Mitigation<br>***Description:*** Protection & Hazard Mitigation - NTA Decontamination: Study and assessment of decontamination technologies.<br>***FY 2013 Plans:***<br>Continue verification, demonstration, and transition of decontamination technologies against NTAs. Continue to develop, demonstrate, and transition enzyme technology for low-impact decon of NTAs. Continue to enhance NTA related understanding and capabilities of current decontamination and hazard mitigation technologies and develop additional processes for NTA hazard mitigation. Funding for this research area is realigned from Tech Base Non-Med Defense - Protection & Hazard Mitigation NTA (CB3). | - | - | 0.350 |
| ***Title:*** 8) Techbase Non-Medical - Test & Evaluation<br>***Description:*** Test and Evaluation (T&E) NTA: Develops test and evaluation technologies and processes in support of NTA activities.<br>***FY 2013 Plans:***<br>Complete initial select agent testing, and continue further prioritized agent testing. Funding for this research area is realigned from Tech Base Non-Med Defense - Test & Evaluation NTA (TE3). | - | - | 6.534 |
| **Accomplishments/Planned Programs Subtotals** | - | - | 31.916 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • NT2: *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (APPLIED RESEARCH)* | 0.000 | 0.000 | 60.730 | | 60.730 | 56.498 | 53.707 | 63.138 | 63.138 | Continuing | Continuing |
| • CA4: *CONTAMINATION AVOIDANCE (ACD&P)* | 57.121 | 33.952 | 3.038 | | 3.038 | 19.803 | 38.588 | 39.729 | 34.595 | Continuing | Continuing |
| • CO4: *COLLECTIVE PROTECTION (ACD&P)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • DE4: *DECONTAMINATION SYSTEMS (ACD&P)* | 6.933 | 24.749 | 12.374 | | 12.374 | 10.247 | 9.779 | 12.751 | 6.083 | Continuing | Continuing |
| • IP4: *INDIVIDUAL PROTECTION (ACD&P)* | 2.200 | 0.000 | 1.102 | | 1.102 | 3.708 | 6.811 | 4.680 | 0.300 | Continuing | Continuing |
| • MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* | 4.134 | 7.804 | 0.000 | | 0.000 | 16.947 | 20.395 | 37.513 | 25.134 | Continuing | Continuing |
| • TE4: *TEST & EVALUATION (ACD&P)* | 19.054 | 5.438 | 4.994 | | 4.994 | 12.771 | 20.408 | 15.872 | 13.044 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

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| COST ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TB3: *MEDICAL BIOLOGICAL DEFENSE (ATD)* | 153.437 | 172.394 | - | - | - | - | - | - | - | 0.000 | 325.831 |

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

This project (TB3) supports preclinical and early phase clinical development of vaccines, therapeutic drugs, and diagnostic capabilities to provide safe and effective medical defense against validated biological threat agents or emerging infectious disease biothreats 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) processes, DoD acquisition regulations, and the oversight of early phase 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) or other biothreat 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 or emerging threats such as bacterial (plague, anthrax, glanders), viral (smallpox, encephalitic alphaviruses), and toxin (ricin, botulinum neurotoxin, staphylococcal enterotoxin) agents.

This project includes the Transformational Medical Technologies Initiative (TMTI). The program was launched to respond to the threat of emerging or intentionally engineered biological threats. TMT's mission is to protect the Warfighter from genetically engineered or emerging infectious disease 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 or emerging infectious disease 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 or emerging infectious disease agents (e.g. developing new and innovative ways to mass produce drugs in the event of a biological incident). Effective FY12 this effort is funded as the Transformational Medical Technologies (TMT) Program.

The Medical Countermeasures Initiative (MCMI) was established to coordinate inter-related advanced development and flexible manufacturing capabilities, based on public-private partnership agreements between the government and industry, providing a dedicated, cost-effective, reliable, and sustainable MCM process that meets the warfighter and national security needs. Specifically, the MCMI will provide the capability for the advanced development and flexible manufacturing of biological MCM (to include TMT developed MCMs) to address CBRN threats, including novel and previously unrecognized, naturally-occurring emerging infectious diseases. MCMI efforts within S&T are concentrated in three areas: 1) transition of novel platform/expression systems for MCMs, 2) transition advancement of regulatory science, and 3) integration of novel platforms with MCM advanced development and manufacturing.

In FY13, all research in this Project (TB3) is re-aligned to Project TM3 - Techbase Medical Defense (ATD).

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Medical Countermeasures Initiative (MCMI)<br><br>***Description:*** The MCMI will integrate the regulatory science and manufacturing technologies and processes developed into the Technical Centers of Excellence (TCE) and advanced development and flexible manufacturing capability.<br><br>***FY 2012 Plans:***<br>Initiate and refine development of multi-product/multi-use MCM technology platforms for the advanced development of MCMs for CBRN threats and emerging infectious diseases. Evaluate and exploit the regulatory advantages of such systems, with the intent that regulatory approval of the platform for one product will simplify subsequent regulatory approvals of other products based on the same system. Initiate and refine development of new technologies and approaches that facilitate and accelerate the development and regulatory review of medical products. In FY13, all research in this area is re-aligned into Techbase Med Defense - Medical Countermeasures Initiative (TM3). | - | 27.172 | - |
| ***Title:*** 2) Diagnostics (Biosurveillance)<br><br>***Description:*** 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 2011 Accomplishments:***<br>Transitioned two Technology Readiness Reviews on candidate diagnostic platforms to advanced development programs. Developed atlas/database of phenotypic and genotypic characteristics of relevant BWA bacterial strains. Demonstrated the utility of high informatic content screen-characterized affinity reagents in the discovery of novel biomarkers as targets for assay development. Developed standard methods/protocols for rapid sequencing directly from clinical matrices. Applied bioinformatic and computational methods to verify the utility of host response signatures for pre-symptomatic diagnostic assays. Transitioned candidate transport media/preservatives and protocols for clinical sample processing. Evaluated global-virus and global-microbial microarrays for promising multiplexing and identification of BWAs. Developed and verified production scale-up protocols for single domain biosynthetic (recombinant) antibodies to bacterial and viral BWA targets.<br><br>***FY 2012 Plans:***<br>Validate and submit pre-EUA (Emergency Use Authorization) data to FDA for high priority BWA and emerging threat assays to preposition for biopreparedness. Transition portable sequence based genetic analyzer and verify assays for top ten priority agents. Transition technology watch report and mature candidate platform technologies of sufficient utility for advanced development as Next Generation Diagnostics System and/or Biosurveillance platform. Transition data packages for detection of antibiotic (Cipro) resistance. Validate and transition scale-up protocols for single domain biosynthetic (recombinant) antibodies | 9.068 | 10.197 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| to bacterial and viral BWA targets for use in austere environments. Supplement/continue accrual of geographically/genetically representative strain collection and transfer to repository; develop quantitative cell culture for an additional emerging threat agent of high genetic variability. Transition atlas/database of phenotypic and genotypic characteristics of relevant BWA bacterial strains to advanced developer. In FY13, all research in this area is re-aligned into Project TM3 - Techbase Med Bio - Diagnostics. | | | |
| ***Title:*** 3) Pretreatments<br><br>***Description:*** Bacterial/Toxin Vaccines: Evaluates the best single agent bacterial and toxin vaccines for effectiveness against aerosol challenge in large animal models.<br><br>***FY 2011 Accomplishments:***<br>Completed the Phase I clinical trial with the Ricin Vaccine.<br><br>***FY 2012 Plans:***<br>Perform final analysis of data from Phase I Clinical trial. Assemble final Ricin vaccine data package. In FY13, all research in this area is re-aligned into Project TM3 - Techbase Med Bio - Pretreatments. | 0.881 | 0.799 | - |
| ***Title:*** 4) Pretreatments<br><br>***Description:*** 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. The purpose of developing these animal models is to support pivotal animal studies under the "animal rule".<br><br>***FY 2011 Accomplishments:***<br>Completed duration studies with the vaccine components against Marburg. Continued aerosol efficacy studies for the Ebola Zaire and Ebola Sudan vaccine components in non-human primates. Transitioned the Ebola vaccine components to the advanced development program to combine with the Marburg vaccine component. Determined duration of protection elicited by the Ebola vaccine components. Optimized the dose and immunization schedule to ensure effectiveness of the individual components of the filovirus vaccine when co-administered as a mixture. Completed aerosol efficacy studies of DNA-based vaccines and chemically inactivated/attenuated vaccines against the alphaviruses. Optimized dosing regimens to ensure effectiveness when co-administering the alphavirus vaccine components. Continued the development of animals models for alphaviruses (EEE and WEE), and filoviruses (Ebola Sudan, Ebola Zaire, Ebola Bundibugyo, and Marburg), to fulfill future FDA animal rule requirements necessary for vaccine licensure. For Alphaviruses, determined the median lethal dose of VEE, EEE, and WEE in a distinct type of non-human primate, and tested the alphavirus vaccines for immune stimulation capability and efficacy against challenge in | 10.687 | 19.681 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| this new animal model. For filoviruses, determined the median lethal dose of Ebola Bundibugyo in a distinct type of non-human primate, and began natural history studies for Ebola Bundibugyo, Ebola Sudan, Ebola Zaire, and Marburg.<br><br>***FY 2012 Plans:***<br>Complete remaining aerosol efficacy studies for the Ebola Zaire and Ebola Sudan vaccine components in non-human primates. Conduct formulation studies of Ebola and Marburg vaccine components. Initiate the development of Filovirus and Alphavirus immunological assays to support advanced development. Coordinate with the advanced developer to fulfill S&T needs in support of the filovirus vaccine transition. For Alphavirus DNA vaccines, complete an Investigational New Drug (IND) package for the VEE component, submit the IND package to the FDA and initiate a Phase I clinical trial. As a part of this trial, assess alternative methodologies for vaccine delivery (i.e., electroporation) via intra-muscular or intra-dermal administration, Manufacture clinical grade (sufficient quality to be administered to humans in a Phase I clinical trial) lots of the EEE and WEE DNA components. Conduct pre-clinical studies on a trivalent VEE, EEE, WEE DNA formulation. For the Alphavirus replicon vaccine, conduct pre-clinical studies. Continue the development of animals models for alphaviruses (EEE and WEE), and filoviruses (Ebola Sudan, Ebola Zaire, Ebola Bundibugyo, and Marburg), to fulfill future FDA animal rule requirements necessary for vaccine licensure. Although the Filovirus vaccines are transitioning in FY11, work will continue on the selected candidate(s) to fill knowledge gaps. In FY13, all research in this area is re-aligned into Project TM3 - Techbase Med Bio - Pretreatments. | | | |
| ***Title:*** 5) Pretreatments<br><br>***Description:*** 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. Work conducted under Vaccine Platforms and Research Tools are distinct from those performed under Viral Vaccines because the focus is on the use of novel technologies to support vaccine candidates, not on the vaccine candidates themselves. Vaccine Platforms and Research Tools utilize novel technologies to stabilize advanced vaccine candidates as well as alternative delivery modalities.<br><br>***FY 2011 Accomplishments:***<br>Examined 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. Analyzed 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 responses elicited by vaccines and/or pathogens of interest, and compare those results to animal studies. Evaluated the safety and immune stimulating capability of mature Filovirus and Alphavirus vaccine candidates in humans by using the Modular Immune In-Vitro Constructs (MIMIC) technology, to support | 4.056 | 4.903 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| these candidates moving forward into phase I clinical studies by the advanced development program. Conducted pre-formulation studies to produce a thermo-stable, spray-dried formulation of the virus-like particle based Marburg vaccine candidate.<br>***FY 2012 Plans:***<br>Continue evaluation of the safety and immune stimulating capability of mature Filovirus and Alphavirus vaccine candidates in humans by using the MIMIC technology. Continue formulation studies to produce a thermo-stable, spray-dried formulation of an advanced vaccine candidate. Evaluate additional stabilization technologies that provide thermal stability to multiple classes of vaccines such as viral vectored vaccines and subunit protein vaccines. Test alternative (needle-free) vaccine delivery technologies such as inhalers or skin patches for the delivery of mature vaccine candidates. Evaluate clinical samples from filovirus and alphavirus outbreaks in multiple international locations to determine human immune responses. In FY13, all research in this area is re-aligned into Project TM3 - Techbase Med Bio - Pretreatments. | | | |
| ***Title:*** 6) Therapeutics<br>***Description:*** Viral Therapeutics: Identifies, optimizes and evaluates potential therapeutic candidates effective against designated viral threat agents.<br>***FY 2011 Accomplishments:***<br>Conducted remaining non-human primate studies required for licensure of ST-246, a low-molecular-weight compound that is active against multiple orthopoxviruses. Conducted toxicology studies and analyze efficacy of optimized lead compounds against alphavirus infection in murine and non-human primate challenge models. Characterized the clinical manifestations and virologic/ immunologic parameters of human monkeypox. Determined the effectiveness of pan-alphavirus capsid assembly inhibitors in animal models.<br>***FY 2012 Plans:***<br>Evaluate immunotherapies for filoviruses in non-human primate models. Continue evaluation of optimized lead compounds against alphaviruses in animal models of infection. Continue evaluation of filovirus vaccines as treatments for post-exposure filovirus infection. Evaluate FDA approved drug combinations for efficacy against alphaviruses in animal models of infection. Initiate a screening program to determine efficacy of FDA approved compounds against emerging infectious diseases (i.e. alphavirus, filovirus, flavivirus, arenavirus, bunyavirus). In FY13, all research in this area is re-aligned to Project TM3 - Techbase Med Bio-Therapeutics (ATD). | 9.351 | 2.898 | - |
| ***Title:*** 7) Therapeutics<br>***Description:*** Bacterial Therapeutics: Identifies, optimizes, and evaluates potential therapeutic compounds effective against bacterial threat agents.<br>***FY 2011 Accomplishments:*** | 2.700 | 2.000 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Determined the effectiveness of commercially available antibiotics against Francisella tularensis in relevant animal infection models.<br><br>***FY 2012 Plans:***<br>Evaluate Protein Design Process optimized anthrax capsule depolymerase (CapD) in murine challenge models of anthrax infection. Transition data package demonstrating efficacy of FDA approved compounds against lethal challenge of aerosolized Y. pestis in nonhuman primate models. Conduct studies to determine efficacy against FDA approved compounds against Burkholderia, Francisella tularensis in murine animal models. Evaluate small molecule inhibitors targeting Y. pestis ATPase enzyme in small animal models. In FY13, all research in this area is re-aligned to Project TM3 - Techbase Med Bio-Therapeutics (ATD). | | | |
| ***Title:*** 8) Therapeutics<br><br>***Description:*** Toxin Therapeutics: Identifies, optimizes and evaluates potential therapeutic candidates effective against biological toxin threat agents.<br><br>***FY 2011 Accomplishments:***<br>Tested and evaluated FDA approved immunomodulating drugs against exposure to Staphylococcal Enterotoxin B (SEB). Developed and determined the therapeutic window of opportunity for novel inhibitors of SEB pathogenesis. Determined 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. Conducted pre- and post-challenge of efficacy studies of optimized BoNT inhibitors in mice. Evaluated efficacy of BoNT lead inhibitors using a targeted delivery system in mice.<br><br>***FY 2012 Plans:***<br>Continue evaluation of FDA approved immunomodulating agents to treat SEB. Initiate a screening program to determine efficacy of FDA approved compounds against BoNT intoxication. Continue evaluation of novel optimized SEB and BoNT inhibitors in small animal models of infection. In FY13, all research in this area is re-aligned to Project TM3 - Techbase Med Bio-Therapeutics (ATD). | 1.500 | 2.184 | - |
| ***Title:*** 9) Transformational Medical Technologies<br><br>***Description:*** Multiagent (Broad Spectrum) Medical Countermeasures: Continues efforts previously funded under the Transformational Medical Technologies Initiative to develop candidate countermeasures for HFV and IBP. Focuses on the initiation and completion of preclinical studies for candidate countermeasures, to include safety, toxicity, efficacy, and scalability work in accordance with the product's intended use. The ability to formulate Good Manufacturing Practices (GMP), pilot lots and further mature promising drug candidates will be the focus of activities in this capability area. The preclinical drug discovery | - | 66.768 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| process culminates in the submission of an Investigational New Drug (IND) application to the Food and Drug Administration (FDA), to determine if candidate countermeasures are suitable for safety evaluation in humans.<br><br>***FY 2012 Plans:***<br>Continue pre-clinical research required to submit IND applications to the FDA for additional products or additional product indications to refresh the Hemorrhagic Fever Virus (HFV), Intracellular Bacterial Pathogen (IBP) and EID product pipelines. Continue 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, incorporating feedback from the FDA and Services into requirements. In FY13, all research in this area is re-aligned to Project TM3 - Techbase Med-Bio Therapeutics. | | | |
| ***Title:*** 10) Transformational Medical Technologies<br><br>***Description:*** Development of Platform Technologies: Continues efforts previously funded under the Transformational Medical Technologies Initiative. Platform Technologies are stand alone enabling technologies that support MCM development and when strategically aligned, provide a system of systems response capability to an adverse biological event - from the identification of an unknown pathogen to the development of an approved countermeasure ready for delivery to the Warfighter and the nation. The enabling technologies are divided into five platform areas: Pathogen Characterization, Target Identification, Countermeasure Discovery, Countermeasure Evaluation, and Bioinfomatics. Efforts focus 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. 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 2012 Plans:***<br>Investment to fund Bio-Surveillance efforts and integrate stand-alone platforms into system-wide capabilities. Continue development of rapid drug discovery and development platform technologies, and build upon early success to fully integrate the entire system using robust bioinformatics capabilities, validating the integrated bioinformatics platform. Increase investment 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. Fully integrate pathogen characterization, target identification, countermeasure discovery and countermeasure evaluation platform areas into a rapid response capability supported by a centralized bioinformatics capability that link geographically separated performers from government agencies, industry and academia. In FY13, all research in this area is re-aligned to Project TM3 - Techbase Med-Bio Therapeutics. | - | 33.585 | - |
| ***Title:*** 11) Transformational Medical Technologies Initiative | 66.929 | - | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** 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 in accordance with the product's intended use. 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.<br><br>***FY 2011 Accomplishments:***<br>Completed 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 took place for the IBP Group of MCMs. Initiated planning for Phase 1 clinical trials and additional studies for INDs as required by the FDA prior to safety evaluation in humans. Continued the development of animal models for future advanced development of MCMs currently in the S&T phase of development. This included exploratory research and identification of products supported in the Technologies Portfolio; mitigation of 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. | | | |
| ***Title:*** 12) Transformational Medical Technologies Initiative | 48.265 | - | - |
| ***Description:*** Development of Platform Technologies: Platform Technologies are standalone enabling technologies that support MCM development and when strategically aligned, provide a system of systems response capability to an adverse biological event - from the identification of an unknown pathogen to the development of an approved countermeasure ready for delivery to the Warfighter and the nation. The enabling technologies are divided into five platform areas: Pathogen Characterization, Target Identification, Countermeasure Discovery, Countermeasure Evaluation, and Bioinfomatics. Efforts focus 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. 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 2011 Accomplishments:***<br>Continued integration of standalone platforms into capabilities that can be demonstrated as a system. Continued the development of rapid drug discovery and development platform technologies. Integrated the entire system using a robust bioinformatics capability, and validated the integrated bioinformatics platform. Continued to mature and accelerate manufacturing platform technologies for biological drugs to comply with regulatory guidelines. Supported compliance and quality measures | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| that are mandatory for future FDA submissions. Continued 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. | | | |
| ***Title:*** 13) SBIR | - | 2.207 | - |
| ***FY 2012 Plans:***<br>Small Business Innovative Research. | | | |
| **Accomplishments/Planned Programs Subtotals** | 153.437 | 172.394 | - |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TM3: *TECHBASE MED DEFENSE (ATD)* | 0.000 | 0.000 | 182.330 | | 182.330 | 171.399 | 147.651 | 136.326 | 136.326 | Continuing | Continuing |
| • MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* | 129.682 | 116.653 | 133.254 | | 133.254 | 194.502 | 155.024 | 81.188 | 23.593 | Continuing | Continuing |
| • MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* | 75.657 | 216.715 | 214.056 | | 214.056 | 246.295 | 187.101 | 213.001 | 238.653 | Continuing | Continuing |
| • MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)* | 0.000 | 5.448 | 0.498 | | 0.498 | 0.499 | 3.266 | 0.496 | 9.355 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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)* | |

| COST ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TC3: *MEDICAL CHEMICAL DEFENSE (ATD)* | 25.486 | 21.789 | - | - | - | - | - | - | - | 0.000 | 47.275 |

**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.

In FY13, all non-NTA research in this Project (TC3) is re-aligned to Project TM3 - Techbase Medical Defense (ATD). All NTA-dedicated research in this Project is re-aligned to Project NT3 - Techbase Non-Traditional Agents Defense (ATD).

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Diagnostics | 1.297 | 0.467 | - |
| ***Description:*** 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. | | | |
| ***FY 2011 Accomplishments:***<br>Optimized the methodology for solvent free extraction of CWA mixtures. Completed blood and urine assay development for CWA exposure. Completed validation of fluoride regeneration method in plasma/blood/RBCs with solid phase extraction for nerve agents. | | | |
| ***FY 2012 Plans:***<br>Expand the current set of analytical methods to more sensitive analytical platforms for the detection of CWAs. In FY13, all research in this area is re-aligned to Project TM3 - Techbase Med Chem - Diagnostics. | | | |
| ***Title:*** 2) Chem Diagnostics NTA | 0.390 | 0.591 | - |
| ***Description:*** Chem Diagnostics NTA: Focuses on state-of-the-art laboratory/fieldable methods that detect exposure to non-traditional agents in clinical samples. It also targets the identification of biomolecular targets that can be leveraged as analytical | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| methodologies, as well as, laboratory and animal studies characterizing time-course and longevity of a particular analyte/ biomarker.<br><br>***FY 2011 Accomplishments:***<br>Continued evaluation of mature technologies that could quickly diagnose NTA exposure before symptoms appear and determine the type of agent. Developed a fluoride regeneration method for NTAs.<br>***FY 2012 Plans:***<br>Continue evaluation of mature technologies that can quickly diagnose pre-symptomatic NTA exposure. In FY13, all research in this area is re-aligned to Project NT3 - Techbase Med Defense - NTA Diagnostics. | | | |
| ***Title:*** 3) Pretreatments<br><br>***Description:*** Nerve Agent, Pretreatments: Develop pretreatments that provide protection against all organophosphorous nerve agents. The enzymes should have the ability to rapidly bind and detoxify nerve agents, and have broad binding specificity and high enzymatic efficiency for the destruction of agents. For enzyme approaches, one molecule of catalytic bioscavenger should be capable of detoxifying numerous molecules 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 2011 Accomplishments:***<br>Applied physiologically based pharmacokinetics (PBPK) models to improved catalytic bioscavengers. Continued to test improved catalytic bioscavenger delivery methods and retention systems in animal models. Continued to develop binding proteins in animal models for safety and efficacy, using animal testing to down-select candidates for further development.<br>***FY 2012 Plans:***<br>Refine methods and expression systems for large-scale production and purification of enzymes. Continue testing of improved pretreatment delivery methods and retention approaches in animal models, including physiologically based pharmacokinetics (PBPK). Develop binding proteins in animal models for safety and efficacy. In FY13, all research in this area is re-aligned to Project TM3 - Techbase Medical Defense - Pretreatments. | 4.189 | 1.843 | - |
| ***Title:*** 4) Chem Pretreatments NTA<br><br>***Description:*** Chem Pretreatments NTA: Develop nerve agent enzyme pretreatments that provide protection against non-traditional agents. Enzymes 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. For enzyme approaches, one molecule of catalytic bioscavenger should be capable of detoxifying numerous molecules nerve agents resulting in the capability for a small quantity of catalytic bioscavenger to protect against a large dose of nerve agent. | - | 0.982 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2012 Plans:***<br>Further test improved nerve agent enzyme pretreatment delivery methods and retention approaches in animal models, including physiologically based pharmacokinetics. Further develop binding proteins in animal models for safety and efficacy. In FY13, all research in this area is re-aligned to Project NT3 - Techbase Medical Defense - NTA Pretreatments. | | | |
| ***Title:*** 5) Therapeutics<br>***Description:*** 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.<br>***FY 2011 Accomplishments:***<br>Continued to evaluate the effectiveness of various cell-based approaches to facilitate blister agent wound healing in skin and eyes. Began advanced studies focused on down-selecting wound healing products found to be most effective for transition. Continued to assess in animals whether bioengineering and molecular biology approaches may be used to treat blister agent skin and eye injury. Initiated the development of an approach to decontaminate CWAs in penetrating wounds.<br>***FY 2012 Plans:***<br>Determine the most effective cell-based approaches to facilitate healing of skin and eye wounds due to sulfur mustard exposure. Complete evaluation of potential wound healing products for advanced development. Evaluate candidate approaches to decontaminate penetrating wounds that have been exposed to CWAs. Continue to assess molecular biology approaches in animal models to treat skin and eye injuries as a result of sulfur mustard exposure. In FY13, all research in this area is re-aligned to Project TM3 - Techbase Med Chem - Therapeutics. | 3.689 | 3.645 | - |
| ***Title:*** 6) Therapeutics<br>***Description:*** Neurologic: Focuses on therapeutic strategies to effectively minimize neurologic injuries resulting from exposure to chemical warfare agents (CWA). This effort involves the development of neuroprotectants, anticonvulsants, and improved neurotransmitter restorers. Supports 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 2011 Accomplishments:***<br>Continued to evaluate, in animals, novel compounds and FDA-approved drugs not yet evaluated for efficacy against nerve agents. These potential compounds included anticholinergics, neuroprotectants, anticonvulsants, and improved reactivators. Continued | 12.025 | 4.168 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| efficacy testing on candidates that are designed to support eventual FDA licensure. Continued development of animal models related to nerve exposure with emphasis on FDA animal rule approval.<br><br>***FY 2012 Plans:***<br>Continue animal model evaluation of novel and/or FDA approved drugs not yet tested for treatment of nerve agent exposure. Transition Centrally Active Nerve Agent Therapeutic (scopolamine). Continue development of animal models related to nerve agent exposure. Maintain core capabilities for standardization of in vitro and in vivo testing of therapeutic candidates. In FY13, all research in this area is re-aligned to Project TM3 - Techbase Medical Chemical - Therapeutics. | | | |
| ***Title:*** 7) Therapeutics<br><br>***Description:*** 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. Develops effective practical field and clinic management strategies, and physical and pharmacological interventions to treat the injury processes. 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><br>***FY 2011 Accomplishments:***<br>Evaluated previously identified lead candidate countermeasures for future transition to advanced development. Investigated novel delivery systems for potential inhalational therapeutics against CWA. Investigated efficacy of commercially available aerosol bronchodilators as supportive therapy following pulmonary exposure to CWAs. | 1.442 | - | - |
| ***Title:*** 8) Therapeutics<br><br>***Description:*** 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 2011 Accomplishments:***<br>Completed characterization of a novel therapeutic for manufacturability and pharmacology. Established formulation for safety testing and stability. In FY12, all NTA-related efforts have been re-aligned to Chemical Therapeutics NTA within this Project. | 2.454 | - | - |
| ***Title:*** 9) Chem Therapeutics NTA<br><br>***Description:*** Non-Traditional Agents (NTA): Determine the toxic effects of agents by probable routes of field exposure and refine standard experimental routes. Physiological parameters and pathological assessment will be used to establish the general mode and mechanisms of toxicity. | - | 9.793 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2012 Plans:***<br>Complete characterization of a novel therapeutic for manufacturability and pharmacology. Establish formulation for safety testing and stability. This work continues efforts initiated in prior years within the Project TC3 - Chemical Therapeutics capability area. In FY13, all research in this area is re-aligned to Project NT3 - Techbase Medical Defense - NTA Therapeutics. | | | |
| ***Title:*** 10) SBIR | - | 0.300 | - |
| ***FY 2012 Plans:***<br>Small Business Innovative Research. | | | |
| **Accomplishments/Planned Programs Subtotals** | 25.486 | 21.789 | - |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* | 0.000 | 0.000 | 118.208 | | 118.208 | 110.294 | 97.308 | 130.654 | 130.654 | Continuing | Continuing |
| • TM3: *TECHBASE MED DEFENSE (ATD)* | 0.000 | 0.000 | 182.330 | | 182.330 | 171.399 | 147.651 | 136.326 | 136.326 | Continuing | Continuing |
| • MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* | 4.134 | 7.804 | 0.000 | | 0.000 | 16.947 | 20.395 | 37.513 | 25.134 | Continuing | Continuing |
| • MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* | 3.801 | 2.407 | 9.642 | | 9.642 | 41.257 | 45.477 | 50.862 | 58.935 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TE3: *TEST & EVALUATION (ATD)* | 11.346 | 11.199 | - | - | - | - | - | - | - | 0.000 | 22.545 |

**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.

In FY13, all NTA-dedicated research is re-aligned to Project NT3 - Techbase Non-Traditional Agents Defense (ATD). All non-NTA related T&E efforts will be completed in FY12.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Test and Evaluation (T&E)<br>***Description:*** Test and Evaluation, Detection: Develop, test, and evaluate technologies and processes in support of detection capability testing.<br>***FY 2011 Accomplishments:***<br>Completed development of methodologies and capabilities for test and evaluation of technologies currently in early stages of technology development. | 2.625 | - | - |
| ***Title:*** 2) Test and Evaluation (T&E)<br>***Description:*** Test and Evaluation, Threat Agent Science: Develop test and evaluation technologies and processes in support of Threat Agent Science activities.<br>***FY 2011 Accomplishments:***<br>Developed methodology and established the relationship of simulants used in field trials to agents for each CWA detection technology; included 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. Identified and developed simulants that enabled decontamination processes to be monitored to determine its/their progression and efficiency. Developed methodologies that disperse or deposit currently available simulants as if they were agents, which could include adding thickeners or surfactants. | 1.322 | - | - |
| ***Title:*** 3) Test and Evaluation (T&E) | 5.357 | 4.668 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** Test and Evaluation, Information System Technology: Develop test and evaluation technologies and processes in support of Information System Technology activities.<br><br>***FY 2011 Accomplishments:***<br>Constructed a plan for development of the Chemical and Biological Warfare Agent Effects Manual Number 1 (CB-1), an authoritative source capturing analytical methods for evaluating the effects of CB warfare agents on equipment, personnel, and operations. Demonstrated initial versions of Systems Performance Models. Continued to develop collective protection, individual protection, contamination avoidance and decontamination models for test and evaluation. Continued to build requirements for system performance model integration and program-wide exploitation.<br><br>***FY 2012 Plans:***<br>Continue the development of CBRN data management capabilities for test and evaluation, with emphasis on enabling access to information for analysis within CBDP systems performance models. Enhance ability to evaluate decontaminants and decontamination systems by continuing to develop simulation capabilities for decontamination processes. | | | |
| ***Title:*** 4) Test and Evaluation (T&E)<br><br>***Description:*** Test and Evaluation, Protection and Hazard Mitigation: Develop test and evaluation technologies and processes in support of Protect and Hazard Mitigation activities.<br><br>***FY 2011 Accomplishments:***<br>Continued development of methodology/source data effort to simulate IP durability in laboratory and relationship to field durability. | 0.100 | - | - |
| ***Title:*** 5) Test and Evaluation (T&E) NTA<br><br>***Description:*** Develops test and evaluation technologies and processes in support of NTA activities.<br><br>***FY 2011 Accomplishments:***<br>Conducted facility design efforts by conducting large particle dissemination development and proof of principle tests with several agents. Completed testing regarding the safety of unprotected personnel using the chamber after decontamination.<br><br>***FY 2012 Plans:***<br>Complete facility design efforts by conducting large particle dissemination development and proof of principle tests with several agents. Initiate select agent testing. In FY13, all research in this area is re-aligned to Project NT3 - Techbase Non-Med Test & Evaluation (NTA). | 1.942 | 6.362 | - |
| ***Title:*** 6) SBIR<br><br>***FY 2012 Plans:*** | - | 0.169 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Small Business Innovative Research. | | | |
| Accomplishments/Planned Programs Subtotals | 11.346 | 11.199 | - |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* | 21.219 | 23.818 | 20.034 | | 20.034 | 18.343 | 18.893 | 17.357 | 17.357 | Continuing | Continuing |
| • TE4: *TEST & EVALUATION (ACD&P)* | 19.054 | 5.438 | 4.994 | | 4.994 | 12.771 | 20.408 | 15.872 | 13.044 | Continuing | Continuing |
| • TE5: *TEST & EVALUATION (SDD)* | 30.653 | 11.043 | 6.394 | | 6.394 | 20.202 | 12.033 | 14.200 | 14.200 | Continuing | Continuing |
| • TE7: *TEST & EVALUATION (OP SYS DEV)* | 4.732 | 3.597 | 4.156 | | 4.156 | 3.690 | 3.642 | 2.846 | 2.846 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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>TM3: *TECHBASE MED DEFENSE (ATD)* | |

| COST ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TM3: *TECHBASE MED DEFENSE (ATD)* | - | - | 182.330 | - | 182.330 | 171.399 | 147.651 | 136.326 | 136.326 | Continuing | Continuing |

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

This project (TM3) funds preclinical and early phase clinical development of vaccines, therapeutic drugs, and diagnostic capabilities to provide safe and effective medical defense against validated biological threat agents or emerging infectious disease biothreats 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. In addition this project 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. 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) processes, DoD acquisition regulations, and the oversight of early phase clinical trials in accordance with FDA guidelines. This project also supports the advanced development of medical countermeasures to protect the Warfighter against radiological/nuclear exposure.

This project also includes efforts such as the Transformational Medical Technologies Program (TMT). TMT's focus is to protect the Warfighter from genetically engineered or emerging infectious disease threats by providing a rapid response capability from identification of pathogens to the delivery of medical countermeasures.

The Medical Countermeasures Initiative (MCMI) was established to coordinate inter-related advanced development and flexible manufacturing capabilities, providing a dedicated, cost-effective, reliable, and sustainable MCM process that meets the warfighter and national security needs. MCMI efforts within S&T are concentrated in two areas: 1) advancement of regulatory science and 2) advancements in flexible manufacturing technologies for MCMs.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Techbase Med Defense - Medical Countermeasures Initiative | - | - | 19.237 |
| ***Description:*** Medical Countermeasures Initiative (MCMI): The MCMI will integrate the regulatory science and manufacturing technologies and processes developed into the Advanced Development and Manufacturing Center of Excellence (ADM COE) as enablers of the advanced development and flexible manufacturing capability. | | | |
| ***FY 2013 Plans:***<br>Further the development of human in vitro immune mimetic assays for FDA acceptance to enable rapid and accurate prediction of the human response to experimental vaccines and other MCMs. Continue to develop and make practical improvements to existing agile, flexible, manufacturing bioprocesses for the purpose of accelerating access to biodefense MCMs. Continue the | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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>TM3: *TECHBASE MED DEFENSE (ATD)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| development of a plant-based virus-like particle (VLP) vaccine. Identify additional ex-vivo cell/tissue mimetics such as precision cut tissue slices to serve as predictive surrogates for accelerated MCM efficacy and safety evaluation. | | | |
| ***Title:*** 2) Techbase Med Bio - Diagnostics<br><br>***Description:*** Disease Surveillance/Epidemiological and Predictive Modeling: Integrate existing disparate military and civilian data sets into advanced warning systems, and leverage and enhance epidemiological models and algorithms for disease prediction, impact and biological threat assessment. Contribute to the development of global, near real time, disease monitoring and surveillance systems that address secondary infection, fuse medical syndromic, environmental, and clinical data, and feed into agent-based epidemiological modeling, medical resource estimation and decision support tools. Focus on agent-based epidemiological modeling and fusion of disease surveillance data.<br><br>***FY 2013 Plans:***<br>Continue effort initiated in Project CB3 (M&S) - Information Systems Technology, Medical Surveillance - of Verification and Validation (V&V) of existing agent-based epidemiological models, to include underlying population data and disease spread algorithms, along with biosurveillance data fusion, for use in robust adaptive decision making. Funding for this research area is realigned from Tech Base Non-Med Defense - Modeling & Simulation (CB3). | - | - | 1.550 |
| ***Title:*** 3) Techbase Med Bio - Diagnostics<br><br>***Description:*** Biological Diagnostic Technologies: Development and verification of rapid, sensitive, and specific tests for the identification of Biological Warfare Agents (BWAs) and their expressed pathogens and toxins in clinical specimens from Warfighters for the diagnosis of exposure/infection. Discovery of host biomarkers generated in response to exposure to biological threat agents.<br><br>***FY 2013 Plans:***<br>Translate laboratory, data fusion informatic methodologies and specimen pipelines into robust and well-characterized signatures required to identify and bio-type emerging, re-emerging, and synthetic threat agent strains, identify antibiotic resistant mutations and phenotypes, and therapeutic and vaccine response markers. Develop and transition thermostable reagents/scale-up protocols to advanced development for use in austere biosurveillance environments. Transition agent characterization dossiers to developers of: Medical Counter Measures, microbial forensics capabilities, and assays developers to augment existing biosurveillance infrastructure performing vector surveys, zoonotic epidemiology and provide a direct link between medical diagnostic, disease surveillance and MCM development. Submit pre-Emergency Use application data packages to FDA Office for in vitro diagnostics. Funding for this research area is realigned from Tech Base Med Bio - Diagnostics (TB3) and Techbase Med Bio - TMT Platform Technologies (TB3). | - | - | 32.649 |
| ***Title:*** 4) Techbase Med Bio - Diagnostics | - | - | 14.770 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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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>TM3: *TECHBASE MED DEFENSE (ATD)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** Next Generation Technologies: Development of next generation diagnostic technologies including portable diagnostic platforms, highly parallel and informative testing formats, and nanotechnology applications. Development of novel assay formats and hardware solutions to enable point of need diagnostic capabilities, allowing for rapid guidance of medical decisions.<br><br>***FY 2013 Plans:***<br>Perform pre-clinical validation studies in relevant animal models and human/zoonotic disease states to stratify pre-symptomatic biomarker panel positive and negative predictive values. Funding for this research area is realigned from Tech Base Med Bio - Diagnostics (TB3) and Techbase Med Bio - TMT Platform Technologies (TB3). | | | |
| ***Title:*** 5) Techbase Med Bio - Diagnostics<br><br>***Description:*** Biological Diagnostic Devices: Diagnostic device development to include systems able to harness next generation technologies to revolutionize clinical diagnostics in care facilities and in hospital laboratories. This investment will incorporate capabilities such as next generation sequencing and advanced biomolecular methods to harness both host and pathogen biomarkers in a threat agnostic approach that will serve all echelons of military medical care.<br><br>***FY 2013 Plans:***<br>Provide documented assessments of candidate devices potential for transition to advanced developers to support the deployment of point of care diagnostic capabilities. Verify clinical utility of host and pathogen biomarkers and integrate onto diagnostic platform prototype(s) that confers the ability to identify and type novel infectious agents as a function of their relationship to previously characterized pathologies. Funding for this research area is realigned from Tech Base Med Bio - Diagnostics (TB3) and Techbase Med Bio - TMT Platform Technologies (TB3). | - | - | 17.880 |
| ***Title:*** 6) Techbase Med Bio - Pretreatments<br><br>***Description:*** Pretreatments - Bacterial/Toxin Vaccines: Evaluates the best single agent bacterial and toxin vaccines for effectiveness against aerosol challenge in large animal models.<br><br>***FY 2013 Plans:***<br>Deliver final data package for Ricin vaccine. Funding for this research area is realigned from Tech Base Med Bio - Pretreatments (TB3). | - | - | 0.510 |
| ***Title:*** 7) Techbase Med Bio - Pretreatments<br><br>***Description:*** Pretreatments - 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 | - | - | 19.038 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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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>TM3: *TECHBASE MED DEFENSE (ATD)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| will be developed to support FDA licensure of mature vaccine candidates. The purpose of developing these animal models is to support pivotal animal studies under the "animal rule".<br><br>***FY 2013 Plans:***<br>Coordinate with the advanced developer to fulfill S&T needs in support of the Filovirus vaccine transition. Continue development of Filovirus and Alphavirus immunological assays to support product development. Complete Phase I clinical trial of VEE DNA vaccine delivered by in vivo electroporation via intra-muscular or intra-dermal administration. Complete pre-clinical studies on a trivalent VEE, EEE, WEE DNA formulation. Continue to conduct pre-clinical studies of the Alphavirus replicon vaccine in coordination with the advanced developer. Continue the development of animals models for alphaviruses (EEE and WEE), and filoviruses (Ebola Sudan, Ebola Zaire, Ebola Bundibugyo, and Marburg), to fulfill future FDA animal rule requirements necessary for vaccine licensure. Although the Filovirus vaccines are transitioning in FY11, work will continue on the selected candidate(s) to fill knowledge gaps. Funding for this research area is realigned from Tech Base Med Bio - Pretreatments (TB3). | | | |
| ***Title:*** 8) Techbase Med Bio - Pretreatments<br><br>***Description:*** Pretreatments - 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. Work conducted under Vaccine Platforms and Research Tools are distinct from those performed under Viral Vaccines because the focus is on the use of novel technologies to support vaccine candidates, not on the vaccine candidates themselves. Vaccine Platforms and Research Tools utilize novel technologies to stabilize advanced vaccine candidates as well as alternative delivery modalities.<br><br>***FY 2013 Plans:***<br>Continue formulation studies to produce a thermo-stable, spray-dried formulation of an advanced vaccine candidate. Continue to evaluate stabilization technologies that provide thermal stability to multiple classes of vaccines such as viral vectored vaccines and subunit protein vaccines. Continue to evaluate alternative (needle-free) vaccine delivery technologies such as inhalers or skin patches for the delivery of mature vaccine candidates. Utilize clinical samples from filovirus or alphavirus outbreaks in multiple international locations to help define clinically relevant correlates of immunity. Funding for this research area is realigned from Tech Base Med Bio - Pretreatments (TB3). | - | - | 3.200 |
| ***Title:*** 9) Techbase Med Bio - Therapeutics<br><br>***Description:*** Viral Therapeutics: Identify, optimize and evaluate potential therapeutic candidates effective against designated viral threat agents.<br><br>***FY 2013 Plans:*** | - | - | 6.100 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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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>TM3: *TECHBASE MED DEFENSE (ATD)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue evaluation of immunotherapies for filoviruses in non-human primate models. Develop immune modulators for the treatment of filovirus infection. Continue screening program to determine efficacy of FDA approved compounds against emerging infectious diseases (i.e. alphavirus, filovirus, flavivirus, arenavirus, bunyavirus). Continue pre-clinical research required to submit IND applications to the FDA for additional products or additional product indications to refresh the viral therapeutics product pipeline. Funding for this research area is realigned from Tech Base Med Bio - Therapeutics (TB3). | | | |
| ***Title:*** 10) Techbase Med Bio - Therapeutics<br>***Description:*** Bacterial Therapeutics: Identify, optimize and evaluate potential therapeutic compounds effective against bacterial threat agents.<br><br>***FY 2013 Plans:***<br>Evaluate FDA approved compounds for efficacy in non-human primate models against aerosolized challenge of Y. pestis and F. tularensis. Develop small molecule inhibitors of the electron transport chain and the ATP synthase bacterial biothreat agents. Perform pharmacokinetic studies of humanized CapD in mouse models. Continue pre-clinical research required to submit IND applications to the FDA for additional products or additional product indications to refresh the bacterial therapeutics product pipeline. Funding for this research area is realigned from Tech Base Med Bio - Therapeutics (TB3). | - | - | 5.100 |
| ***Title:*** 11) Techbase Med Bio - Therapeutics<br>***Description:*** Toxin Therapeutics: Identify, optimize and evaluate potential therapeutic candidates effective against biological toxin threat agents.<br><br>***FY 2013 Plans:***<br>Evaluate small molecule non-peptidic inhibitors for pharmacokinetic and toxicology profiles. Test novel small molecule inhibitors in mouse model of BoNT A intoxication for efficacy. Funding for this research area is realigned from Tech Base Med Bio - Therapeutics (TB3). | - | - | 1.645 |
| ***Title:*** 12) Techbase Med Bio - Therapeutics<br>***Description:*** Multiagent (Broad Spectrum) Medical Countermeasures: Continues efforts previously funded under the Transformational Medical Technologies Initiative to develop candidate countermeasures for HFV and IBP. Focuses on the initiation and completion of preclinical studies for candidate countermeasures, to include safety, toxicity, efficacy, and scalability work in accordance with the product's intended use. The ability to formulate Good Manufacturing Practices (GMP), 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), to determine if candidate countermeasures are suitable for safety evaluation in humans. | - | - | 48.225 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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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>TM3: *TECHBASE MED DEFENSE (ATD)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2013 Plans:***<br>Continue pre-clinical research required to submit IND applications to the FDA for additional products or additional product indications to refresh the Hemorrhagic Fever Virus (HFV), Intracellular Bacterial Pathogen (IBP) and EID product pipelines. Continue 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, incorporating feedback from the FDA and Services into requirements. Funding for this research area is realigned from Tech Base Med Bio - Transformational Medical Technologies (TB3). | | | |
| ***Title:*** 13) Techbase Med Chem - Diagnostics<br>***Description:*** Chemical Diagnostics: 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.<br>***FY 2013 Plans:***<br>Expand the current set of analytical methods to more sensitive analytical platforms for the detection of CWAs. Funding for this research area is realigned from Tech Base Med Chem - Diagnostics (TC3). | - | - | 0.469 |
| ***Title:*** 14) Techbase Med Chem - Pretreatments<br>***Description:*** Chemical Medical Pretreatments - Nerve Agent, Pretreatments: Develop pretreatments that provide protection against all organophosphorous nerve agents. The enzymes should have the ability to rapidly bind and detoxify nerve agents, and have broad binding specificity and high enzymatic efficiency for the destruction of agents. For enzyme approaches, one molecule of catalytic bioscavenger should be capable of detoxifying numerous molecules nerve agents resulting in the capability for a small quantity of catalytic bioscavenger to protect against a large dose of nerve agent.<br>***FY 2013 Plans:***<br>Continue characterization of rHuBChE bioscavenger product of selected alternative expression systems. Funding for this research area is realigned from Tech Base Med Chem - Pretreatments (TC3). | - | - | 4.122 |
| ***Title:*** 15) Techbase Med Chem - Therapeutics<br>***Description:*** Chemical Medical Therapeutics - Neurologic: Focuses on therapeutic strategies to effectively minimize neurologic injuries resulting from exposure to chemical warfare agents (CWA). This effort involves the development of neuroprotectants, anticonvulsants, and improved neurotransmitter restorers. Supports 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. | - | - | 7.633 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2013 Plans:***<br>Complete studies developing appropriate animal models. Maintain core capability for in vitro and in vivo testing. This core capability for product testing, using standardized methodologies under well-controlled laboratory conditions (e.g., GLP), is needed to ensure quality and consistency of study test data submitted in applications to FDA in support of regulatory actions. Funding for this research area is realigned from Tech Base Med Chem - Therapeutics (TC3). | | | |
| ***Title:*** 16) Techbase Med Defense - Rad CM<br>***Description:*** Radiological 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.<br>***FY 2013 Plans:***<br>Further explore the development of a biodosimetry hand-held diagnostic device that is minimally invasive, accurate, rapid, high-throughput and suitable for medical triage. Funding for this research area is realigned from Tech Base Med Rad - Radiation Countermeasures (TR3). | - | - | 0.202 |
| **Accomplishments/Planned Programs Subtotals** | - | - | 182.330 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* | 0.000 | 0.000 | 118.208 | | 118.208 | 110.294 | 97.308 | 130.654 | 130.654 | Continuing | Continuing |
| • MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* | 129.682 | 116.653 | 133.254 | | 133.254 | 194.502 | 155.024 | 81.188 | 23.593 | Continuing | Continuing |
| • MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* | 4.134 | 7.804 | 0.000 | | 0.000 | 16.947 | 20.395 | 37.513 | 25.134 | Continuing | Continuing |
| • MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* | 75.657 | 216.715 | 214.056 | | 214.056 | 246.295 | 187.101 | 213.001 | 238.653 | Continuing | Continuing |
| • MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* | 3.801 | 2.407 | 9.642 | | 9.642 | 41.257 | 45.477 | 50.862 | 58.935 | Continuing | Continuing |
| • MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)* | 0.000 | 5.448 | 0.498 | | 0.498 | 0.499 | 3.266 | 0.496 | 9.355 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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>TM3: *TECHBASE MED DEFENSE (ATD)* |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TR3: *MEDICAL RADIOLOGICAL DEFENSE (ATD)* | 2.402 | - | - | - | - | - | - | - | - | 0.000 | 2.402 |

**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.

In FY13, all research in this Project (TR3) is realigned to Project TM3 - Techbase Medical Defense (ATD).

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Radiological Medical Countermeasures | 2.402 | - | - |
| ***Description:*** 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.<br><br>***FY 2011 Accomplishments:***<br>Continued to investigate relatively mature candidates for advanced development as medical countermeasures to prevent and treat exposure to radiation. Continued to evaluate diagnostic biodosimetry biomarkers that could be used to potentially screen mass casualties. Continued to explore the development of a biodosimetry hand-held diagnostic device that is minimally invasive, accurate, rapid, high-throughput, and suitable for medical triage. Continued development of animal models for radiation exposures useful to support FDA licensure. In FY13, all research in this area is re-aligned to Project TM3 - Techbase Medical Defense - Rad CM. | | | |
| **Accomplishments/Planned Programs Subtotals** | 2.402 | - | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
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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)* | |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)* | 0.000 | 0.000 | 118.208 | | 118.208 | 110.294 | 97.308 | 130.654 | 130.654 | Continuing | Continuing |
| • TR2: *MEDICAL RADIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 2.083 | 0.806 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.889 |
| • TM3: *TECHBASE MED DEFENSE (ATD)* | 0.000 | 0.000 | 182.330 | | 182.330 | 171.399 | 147.651 | 136.326 | 136.326 | Continuing | Continuing |
| • MR4: *MEDICAL RADIOLOGICAL DEFENSE (ACD&P)* | 1.129 | 0.000 | 4.050 | | 4.050 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 5.179 |
| • MR5: *MEDICAL RADIOLOGICAL DEFENSE (SDD)* | 0.000 | 0.000 | 2.027 | | 2.027 | 16.610 | 18.103 | 6.101 | 7.115 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TT3: *TECHBASE TECHNOLOGY TRANSITION* | 4.433 | - | - | - | - | - | - | - | - | 0.000 | 4.433 |

**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 Capability 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, personnel, and equipment to operational status as a result of having reduced or eliminated CBR contamination. The EW-MARS 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 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) Experiment & Technology Demonstrations | 2.168 | - | - |
| ***FY 2011 Accomplishments:***<br>ART Thrust Area<br>Performed technical assessments for the ART Hazard Mitigation, Material, and Equipment Restoration (HaMMER) ATD. Incorporated 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 - Lightweight Integrated Fabric).<br><br>EW Thrust Area.<br>Conducted surety testing, technical demonstrations, and down selects for the RASR ATD.<br><br>CIP Thrust Area | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Developed 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). | | | |
| ***Title:*** 2) Technology Readiness Assessment | 2.265 | - | - |
| ***FY 2011 Accomplishments:***<br>Completed Technology Readiness Evaluations in support of the EW MARS-JFP ATD. Initiated Technology Readiness Evaluation for the CIP thrust area in preparation for a new ATD. Assessed 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** | 4.433 | - | - |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)* | 85.789 | 97.774 | 44.331 | | 44.331 | 41.819 | 40.951 | 52.243 | 52.243 | Continuing | Continuing |
| • CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)* | 21.219 | 23.818 | 20.034 | | 20.034 | 18.343 | 18.893 | 17.357 | 17.357 | Continuing | Continuing |
| • TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)* | 26.051 | 3.022 | 3.377 | | 3.377 | 4.096 | 7.296 | 7.821 | 7.821 | Continuing | Continuing |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Chemical and Biological Defense Program | | | | | | | | | | DATE: February 2012 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 2011** | **FY 2012** | **FY 2013 Base** | **FY 2013 OCO** | **FY 2013 Total** | **FY 2014** | **FY 2015** | **FY 2016** | **FY 2017** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 267.867 | 213.155 | 179.023 | - | 179.023 | 267.746 | 268.797 | 199.814 | 110.570 | Continuing | Continuing |
| CA4: *CONTAMINATION AVOIDANCE (ACD&P)* | 57.121 | 33.952 | 3.038 | - | 3.038 | 19.803 | 38.588 | 39.729 | 34.595 | Continuing | Continuing |
| CM4: *HOMELAND DEFENSE (ACD&P)* | 10.531 | 14.117 | 3.003 | - | 3.003 | - | - | - | - | 0.000 | 27.651 |
| DE4: *DECONTAMINATION SYSTEMS (ACD&P)* | 6.933 | 24.749 | 12.374 | - | 12.374 | 10.247 | 9.779 | 12.751 | 6.083 | Continuing | Continuing |
| IP4: *INDIVIDUAL PROTECTION (ACD&P)* | 2.200 | - | 1.102 | - | 1.102 | 3.708 | 6.811 | 4.680 | 0.300 | Continuing | Continuing |
| IS4: *INFORMATION SYSTEMS (ACD&P)* | 11.032 | 7.420 | 13.831 | - | 13.831 | 5.672 | 10.496 | 0.260 | - | 0.000 | 48.711 |
| MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* | 129.682 | 116.653 | 133.254 | - | 133.254 | 194.502 | 155.024 | 81.188 | 23.593 | Continuing | Continuing |
| MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* | 4.134 | 7.804 | - | - | - | 16.947 | 20.395 | 37.513 | 25.134 | Continuing | Continuing |
| MR4: *MEDICAL RADIOLOGICAL DEFENSE (ACD&P)* | 1.129 | - | 4.050 | - | 4.050 | - | - | - | - | 0.000 | 5.179 |
| TE4: *TEST & EVALUATION (ACD&P)* | 19.054 | 5.438 | 4.994 | - | 4.994 | 12.771 | 20.408 | 15.872 | 13.044 | Continuing | Continuing |
| TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)* | 26.051 | 3.022 | 3.377 | - | 3.377 | 4.096 | 7.296 | 7.821 | 7.821 | 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 (CB) 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 medical and non-medical CB defensive equipment and materiel. Congress directed centralized management of Department of Defense (DoD) medical and non-medical CB Defense initiatives. 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 are structured to consolidate Joint and Service-unique tasks within four commodity areas: contamination avoidance, individual and collective force protection, decontamination, and medical countermeasures. ADC&P is conducted for an array of chemical, biological, and 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 materiel without damaging combat equipment, personnel, or the environment. CB sensors and diagnostics enhance the Departments environmental and medical surveillance efforts by improving the monitoring and surveillance of threats and forces preparing for and engaged in military operations. These efforts are required to enable military commanders and the Military Health System to prevent, treat, and mitigate threats to individual Service Members and military units. Integration of CB sensor and diagnostic data from the programs in this ACD&P will also be usable within the homeland security and Federal public health common operating pictures.

The Secretary of Defense is responsible for research, development, acquisition, and deployment of medical countermeasures to prevent or mitigate the health effects of CB threats to the Armed Forces and directs strategic planning for and oversight of programs to support medical countermeasures development and acquisition for our Armed Forces personnel. The CB medical threat to the Armed Forces, in contrast with public health threats to U.S. citizens, encompasses all potential or continuing enemy actions that can render a Service Member combat ineffective. CB medical threats, because they apply as a whole to military units deployed on a specific mission and/or operations, may result in the unit being unable to complete its mission. CB medical countermeasures developed by DoD, unlike those developed to support U.S. population, must support military commanders practical operational requirements and deployment strategies and must emphasizes prevention of injury and illness and protection of the force. Preventive measures in this ACD&P, such as vaccines against the most likely biological threat agents and traditional / non-traditional chemical agent prophylaxis, conserves fighting strength, decreases the logistics burden by reducing the need for larger deployed hospital footprint and greater demand for tactical and strategic medical evacuation, and satisfies the need for greater flexibility in military planning and operations. When vaccines and other prophylactic medical countermeasures are not available, efforts on this ACD&P support pre-hospitalization treatment, en-route care, hospital care, and long-term clinical outcomes. Specific items in this category include improvements to CB diagnostics and therapeutics to mitigate the consequences of biologic agents and exposure to ionizing radiation due to nuclear or radiological attacks. DoD is the only Federal activity conducting ACD&P on these prophylactic, diagnostic, and therapeutic CB medical countermeasures.

The Department of Defense coordinates its efforts with the Departments of Health and Human Services to promote synergy and minimize redundancy. This Department of Defense ensures coordination by participating in the Public Health Emergency Medical Countermeasures Enterprise interagency strategic planning process ("One Portfolio"). The Department of Defense's longstanding experience and success in CB medical countermeasure research, development, acquisition, and deployment not only ensures protection of the Armed Forces, it also accelerate and improves the overall national efforts in CB medical countermeasure research, development, and acquisition because of its unique facilities, testing capabilities, and trained and experienced personnel.

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.

The projects in this program element support efforts in the technology development phase of the acquisition strategy and are therefore correctly placed in Budget Activity 4.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Chemical and Biological Defense Program | DATE: February 2012 |
|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 277.062 | 261.143 | 251.988 | - | 251.988 |
| Current President's Budget | 267.867 | 213.155 | 179.023 | - | 179.023 |
| Total Adjustments | -9.195 | -47.988 | -72.965 | - | -72.965 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | 1.429 | - | | | |
| • SBIR/STTR Transfer | -3.246 | - | | | |
| • Other Adjustments | -7.378 | -47.988 | -72.965 | - | -72.965 |

**Change Summary Explanation**

Funding: FY12
-$47.988M Congressional Reductions (DE4 -$13,988K; MB4 -$21,000K; MC4 -$13,000K)

FY13
-$72,965M Other Adjustments
(-$75,176K) Other Adjustments (CA4 -$25,703K; DE4 -$18,387K; IS4 -$1,022K; MB4 -$18,518K; MC4 -$3,658K; MR4 +$4,000K; TE4 -$11,300K; TT4 -$588K)
(+$2,211) Inflation Adjustments (All Projects)

Schedule: N/A

Technical: N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CA4: *CONTAMINATION AVOIDANCE (ACD&P)* | 57.121 | 33.952 | 3.038 | - | 3.038 | 19.803 | 38.588 | 39.729 | 34.595 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

This Advanced Component Development and Prototypes (ACD&P) Project supports Component Advanced Development and System Integration (CAD/SI) of reconnaissance, detection, identification, and hazard prediction equipment, hardware, and software. Individual efforts are: (1) Chemical Biological Radiological Nuclear Dismounted Reconnaissance Systems (CBRN DRS); (2) Joint Biological Standoff Detector System (JBSDS); (3) Joint Biological Tactical Detection System (JBTDS); (4) Joint Chemical Agent Detector (JCAD); (5) Major Defense Acquisition Program (MDAP) Support; (6) Next Generation Chemical Point Detection (NGCPD); and (7) Next Generation Chemical Standoff Detection (NGCSD).

The CBRN Dismounted Reconnaissance Systems (CBRN DRS) consists of portable, commercial and government off-the-shelf equipment to provide personnel protection from current and emerging CBRN hazards and detection, identification, sample collection, decontamination, marking, and hazard reporting of CBRN threats. The system supports dismounted Reconnaissance, Surveillance, and CBRN Site Assessment missions to enable more detailed CBRN information reports for commanders.

The Joint Biological Standoff Detection (JBSDS) mission is to provide near real-time detection of biological attacks/incidents and standoff early detection/warning (Detect to Warn) of BWAs at fixed sites or in static mode on vehicles. This detect to warn capability will allow Commanders theater-wide initial early warning capability against BWA attacks. JBSDS 1 was the first standoff early warning biological detection system for the Joint Services. The system demonstrated the capability of providing standoff detection, ranging, tracking, discrimination (biological vs. non-biological), of BWA aerosol clouds for advanced warning, reporting and protection. The current JBSDS 1 systems will be used for training to support JBSDS 2 concept of operations (CONOPs) development and can be deployed upon receipt of an urgent need statement. JBSDS Increment 2 will address the requirements beyond the JBSDS 1 interim system. These key requirements are lower false alarm rate, day/night discrimination sensitivity, and a reduction in overall system size, weight, and power.

The Joint Biological Tactical Detection System (JBTDS) will integrate, test and produce the first lightweight (less than 37 lbs), 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 archive sample for follow-on analyses. JBTDS will provide near real time local audio and visual alarm for use by any Military Occupational Specialty (MOS). JBTDS components will be man portable, battery operable and easy to employ. JBTDS will be used 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. Units equipped with JBTDS will conduct biological surveillance missions to detect BWA aerosol clouds, collect a sample, and identify the agent to support time sensitive force protection decisions.

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

The Joint Chemical Agent Detector (JCAD) efforts will evaluate current technologies focusing on capability gaps for emerging threats by performing testing and evaluation of existing fielded systems to characterize and optimize their capability to detect emerging threats.

The Major Defense Acquisition Program (MDAP) Support program will integrate System of Systems (SoS) solutions across the Armed Services for MDAPs 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. This program does not continue beyond FY11.

The Next Generation Chemical Point Detection (NGCPD), a new start program, will detect and identify non-traditional agents, chemical warfare agents (CWAs), toxic industrial chemicals (TICs) in the air and on surfaces. The NGCPD will provide improved CWA/TIC selectivity and sensitivity on multiple platforms as well as multiple environments. This sensor will improve passive defense/detect capabilities, consequence management and reconnaissance, and weapons of mass destruction (WMD) interdiction.

The Next Generation Chemical Standoff Detection (NGCSD), a next generation chemical standoff effort that was initiated under the JSLSCAD program, will provide a technical assessment of the state of current standoff detection capabilities for both traditional and non-traditional chemical agent attacks at fixed sites, forward operating bases and on Service designated vehicles and ships. Evaluation of industry capabilities will support development of the future detection system. This program does not continue beyond FY11.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) CBRN DRS | 0.693 | - | - |
| ***FY 2011 Accomplishments:***<br>Initiated and completed personal protective equipment (PPE) swatch testing. | | | |
| ***Title:*** 2) CBRN DRS | 1.260 | - | - |
| ***FY 2011 Accomplishments:***<br>Initiated and completed program management and systems engineering support and completed preparation for Milestone B. | | | |
| ***Title:*** 3) JBSDS Increment 2 | 6.683 | 4.688 | - |
| ***FY 2011 Accomplishments:***<br>Provided strategic, tactical planning, government system engineering, program/financial management, costing, contracting, scheduling, acquisition oversight, technical support and milestone documentation. Conducted successful Milestone A review and released Competitive Prototyping Request for Proposals. | | | |
| ***FY 2012 Plans:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Provide strategic, tactical planning, government system engineering, program/financial management, costing, contracting, scheduling, acquisition oversight, technical support and milestone documentation. | | | |
| ***Title:*** 4) JBSDS Increment 2<br>***FY 2011 Accomplishments:***<br>Continued agent performance assessment, cross section measurements, simulant variability testing and relative humidity testing.<br>***FY 2012 Plans:***<br>Continue agent performance assessment, cross section measurements and agent variability testing. | 3.954 | 1.000 | - |
| ***Title:*** 5) JBSDS Increment 2<br>***FY 2011 Accomplishments:***<br>Continued Increment 2 Modeling and Simulation efforts supporting agent performance assessment and standardization of cloud modeling software. Continued cloud modeling testing and incorporated modeling and simulation capabilities with system algorithms.<br>***FY 2012 Plans:***<br>Continue Increment 2 Modeling and Simulation efforts supporting agent performance assessment and standardization of cloud modeling software. Mature system algorithms with continued testing and modeling and simulation results. | 0.179 | 0.150 | - |
| ***Title:*** 6) JBSDS Increment 2<br>***FY 2011 Accomplishments:***<br>Continued Agent Performance Assessment analysis and Biological Safety Level (BSL) 3 Chamber development efforts.<br>***FY 2012 Plans:***<br>Continue Agent Performance Assessment analysis and BSL 3 Chamber development efforts. | 2.161 | 2.278 | - |
| ***Title:*** 7) JBSDS Increment 2<br>***FY 2011 Accomplishments:***<br>Provided test planning and test support for simulant variability studies, aerosol modeling testing and initiate relative humidity testing).<br>***FY 2012 Plans:***<br>Provide test planning and test support(continued simulant variability testing, aerosol modeling testing and relative humidity testing). | 5.142 | 4.582 | - |
| ***Title:*** 8) JBSDS Increment 2 | 0.500 | 0.250 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2011 Accomplishments:***<br>Continued the fusion of networked sensor data in support of future IS based requirements and service combat developer CONOPS.<br>***FY 2012 Plans:***<br>Complete the fusion of networked sensor data in support of future IS based requirements and service combat developer CONOPS. | | | |
| ***Title:*** 9) JBSDS Increment 2<br>***FY 2012 Plans:***<br>Initiate and complete maturation of standoff technology options such as upgrading FAL, demonstrating high speed cloud mapping, and risk reduction efforts. | - | 9.050 | - |
| ***Title:*** 10) JBSDS Increment 2<br>***FY 2011 Accomplishments:***<br>Initiate the transition of technologies within the CBD portfolio.<br>***FY 2012 Plans:***<br>Complete the transition of technologies within the CBD portfolio. | 3.899 | 6.100 | - |
| ***Title:*** 11) JBTDS<br>***FY 2011 Accomplishments:***<br>Conducted calibration effort for service requirements to measure degradation in Biological Warfare Agent detection sensors. | 1.883 | - | - |
| ***Title:*** 12) JBTDS<br>***FY 2011 Accomplishments:***<br>Awarded three (3) firm fixed price competitive prototyping contracts, each contractor providing ten (10) prototypes at an average cost of $250K per system. | 7.883 | - | - |
| ***Title:*** 13) JBTDS<br>***FY 2011 Accomplishments:***<br>Initiated Competitive Prototyping (CP) test and evaluation planning events.<br>***FY 2012 Plans:***<br>Continue CP test and evaluation events. | 1.491 | 0.640 | - |
| ***Title:*** 14) JBTDS | 0.126 | 0.250 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2011 Accomplishments:***<br>Initiated strategy to prepare and plan for an independent technology readiness assessment.<br>***FY 2012 Plans:***<br>Conduct technology readiness assessment of prototypes. | | | |
| ***Title:*** 15) JBTDS<br>***FY 2011 Accomplishments:***<br>Provided strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support.<br>***FY 2012 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>***FY 2013 Plans:***<br>Complete Tech Demo phase strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. | 3.803 | 3.490 | 1.519 |
| ***Title:*** 16) JBTDS<br>***FY 2011 Accomplishments:***<br>Continued user representation and involvement (i.e., Integrated Product Teams and working groups).<br>***FY 2012 Plans:***<br>Continue user representation and involvement (i.e., Integrated Product Teams and working groups). | 0.674 | 1.025 | - |
| ***Title:*** 17) JCAD<br>***FY 2011 Accomplishments:***<br>Completed test and evaluation of existing fielded systems to characterize and optimize their ability to detect emerging threats. | 0.734 | - | - |
| ***Title:*** 18) JCAD<br>***FY 2011 Accomplishments:***<br>Completed program management, systems engineering, and Integrated Product Team (IPT) support. | 0.695 | - | - |
| ***Title:*** 19) JCAD<br>***FY 2011 Accomplishments:*** | 0.524 | - | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Initiated and completed test development and evaluation efforts for low volatile sensors. | | | |
| ***Title:*** 20) MDAP SPRT<br>***Description:*** Catalytic Oxidation (CatOx) Technology Demonstration of improved air purification for the Abrams Main Battle Tank (MBT).<br>***FY 2011 Accomplishments:***<br>Provided project management and oversight. Conducted live-agent performance testing preparations for one prototype CatOx system. | 0.308 | - | - |
| ***Title:*** 21) MDAP SPRT<br>***Description:*** Chemical, Biological, and Radiological (CBR) Capabilities Analysis.<br>***FY 2011 Accomplishments:***<br>Conducted CBR Capabilities Analysis for Missile Defense Agency, DDG-51 FLT III, KC-46A Aerial Refueler, US Strategic Command (USSTRATCOM), and a special US Air Force program. | 0.770 | - | - |
| ***Title:*** 22) MDAP SPRT<br>***Description:*** Chemical, Biological, and Radiological (CBR) Material Solutions Analysis.<br>***FY 2011 Accomplishments:***<br>Conducted CBR Material Solutions Analyses for Missile Defense Agency, KC-46 Aerial Refueler, and a special US Air Force program. Completed CBR Material Solutions Analyses for Ground Combat Vehicle. Conducted individual protection equipment compatibility study for Ship to Shore Connector. | 1.539 | - | - |
| ***Title:*** 23) MDAP SPRT<br>***Description:*** Provide strategic tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support.<br>***FY 2011 Accomplishments:***<br>Conducted strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, and technical support. | 0.310 | - | - |
| ***Title:*** 24) NGCPD<br>***FY 2013 Plans:*** | - | - | 1.519 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Initiate program management, systems engineering, and Integrated Product Team (IPT) support and prepare for MS A. | | | |
| ***Title:*** 25) NGCSD<br>***FY 2011 Accomplishments:***<br>Completed design and development of sensor algorithm. | 0.500 | - | - |
| ***Title:*** 26) NGCSD<br>***FY 2011 Accomplishments:***<br>Completed prototype purchase and provided technical support for Technology Evaluation (12 prototypes at a cost of $600K each). | 7.200 | - | - |
| ***Title:*** 27) NGCSD<br>***FY 2011 Accomplishments:***<br>Completed the strategic/tactical planning, systems engineering, program/financial management, and IPT support. | 4.210 | - | - |
| ***Title:*** 28) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.449 | - |
| **Accomplishments/Planned Programs Subtotals** | 57.121 | 33.952 | 3.038 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CA5: *CONTAMINATION AVOIDANCE (SDD)* | 122.354 | 52.114 | 33.018 | | 33.018 | 37.385 | 45.882 | 30.029 | 44.953 | Continuing | Continuing |
| • JF0100: *JOINT CHEMICAL AGENT DETECTOR (JCAD)* | 39.372 | 35.172 | 15.212 | | 15.212 | 19.130 | 50.985 | 57.966 | 47.758 | Continuing | Continuing |
| • MC0101: *CBRN DISMOUNTED RECONNAISSANCE SYSTEMS (CBRN DRS)* | 12.644 | 6.991 | 15.080 | | 15.080 | 34.698 | 95.081 | 95.889 | 90.109 | Continuing | Continuing |

**D. Acquisition Strategy**

CBRN DRS

The Chemical Biological Radiological Nuclear Dismounted Reconnaissance Systems (CBRN DRS) program uses a government-off-the-shelf (GOTS)/commercial-off-the-shelf (COTS) non-developmental item (NDI) single step to full capability acquisition approach. Upon further review of the CBRN capabilities at the Materiel

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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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)* |

Development Decision (MDD), the program restructured in 4QFY10 to begin the acquisition process at Milestone (MS) B. Funding finalized the Analysis of Materiel Solutions (AMS), materiel/prototype testing, and design to provide the Services with enhanced full spectrum CBRN detection capability to support strategic, operational, and tactical objectives at lower life cycle costs. Dismounted Reconnaissance Sets, Kits, and Outfits (DR SKO) 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.

The Emerging Threat efforts develop, test, procure, and sustain dismounted reconnaissance and sensitive site analysis systems for urgent needs for Domestic Response Capability Systems and Advanced Threat Boxes. Funding also informs the Materiel Development Decision and requirements development for the CBRN DRS.

JBTDS

The Joint Biological Tactical Detection System (JBTDS) is an Acquisition Category III (ACAT III) program dedicated to developing a lightweight biological warfare agent system that will detect, warn, and provide presumptive identification and samples for follow-on confirmatory analysis. The JBTDS is being developed using an evolutionary acquisition strategy. The JBTDS program will incrementally design, develop, integrate, test, procure and field systems that improve biological detection, sampling and identification capabilities and reduce size, weight, power consumption and logistics footprint over current systems. JBTDS will make maximum use of commercial off-the-shelf (COTS) and Government off-the-shelf (GOTS) technology. The awards for competitive prototyping utilized best value approach via the competitive CBRNE mission support contract to three contractor teams. Full and open competition will be utilized at MS B for the EMD contract with options for Low Rate Initial Production and Full Rate Production. In addition the JPM-BD is coordinating with JPM Guardian and JPM CBMS on the Common Analytical Laboratory System and Next Generation Diagnostic System programs respectively to share information and leverage potential identification technology solutions common to the three programs.

This approach also provides capability to the warfighter in the shortest possible time. The JBTDS program will incrementally design, develop, integrate, test, procure and field systems that improve biological aerosol detection, sampling and identification capabilities and reduce size, weight, power consumption, and logistic footprint over current systems. Again, COTS and GOTS will be utilized to the fullest extent possible.

JCAD

The current strategy employs an 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 M4A1 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 VBSS JCAD exercised a contract option for VBSS-specific software. Upon completion of PVT and an Operational Assessment (under CBRN DRS), standard M4A1 JCADs will be reprogrammed to fill CBRN DRS VBSS needs. The low volatile sensor technology evaluation will purchase prototypes of commercial equipment to evaluate technologies for addressing capability gaps for emerging threats not addressed by M4 and M4A1 JCAD. The results of the low volatile sensor technology evaluation will be used to inform the Analysis of Alternatives for NGCPD.

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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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)* |

NGCPD

The next generation chemical point detection (NGCPD) program will target capability gaps for emerging threats not addressed by JCAD M4 and M4A1. The analysis of alternatives will be used to generate performance specifications that will support contracting for competitive prototype development. The goal for the initial stage of development will be to award three contracts for each variant of the NGCPD and down select to one contractor per variant by Milestone B.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JBSDS - ES S - Modeling & Simulation Test Support | C/CPFF | John Hopkins Univ - Applied Physics Lab:Laurel, MD | 2.550 | 0.500 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ES S - Modeling & Simulation Test Support | MIPR | Sandia National Laboratory:Albuquerque, NM | 5.058 | 0.500 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ES S - FAL LWIR Upgrade & Demo | MIPR | ECBC:APG/DPG, UT | - | 2.310 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ES S - FAL LWIR Upgrade & Demo #2 | MIPR | JHU APL:Laurel, MD | - | 0.460 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ES S - Optical Measurement Data Consolidation | MIPR | JHU APL:Laurel, MD | - | 0.345 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ES S - CONOPS Modeling | MIPR | TBD: | - | 0.435 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ES C - Technology Transition | MIPR | TBD: | 3.900 | 6.100 | May 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** JBTDS - ES S - User involvement | MIPR | Various: | 1.655 | 1.025 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ES S - Technology Readiness Assessment | MIPR | ECBC:Aberdeen, MD | 0.126 | 0.250 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 13.289 | 11.925 | | - | | - | | - | | | 0.000 |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JBSDS - INCR 2 - OTHT SB - Developmental Testing Support | MIPR | Dugway Proving Ground (DPG):Dugway, UT | 2.294 | 1.210 | May 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| INCR 2 - OTHT SB - Networking algorithm development and Aerosol Chamber Study | MIPR | MIT/Lincoln Lab:Lexington, MA | 0.870 | 0.250 | Aug 2012 | - | | - | | - | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INCR 2 - OTHT SB - Agent performance analysis and Technology Performance Analysis | MIPR | John Hopkins Univ - Applied Physics Lab:Laurel, MD | 2.500 | 0.500 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| INCR 2 - DTE S - Cloud Modeling Analysis | MIPR | Various: | 0.179 | 0.150 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| DTE C - DT test support | MIPR | SNL:Albuquerque, NM | 1.333 | 2.226 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| DTE C - DT test support #2 | MIPR | JHU APL:Laurel, MD | 1.035 | 0.403 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| DTE C - Aerosol Chamber Maturation | MIPR | SNL:Albuquerque, NM | 0.661 | 1.462 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| DTE C - Aerosol Chamber Maturation #2 | MIPR | JHU APL:Laurel, MD | - | 0.316 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| DTE C - DT Test Support #3 | MIPR | ECBC:APG MD | 1.311 | 0.331 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| DTE C - DT Test Support #4 | MIPR | Camber Corp:Hunstville, AL | 0.215 | 0.412 | Aug 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| DTE C - Aerosol Cloud Mapping & Tracking | MIPR | TBD: | - | 1.500 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| DTE C - Technology Risk Reduction | MIPR | TBD: | - | 4.000 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** JBTDS - DTE S - Competitive Prototyping Testing | MIPR | Dugway Proving Ground/ECBC: | 1.491 | 0.640 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 11.889 | 13.400 | | - | | - | | - | | | 0.000 |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JBSDS - INCR 2 - PM/MS SB - JPM BD & JPEO CBD Management and Systems Engineering Support | MIPR | JPM BD/JPEO CBD:APG, MD | 13.234 | 4.688 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

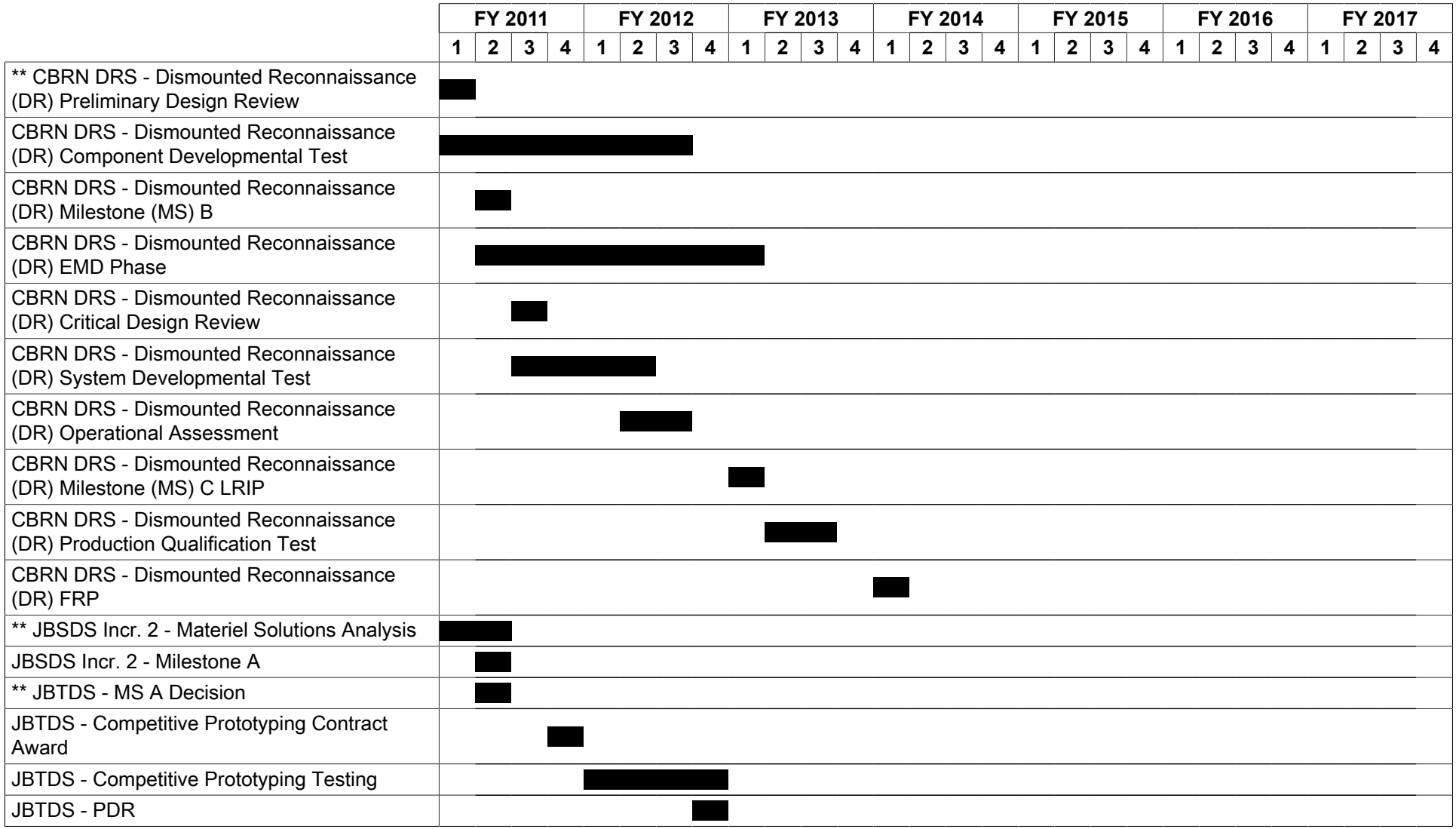
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JBTDS - PM/MS SB - JPM BD & JPEO CBD - Management and System Engineering Support | MIPR | JPM BD/JPEO CBD:APG, MD | 7.794 | 3.490 | Feb 2012 | 1.519 | Nov 2012 | - | | 1.519 | Continuing | Continuing | 0.000 |
| ** NGCPD - PM/MS S - Program Management and Systems Engineering Support | MIPR | JPM NBC CA:APG, MD | - | - | | 1.519 | Nov 2012 | - | | 1.519 | Continuing | Continuing | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 0.449 | | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 21.028 | 8.627 | | 3.038 | | - | | 3.038 | | | 0.000 |

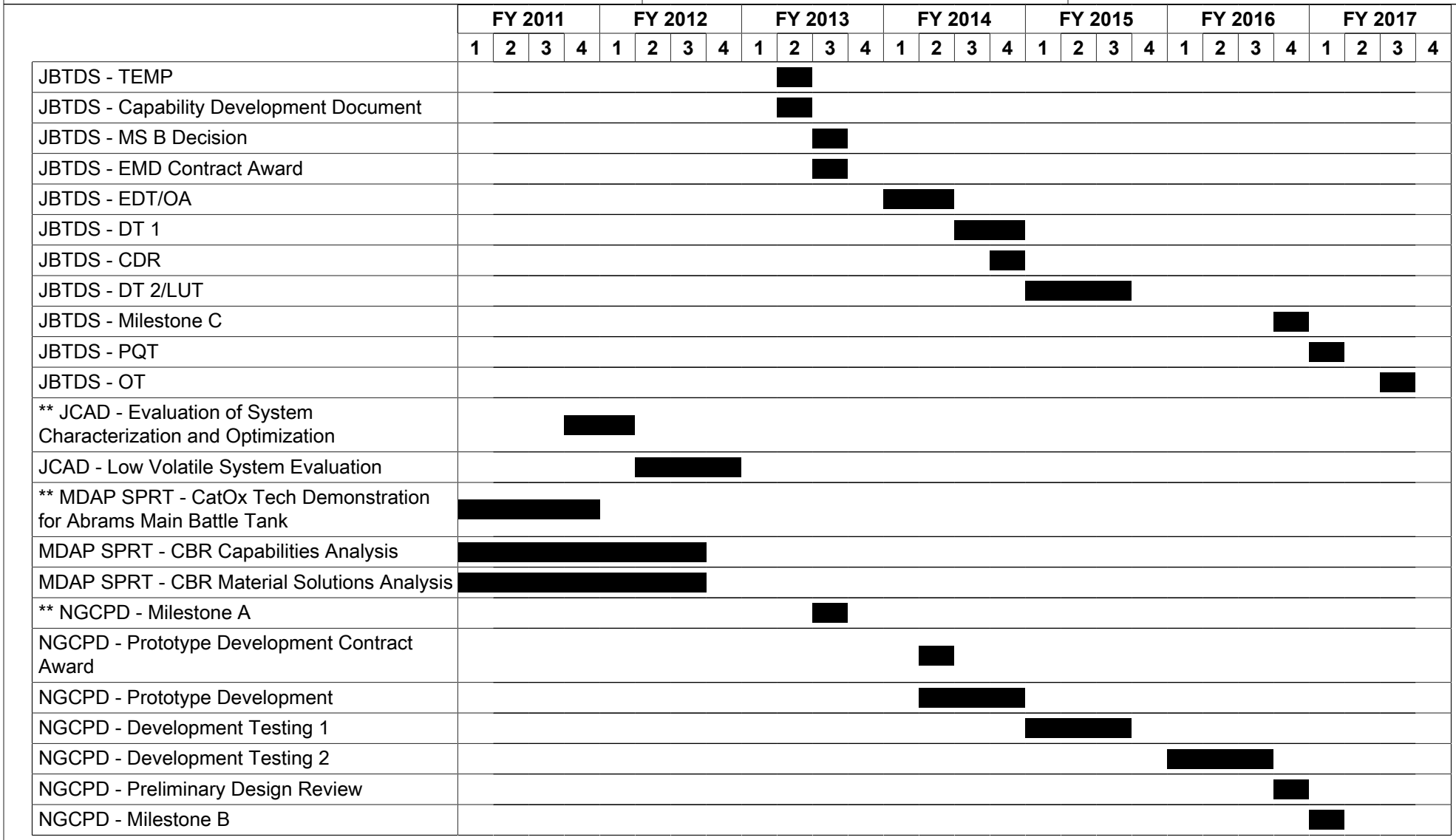
| | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 46.206 | 33.952 | | 3.038 | | - | | 3.038 | | | 0.000 |

**Remarks**

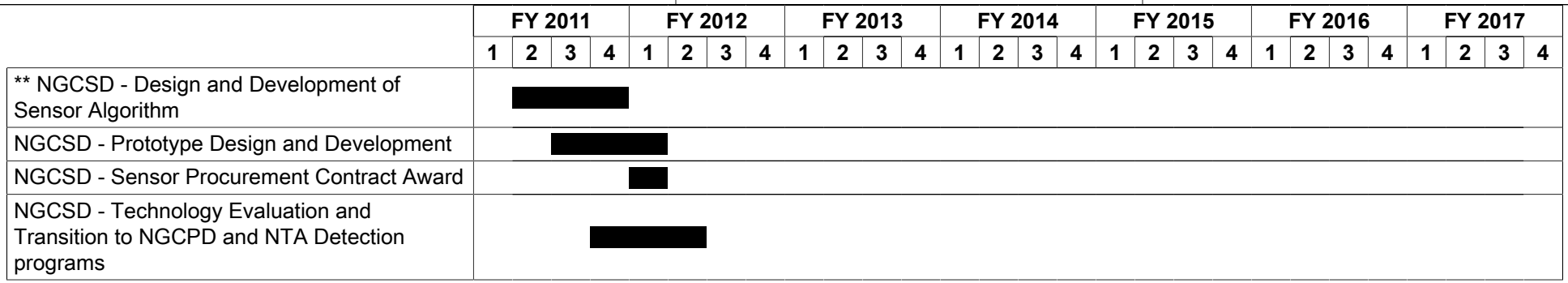
| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>CA4: *CONTAMINATION AVOIDANCE (ACD&P)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** CBRN DRS - Dismounted Reconnaissance (DR) Preliminary Design Review | 1 | 2011 | 1 | 2011 |
| CBRN DRS - Dismounted Reconnaissance (DR) Component Developmental Test | 1 | 2011 | 3 | 2012 |
| CBRN DRS - Dismounted Reconnaissance (DR) Milestone (MS) B | 2 | 2011 | 2 | 2011 |
| CBRN DRS - Dismounted Reconnaissance (DR) EMD Phase | 2 | 2011 | 1 | 2013 |
| CBRN DRS - Dismounted Reconnaissance (DR) Critical Design Review | 3 | 2011 | 3 | 2011 |
| CBRN DRS - Dismounted Reconnaissance (DR) System Developmental Test | 3 | 2011 | 2 | 2012 |
| CBRN DRS - Dismounted Reconnaissance (DR) Operational Assessment | 2 | 2012 | 3 | 2012 |
| CBRN DRS - Dismounted Reconnaissance (DR) Milestone (MS) C LRIP | 1 | 2013 | 1 | 2013 |
| CBRN DRS - Dismounted Reconnaissance (DR) Production Qualification Test | 2 | 2013 | 3 | 2013 |
| CBRN DRS - Dismounted Reconnaissance (DR) FRP | 1 | 2014 | 1 | 2014 |
| ** JBSDS Incr. 2 - Materiel Solutions Analysis | 1 | 2011 | 2 | 2011 |
| JBSDS Incr. 2 - Milestone A | 2 | 2011 | 2 | 2011 |
| ** JBTDS - MS A Decision | 2 | 2011 | 2 | 2011 |
| JBTDS - Competitive Prototyping Contract Award | 4 | 2011 | 4 | 2011 |
| JBTDS - Competitive Prototyping Testing | 1 | 2012 | 4 | 2012 |
| JBTDS - PDR | 4 | 2012 | 4 | 2012 |
| JBTDS - TEMP | 2 | 2013 | 2 | 2013 |
| JBTDS - Capability Development Document | 2 | 2013 | 2 | 2013 |
| JBTDS - MS B Decision | 3 | 2013 | 3 | 2013 |
| JBTDS - EMD Contract Award | 3 | 2013 | 3 | 2013 |
| JBTDS - EDT/OA | 1 | 2014 | 2 | 2014 |
| JBTDS - DT 1 | 3 | 2014 | 4 | 2014 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
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| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| JBTDS - CDR | 4 | 2014 | 4 | 2014 |
| JBTDS - DT 2/LUT | 1 | 2015 | 3 | 2015 |
| JBTDS - Milestone C | 4 | 2016 | 4 | 2016 |
| JBTDS - PQT | 1 | 2017 | 1 | 2017 |
| JBTDS - OT | 3 | 2017 | 3 | 2017 |
| ** JCAD - Evaluation of System Characterization and Optimization | 4 | 2011 | 1 | 2012 |
| JCAD - Low Volatile System Evaluation | 2 | 2012 | 4 | 2012 |
| ** MDAP SPRT - CatOx Tech Demonstration for Abrams Main Battle Tank | 1 | 2011 | 4 | 2011 |
| MDAP SPRT - CBR Capabilities Analysis | 1 | 2011 | 3 | 2012 |
| MDAP SPRT - CBR Material Solutions Analysis | 1 | 2011 | 3 | 2012 |
| ** NGCPD - Milestone A | 3 | 2013 | 3 | 2013 |
| NGCPD - Prototype Development Contract Award | 2 | 2014 | 2 | 2014 |
| NGCPD - Prototype Development | 2 | 2014 | 4 | 2014 |
| NGCPD - Development Testing 1 | 1 | 2015 | 3 | 2015 |
| NGCPD - Development Testing 2 | 1 | 2016 | 3 | 2016 |
| NGCPD - Preliminary Design Review | 4 | 2016 | 4 | 2016 |
| NGCPD - Milestone B | 1 | 2017 | 1 | 2017 |
| ** NGCSD - Design and Development of Sensor Algorithm | 2 | 2011 | 4 | 2011 |
| NGCSD - Prototype Design and Development | 3 | 2011 | 1 | 2012 |
| NGCSD - Sensor Procurement Contract Award | 1 | 2012 | 1 | 2012 |
| NGCSD - Technology Evaluation and Transition to NGCPD and NTA Detection programs | 4 | 2011 | 2 | 2012 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CM4: *HOMELAND DEFENSE (ACD&P)* | 10.531 | 14.117 | 3.003 | - | 3.003 | - | - | - | - | 0.000 | 27.651 |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

This Advanced Component Development and Prototypes (ACD&P) Project supports Component Advanced Development and System Integration (CAD/SI) for programs that provide a comprehensive, integrated and layered CBRN protection and response capability for military installations and specialized military consequence management units both at home and abroad. Particular emphasis is placed on improving military-civilian interoperability in CBRN detection and response capabilities; providing tiered levels of CBRN protection and response capabilities to military installations; and tailored modular and integrated Commercial off-the-shelf (COTS) solutions to consequence management units.

Included in this Project are: 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 the validation and demonstration of desired functional capabilities.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) CALS - System Engineering and Program Management | 2.206 | 3.128 | 0.887 |
| ***Description:*** System engineering and technical control, as well as the business management of the system/program. It encompasses the overall planning, direction, and control of the definition, development, and production of the system/program, including functions of logistics engineering and integrated logistics support (ILS) management( e.g., maintenance support, facilities, personnel, training, testing, and activation of the system.) | | | |
| ***FY 2011 Accomplishments:***<br>Continued System Engineering and Program Management Support at the initiation of the Technology Development Phase, provided Engineering support, System Integration Laboratory efforts, Modeling and Simulation, Oversight to Component Technology Down Select and Contract Development/Procurement actions. | | | |
| ***FY 2012 Plans:***<br>Continue System Engineering and Program Management to provide engineering support and program and technical guidance to ongoing System Integration Laboratory efforts, maintain oversight of component test completion, contract actions in support of modular design concepts and preparation for Preliminary Design Review. | | | |
| ***FY 2013 Plans:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue System Engineering and Program Management to provide engineering support and program and technical guidance to ongoing System Integration Laboratory efforts, maintain oversight of component test completion, contract actions in support of modular design concepts and preparation for Preliminary Design Review. | | | |
| ***Title:*** 2) CALS - System Integration Laboratory<br>***Description:*** Establishment of a System Integration laboratory to assist in the mitigation of programmatic risk and facilitate rapid evaluation of Technology, Technical approaches and constraints, configuration designs and logistical issues.<br>***FY 2011 Accomplishments:***<br>Continue efforts to mitigate program risk through the use of a system integration laboratory tool set designed to facilitate the rapid evaluation of technology, technical approaches and constraints.<br>***FY 2012 Plans:***<br>- Continue efforts to mitigate program risk through the use of a system integration laboratory tool set designed to facilitate the rapid evaluation of technology configuration designs and logistical issues. | 0.250 | 0.355 | - |
| ***Title:*** 3) CALS - Development Engineering - Component Evaluation and Subsystem Design<br>***Description:*** Studies, analysis, design development, evaluation, testing, and redesign for the system component(s) during system development. Includes the design efforts of preparing specifications, engineering drawings, parts lists, wiring diagrams, test planning and scheduling, analysis of test results, data reduction, report preparations and establishment of reliability, maintainability, and quality assurance control requirements.<br>***FY 2011 Accomplishments:***<br>Initiated subsystem component evaluation and began module design of alternative system module and system configurations.<br>***FY 2012 Plans:***<br>Complete subsystem component evaluation and module design of alternative system module and system configurations. | 5.804 | 6.176 | - |
| ***Title:*** 4) CALS - Production Engineering and Planning<br>***Description:*** Efforts to ensure the producibility of the developmental materiel system, item, or component. Involves engineering tasks necessary to ensure timely, efficient, and economic production of essential materiel and is primarily of a planning nature. Includes efforts related to development of the Technical Data Package (TDP), quality assurance (QA) plans, and special production processes to assess producibility.<br>***FY 2011 Accomplishments:*** | 1.421 | 0.704 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Initiated producibility, quality assurance and logistics studies required to support the development of modules for the CALS.<br>***FY 2012 Plans:***<br>Complete producibility, quality assurance and logistics studies required to support development of modules for the CALS. | | | |
| ***Title:*** 5) CALS - Subsystem (Module) Development Tooling<br>***Description:*** Planning, design, assembly, installation, and rework of all tools, inspection equipment, and test equipment supporting the development of each subsystem component (Module). Includes time expended in determining tool, inspection, and test equipment requirements; as well as, the costs of new materials used in the installation, modification, and rework of dies, jigs, fixtures, inspection equipment, handling equipment, work platforms, and test equipment used to develop each subsystem component (Module).<br>***FY 2011 Accomplishments:***<br>Initiated planning and preparation of tools, equipment, work platforms and new materials required to fabricate, integrate and assemble unique CALS subsystem modules for test and evaluation.<br>***FY 2012 Plans:***<br>Conduct and complete planning and preparation of tools, equipment, work platforms and new materials required to fabricate, integrate and assemble unique CALS subsystem modules for test and evaluation. | 0.850 | 0.774 | - |
| ***Title:*** 6) CALS - Subsystem (Module) Prototype Manufacturing<br>***Description:*** Development of Subsystem (Module) prototypes ensuring integration and connectivity between modules as a general system layout. This includes raw and semi-fabricated material plus purchased parts materials, fabrication, processing, subassembly, final assembly, reworking modification, and installation of parts and equipment, power plants, electronic equipment, and other items (including Government-Furnished equipment [GFE]), and the proving of such equipment and instruments for the specified subsystem prototype (Module).<br>***FY 2012 Plans:***<br>Initiate development and manufacture of CALS subsystem (Module) prototypes.<br>***FY 2013 Plans:***<br>Complete development and manufacture of CALS subsystem (Module) prototypes. | - | 2.009 | 0.399 |
| ***Title:*** 7) CALS - System Test and Evaluation<br>***Description:*** System-related test activities to include detailed planning, conduct, support, data reduction, and reports from such testing. | - | 0.784 | 1.717 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2012 Plans:***<br>Initiate test and evaluation of CALS Subsystem (Modules).<br>***FY 2013 Plans:***<br>Complete test and evaluation of CALS Subsystem (Modules). | | | |
| ***Title:*** 8) SBIR | - | 0.187 | - |
| ***FY 2012 Plans:***<br>Small Business Innovative Research. | | | |
| **Accomplishments/Planned Programs Subtotals** | 10.531 | 14.117 | 3.003 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CM5: *HOMELAND DEFENSE (SDD)* | 0.000 | 9.109 | 9.952 | | 9.952 | 7.425 | 3.606 | 1.981 | 1.981 | Continuing | Continuing |
| • JS0004: *WMD - CIVIL SUPPORT TEAMS (WMD CST)* | 39.166 | 15.900 | 24.025 | | 24.025 | 13.237 | 11.657 | 5.069 | 5.069 | Continuing | Continuing |
| • JS0005: *COMMON ANALYTICAL LABORATORY SYSTEM (CALS)* | 0.000 | 0.000 | 0.000 | | 0.000 | 14.957 | 34.991 | 59.411 | 64.946 | 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 Joint Program Executive Office for Chemical Biological Defense (JPEO-CBD) to the extent possible. CALS will accommodate these component requirements within a modular and scalable concept framework.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CALS - HW SB - CALS Subsystem Down Selection | C/CPIF | TBD: | 0.300 | 0.150 | Feb 2012 | - | | - | | - | 0.000 | 0.450 | 0.000 |
| HW SB - CALS Subsystem Down Selection | MIPR | TBD: | 0.229 | 0.350 | Feb 2012 | - | | - | | - | 0.000 | 0.579 | 0.000 |
| HW S - CALS Module Design | C/CPFF | TBD: | 2.615 | 0.491 | Feb 2012 | - | | - | | - | 0.000 | 3.106 | 0.000 |
| HW S - CALS Module Design #2 | MIPR | TBD: | - | 0.216 | Feb 2012 | - | | - | | - | 0.000 | 0.216 | 0.000 |
| HW S - CALS Prototype Systems | C/CPFF | TBD: | - | 2.009 | Feb 2012 | 0.399 | Nov 2012 | - | | 0.399 | 0.000 | 2.408 | 0.000 |
| | | **Subtotal** | 3.144 | 3.216 | | 0.399 | | - | | 0.399 | 0.000 | 6.759 | 0.000 |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CALS - ES S - Engineering Support System - CALS | MIPR | Edgewood Chemical and Biological Center:Edgewood, MD | 1.780 | 0.699 | Feb 2012 | 0.237 | Feb 2013 | - | | 0.237 | 0.000 | 2.716 | 0.000 |
| ES S - Modeling and Simulation Support | MIPR | Edgewood Chemical and Biological Center:Edgewood, MD | 0.431 | 0.355 | Feb 2012 | - | | - | | - | 0.000 | 0.786 | 0.000 |
| ILS C - Retooling and Preparation for Module Manufacture | C/CPFF | TBD: | 1.271 | 0.978 | Feb 2012 | - | | - | | - | 0.000 | 2.249 | 0.000 |
| | | **Subtotal** | 3.482 | 2.032 | | 0.237 | | - | | 0.237 | 0.000 | 5.751 | 0.000 |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CALS - OTHT C - Analytical Detection Component Testing | C/CPIF | TBD: | 3.000 | 5.250 | Feb 2012 | - | | - | | - | 0.000 | 8.250 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OTHT C - Analytical Detection Component Testing | MIPR | TBD: | 0.660 | 0.220 | Feb 2012 | - | | - | | - | 0.000 | 0.880 | 0.000 |
| DTE SB - CALS Module Test and Evaluation | MIPR | TBD: | - | 0.784 | May 2012 | 1.717 | Nov 2012 | - | | 1.717 | 0.000 | 2.501 | 0.000 |
| | | **Subtotal** | 3.660 | 6.254 | | 1.717 | | - | | 1.717 | 0.000 | 11.631 | 0.000 |

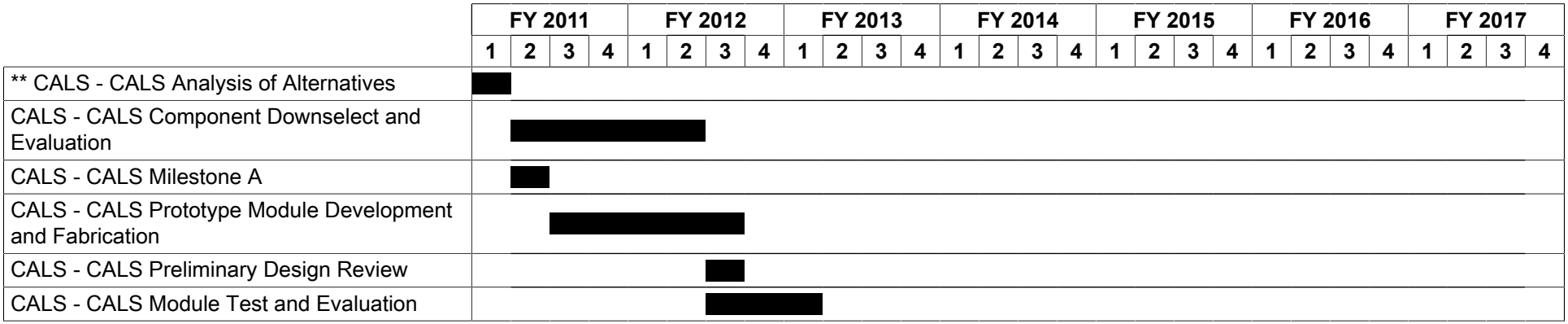
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CALS - PM/MS S - Program Office - Planning and Programming | MIPR | Various: | 4.532 | 1.351 | Feb 2012 | 0.338 | Nov 2012 | - | | 0.338 | 0.000 | 6.221 | 0.000 |
| PM/MS SB - Module Production Engr and Planning | C/CPFF | Various: | 0.249 | 1.077 | Feb 2012 | 0.312 | Nov 2012 | - | | 0.312 | 0.000 | 1.638 | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 0.187 | | - | | - | | - | 0.000 | 0.187 | 0.000 |
| | | **Subtotal** | 4.781 | 2.615 | | 0.650 | | - | | 0.650 | 0.000 | 8.046 | 0.000 |

| | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 15.067 | 14.117 | | 3.003 | | - | | 3.003 | 0.000 | 32.187 | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** CALS - CALS Analysis of Alternatives | 1 | 2011 | 1 | 2011 |
| CALS - CALS Component Downselect and Evaluation | 2 | 2011 | 2 | 2012 |
| CALS - CALS Milestone A | 2 | 2011 | 2 | 2011 |
| CALS - CALS Prototype Module Development and Fabrication | 3 | 2011 | 3 | 2012 |
| CALS - CALS Preliminary Design Review | 3 | 2012 | 3 | 2012 |
| CALS - CALS Module Test and Evaluation | 3 | 2012 | 1 | 2013 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DE4: *DECONTAMINATION SYSTEMS (ACD&P)* | 6.933 | 24.749 | 12.374 | - | 12.374 | 10.247 | 9.779 | 12.751 | 6.083 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

This ACD&P project supports the development of contamination mitigation systems utilizing solutions that will remove and/or detoxify contaminated material without damaging combat equipment, personnel, or the environment. Contamination mitigation 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 associated with decontamination and contamination mitigation operations.

This funding supports the Decontamination Family of Systems (DFoS) in FY13.

The Decontamination Family of Systems (DFoS) program facilitates the rapid transition of mature Science and Technology (S&T) research developments to existing Decontamination or Contamination Mitigation Initial Capabilities Document (ICD) Programs of Record and guides S&T community efforts toward meeting the needs of the Warfighter. Leveraging the outcome of the Materiel Development Decision (3QFY11) 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 interiors/exteriors, terrain, and fixed facilities. DFoS has three initial efforts established to address some of the requirements of the Contamination Mitigation ICD: the Joint Sensitive Equipment Wipe (JSEW), the General Purpose Decontaminant (GPD) and the Contamination Indication/Decontamination Assurance System (CIDAS) programs.

The JSEW effort will provide immediate/operational decontamination capabilities for sensitive equipment in hostile and non-hostile environments that have been exposed to chemical agents/contamination. The JSEW will decrease the level of gross chemical agent contamination from 10 g/m2 to less than or equal to 1 g/m2 in support of thorough decontamination on sensitive equipment.

The GPD effort will provide thorough decontamination capabilities for tactical vehicles, shipboard surfaces, crew-served weapons, and individual/personal weapons in hostile and non-hostile environments that have been exposed to chemical and biological (CB) agents/contamination. In addition, the GPD program should also provide an immediate/operational decontamination capability for aircraft exterior against chemical contamination.

The CIDAS effort will provide a contamination indication/decontamination assurance technology and an applicator for use on tactical vehicles, shipboard surfaces, crew-served and individual weapons in hostile and non-hostile environments that have been exposed to chemical contamination.

Additionally, the DFoS Program funds the Contaminated Human Remains Pouch (CHRP) effort in FY12 which will provide a capability to protect personnel handling and processing human remains contaminated with Chemical, Biological, Radiological, or Nuclear contamination. CHRP transitions to its own funding line in FY13.

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 Joint Platform Interior Decontamination (JPID) program will provide decontamination capabilities for interiors of vehicles, ships, fixed site facilities, mobile maintenance facilities, aircraft and sensitive equipment inherent to the platform during air, ground and sea operations in hostile and non-hostile environments that have been exposed to chemical, biological, radiological and nuclear (CBRN) agents/contamination. To accommodate the array of Service mission sets, the potential for varying system and/or technology configurations may be required. The JPID Preferred System Concept (PSC) may consist of multiple solution sets that provide increments of capability or one solution to address the various platforms and threats identified under the program. No funding beyond FY12.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) DFoS - NTA | 6.933 | 7.785 | 3.500 |
| ***FY 2011 Accomplishments:***<br>Initiated engineering, testing and logistics planning and documentation to support non-traditional agent (NTA) test and evaluation (efficacy, materials compatibility, live agent tests) efforts for decontamination assurance spray, chemical decontaminant, decontamination wipes and effluent control in support of 20th Support Command. | | | |
| ***FY 2012 Plans:***<br>Conduct development of non-traditional agent (NTA) efforts to include initial studies and modeling for effluent decontamination and strippable/sealant coatings; conduct sensitivity efficacy for the decontamination assurance spray; conduct chemical efficacy and material compatibility for chemical decontaminants; evaluation of decontamination wipes for NTA decontamination on equipment. | | | |
| ***FY 2013 Plans:***<br>Continue NTA efforts to include material compatibility testing, environmental testing and accelerated aging for decontamination assurance spray, chemical decontaminant, decontamination wipes, effluent decontamination and strippable/sealant coatings. | | | |
| ***Title:*** 2) DFoS - CIDAS | - | 0.861 | 1.819 |
| ***FY 2012 Plans:***<br>Initiate engineering, testing and logistics planning and contract documentation to support technology development of Contamination Indicator Decontamination Assurance System (CIDAS). | | | |
| ***FY 2013 Plans:***<br>Begin developmental testing for the Contamination Indicator Decontamination Assurance System (CIDAS) program to include indication level, material compatibility and Environmental Safety Occupational Health (ESOH). | | | |
| ***Title:*** 3) DFoS - CIDAS | - | - | 0.504 |
| ***FY 2013 Plans:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Award contract(s) to purchase 1,920 gallons of Contamination Indicator/Decontamination Assurance Technology (at $200 per gallon) and 12 Contamination Indication/Decontamination Assurance Technology Applicators (at $10K each) for Competitive Prototype Testing. | | | |
| ***Title:*** 4) DFoS - JSEW<br>***FY 2012 Plans:***<br>Begin developmental testing for the Joint Sensitive Equipment Wipe (JSEW) program to include chemical efficacy, material compatibility, equipment degradation, durability and by-products analysis and Environmental Safety Occupational Health (ESOH).<br>***FY 2013 Plans:***<br>Continue developmental testing for the Joint Sensitive Equipment Wipe (JSEW) program to include efficacy (hot/cold/relative humidity), accelerated shelf life, Individual Protective Equipment (IPE) compatibility, detector compatibility and human factors assessment. | - | 2.636 | 2.329 |
| ***Title:*** 5) DFoS - JSEW<br>***FY 2012 Plans:***<br>Award contract(s) to deliver 1,770 prototype JSEW systems (at $17 each) for Competitive Prototype Testing.<br>***FY 2013 Plans:***<br>Purchase 2,600 prototype JSEW systems (at $17 each) for Competitive Prototype Testing and develop programmatic documentation. | - | 0.230 | 0.450 |
| ***Title:*** 6) DFoS - GPD<br>***FY 2012 Plans:***<br>Begin developmental testing for the General Purpose Decontaminant (GPD) program to include kinetics by products, material compatibility, thorough efficacy, immediate/operational efficacy, accelerated aging and Environmental Safety Occupational Health (ESOH).<br>***FY 2013 Plans:***<br>Continue developmental testing for the General Purpose Decontaminant (GPD) program to include high/low temperature kinetics, pot life, efficacy (complex surfaces), accelerated shelf life, Individual Protective Equipment (IPE) and detector compatibility. | - | 4.692 | 3.302 |
| ***Title:*** 7) DFoS - GPD<br>***FY 2012 Plans:***<br>Award contract(s) to purchase 12,800 gallons of prototype GPD(s) (at $35 per gallon) for Competitive Prototype Testing.<br>***FY 2013 Plans:*** | - | 0.450 | 0.470 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Purchase 13,280 gallons of prototype GPD(s) (at $35 per gallon) for Competitive Prototype Testing and develop programmatic documentation. | | | |
| ***Title:*** 8) DFoS - CHRP<br>***FY 2012 Plans:***<br>Award contract(s) to procure 125 CHRP prototypes (at $2K each) for Competitive Prototype Testing. | - | 0.250 | - |
| ***Title:*** 9) DFoS - CHRP<br>***FY 2012 Plans:***<br>Initiate Competitive Prototype Testing to include liquid and vapor live agent swatch, system permeation, durability, material compatibility, environmental effects testing and early user assessment of the Contaminated Human Remains Pouch (CHRP). | - | 1.052 | - |
| ***Title:*** 10) JPID<br>***FY 2012 Plans:***<br>Complete Hot Air Dry (HAD) and Bio-Thermal Decon (BTD) efficacy testing to support JPEO-CBD Joint Strike Fighter (JSF) Memorandum of Agreement (MOA) and JSF Live Fire Test and Evaluation (LFT&E). | - | 4.089 | - |
| ***Title:*** 11) JPID<br>***FY 2012 Plans:***<br>Closeout ECBC Large Scale Storage and Operations Area (LSSOA) test article effort and program management. | - | 2.377 | - |
| ***Title:*** 12) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.327 | - |
| **Accomplishments/Planned Programs Subtotals** | 6.933 | 24.749 | 12.374 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • DE5: *DECONTAMINATION SYSTEMS (SDD)* | 7.594 | 0.000 | 9.324 | | 9.324 | 8.652 | 10.938 | 9.129 | 9.466 | Continuing | Continuing |
| • JD0050: *DECONTAMINATION FAMILY OF SYSTEMS (DFoS)* | 0.000 | 0.000 | 0.506 | | 0.506 | 2.127 | 4.612 | 17.401 | 24.198 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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)* |

**D. Acquisition Strategy**

DFoS

The Decontamination Family of Systems (DFoS) will utilize an incremental acquisition strategy to transition various developmental technology efforts (COTS, Joint Science Technology Office (JSTO), Defense Threat Reduction Agency (DTRA) efforts, etc.) to meet high priority Warfighter capability gaps. DFoS will support Major Defense Acquisition Programs (MDAPs) and Programs of Record by guiding S&T efforts and transitioning mature technologies to meet program requirements. The DFoS acquisition will leverage differing technologies in each subsystem to fulfill Warfighter capability gaps. The JSEW, GPD, & CIDAS Programs will employ a CP effort to facilitate the identification and evaluation of technologies (at a minimum Technology Readiness Level (TRL) 4) that can meet the Contamination Mitigation ICD requirements. 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 and government labs will be solicited and through competitive prototyping, materiel solutions will be down-selected for continued development and fielding as a new or enhanced joint force capability.

The CHRP effort will leverage Commercial-off-the shelf (COTS)/Non-developmental Item (NDI) technologies that will lead to a fielded capability to fulfill gaps as described in the ICD.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** DFoS - HW S - UNS NTA Decon Assurance Spray | C/FFP | TBD: | - | 0.300 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| HW S - UNS NTA Chemical Decon/Decon Wipes | C/CPFF | TDA Research Inc.:Wheat Ridge, CO | 0.373 | 0.300 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| HW S - UNS Effluent Decon for NTA Contaminated Run-off | C/FFP | TBD: | - | 0.300 | Feb 2012 | 0.200 | Feb 2013 | - | | 0.200 | Continuing | Continuing | 0.000 |
| HW S - UNS NTA Strippable/ Sealant Coatings | C/FFP | TBD: | - | 0.600 | Feb 2012 | 0.200 | Feb 2013 | - | | 0.200 | Continuing | Continuing | 0.000 |
| HW S - Contamination Indicator/Decon Assurance System (CIDAS) | C/FFP | Various: | - | - | | 0.504 | Feb 2013 | - | | 0.504 | Continuing | Continuing | 0.000 |
| HW S - General Purpose Decon (GPD) | C/FFP | Various: | - | 0.450 | May 2012 | 0.470 | Nov 2012 | - | | 0.470 | Continuing | Continuing | 0.000 |
| HW S - Joint Sensitive Equipment Wipes (JSEW) | C/FFP | Various: | - | 0.230 | Feb 2012 | 0.450 | Feb 2013 | - | | 0.450 | Continuing | Continuing | 0.000 |
| HW S - Contaminated Human Remains Pouch (CHRP) | C/FFP | Various: | - | 0.250 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 0.373 | 2.430 | | 1.824 | | - | | 1.824 | | | 0.000 |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** DFoS - ES S - DFOS IPT Technical Support | MIPR | Various: | 0.388 | 1.000 | Feb 2012 | 1.000 | Feb 2013 | - | | 1.000 | Continuing | Continuing | 0.000 |
| ES S - CHRP IPT Technical Support | MIPR | Various: | - | 0.150 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 0.388 | 1.150 | | 1.000 | | - | | 1.000 | | | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** DFoS - DTE S - UNS NTA Decon Assurance Spray | C/CPFF | Battelle:Columbus, OH | 1.124 | 2.000 | Feb 2012 | 0.500 | Feb 2013 | - | | 0.500 | Continuing | Continuing | 0.000 |
| DTE S - UNS NTA Chemical Decon | C/CPFF | Battelle:Columbus, OH | 2.035 | 1.200 | Feb 2012 | 0.800 | Feb 2013 | - | | 0.800 | Continuing | Continuing | 0.000 |
| DTE S - UNS NTA Effluent Decon for NTA Contaminated Run-off | MIPR | TBD: | 0.300 | 1.000 | May 2012 | 0.800 | May 2013 | - | | 0.800 | Continuing | Continuing | 0.000 |
| DTE S - UNS NTA Strippable / Sealant Coatings | MIPR | TBD: | - | 1.000 | Feb 2012 | 0.500 | Nov 2012 | - | | 0.500 | Continuing | Continuing | 0.000 |
| DTE S - General Purpose Decon (GPD) | MIPR | TBD: | - | 3.000 | Feb 2012 | 1.906 | Nov 2012 | - | | 1.906 | Continuing | Continuing | 0.000 |
| DTE S - Joint Sensitive Equipment Wipes (JSEW) | MIPR | TBD: | - | 1.412 | Feb 2012 | 1.048 | Nov 2012 | - | | 1.048 | Continuing | Continuing | 0.000 |
| OTHT SB - Contamination Indication/Decontamination Assurance System (CIDAS) | MIPR | TBD: | - | - | | 0.838 | Nov 2012 | - | | 0.838 | Continuing | Continuing | 0.000 |
| DTE S - CHRP | MIPR | TBD: | - | 0.909 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** JPID - DTE S - JSF HAD and BTD Efficacy testing | MIPR | Various: | - | 4.089 | May 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 3.459 | 14.610 | | 6.392 | | - | | 6.392 | | | 0.000 |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** DFoS - PM/MS S - DFoS Program Management Support, Integrated Product Team and Technical Support | MIPR | Various: | 1.288 | 3.855 | Feb 2012 | 3.158 | Feb 2013 | - | | 3.158 | Continuing | Continuing | 0.000 |
| ** JPID - PM/MS S - Program Management Support, Integrated Product Team and | MIPR | Various: | 0.179 | 2.377 | Nov 2011 | - | | - | | - | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

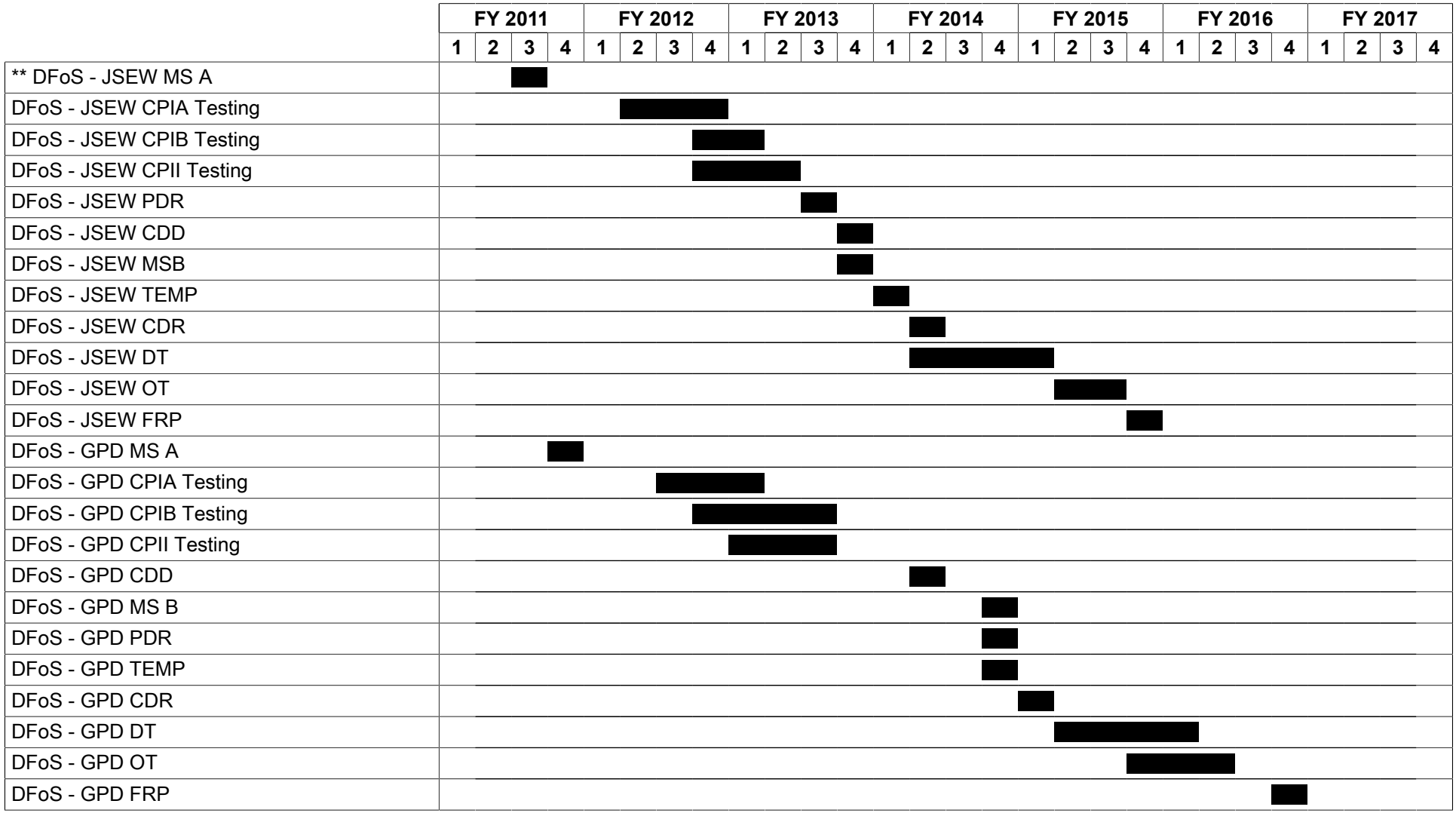
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Technical Support and close-out LSSDA test article effort. | | | | | | | | | | | | | |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 0.327 | | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 1.467 | 6.559 | | 3.158 | | - | | 3.158 | | | 0.000 |

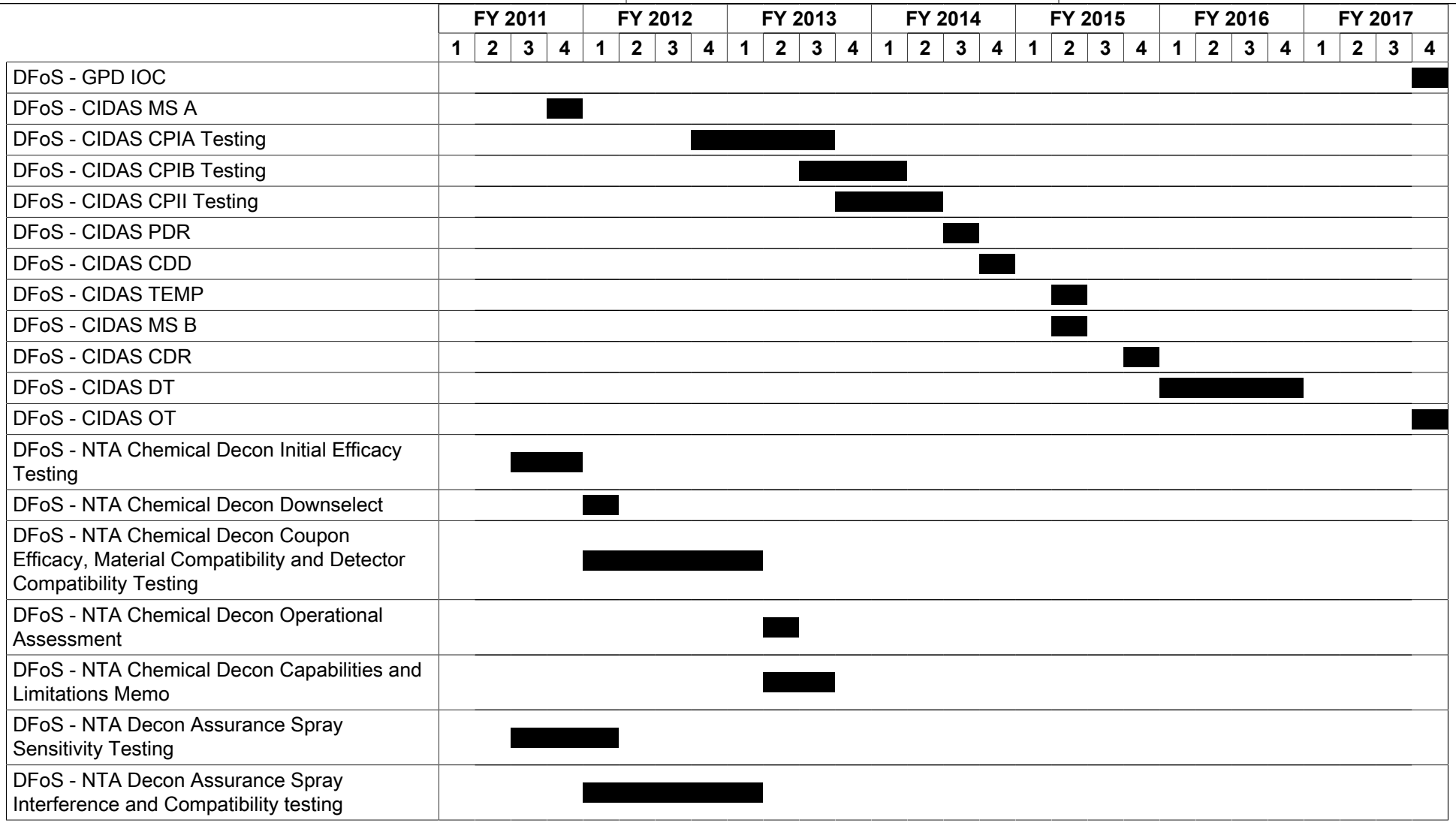
| | Total Prior Years Cost | FY 2012 | | FY 2013 Base | | FY 2013 OCO | | FY 2013 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 5.687 | 24.749 | | 12.374 | | - | | 12.374 | | | 0.000 |

**Remarks**

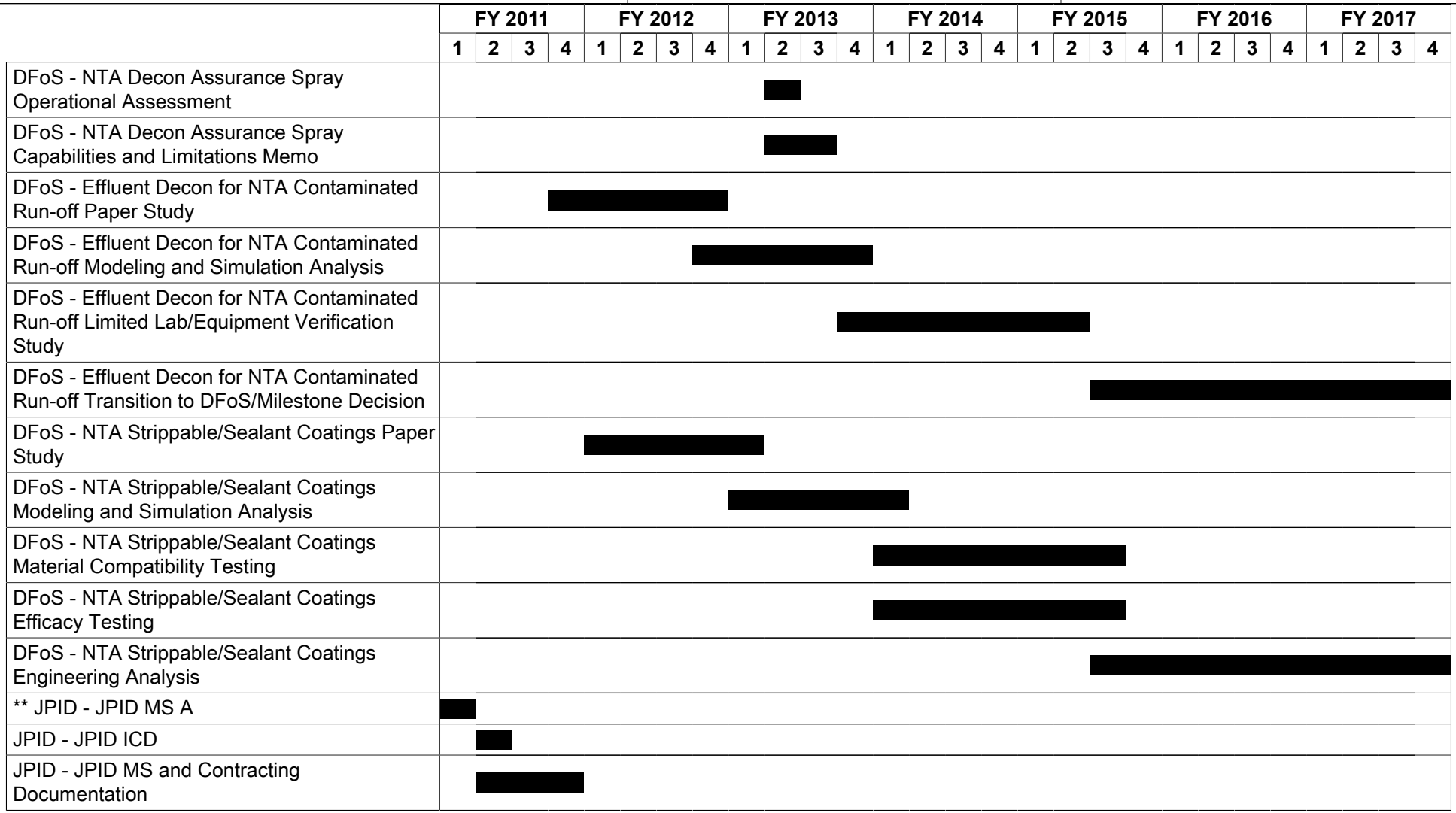
| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 4: *Advanced Component Development & Prototypes (ACD&P)* | R-1 ITEM NOMENCLATURE<br>PE 0603884BP: *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | PROJECT<br>DE4: *DECONTAMINATION SYSTEMS (ACD&P)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** DFoS - JSEW MS A | 3 | 2011 | 3 | 2011 |
| DFoS - JSEW CPIA Testing | 2 | 2012 | 4 | 2012 |
| DFoS - JSEW CPIB Testing | 4 | 2012 | 1 | 2013 |
| DFoS - JSEW CPII Testing | 4 | 2012 | 2 | 2013 |
| DFoS - JSEW PDR | 3 | 2013 | 3 | 2013 |
| DFoS - JSEW CDD | 4 | 2013 | 4 | 2013 |
| DFoS - JSEW MSB | 4 | 2013 | 4 | 2013 |
| DFoS - JSEW TEMP | 1 | 2014 | 1 | 2014 |
| DFoS - JSEW CDR | 2 | 2014 | 2 | 2014 |
| DFoS - JSEW DT | 2 | 2014 | 1 | 2015 |
| DFoS - JSEW OT | 2 | 2015 | 3 | 2015 |
| DFoS - JSEW FRP | 4 | 2015 | 4 | 2015 |
| DFoS - GPD MS A | 4 | 2011 | 4 | 2011 |
| DFoS - GPD CPIA Testing | 3 | 2012 | 1 | 2013 |
| DFoS - GPD CPIB Testing | 4 | 2012 | 3 | 2013 |
| DFoS - GPD CPII Testing | 1 | 2013 | 3 | 2013 |
| DFoS - GPD CDD | 2 | 2014 | 2 | 2014 |
| DFoS - GPD MS B | 4 | 2014 | 4 | 2014 |
| DFoS - GPD PDR | 4 | 2014 | 4 | 2014 |
| DFoS - GPD TEMP | 4 | 2014 | 4 | 2014 |
| DFoS - GPD CDR | 1 | 2015 | 1 | 2015 |
| DFoS - GPD DT | 2 | 2015 | 1 | 2016 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| DFoS - GPD OT | 4 | 2015 | 2 | 2016 |
| DFoS - GPD FRP | 4 | 2016 | 4 | 2016 |
| DFoS - GPD IOC | 4 | 2017 | 4 | 2017 |
| DFoS - CIDAS MS A | 4 | 2011 | 4 | 2011 |
| DFoS - CIDAS CPIA Testing | 4 | 2012 | 3 | 2013 |
| DFoS - CIDAS CPIB Testing | 3 | 2013 | 1 | 2014 |
| DFoS - CIDAS CPII Testing | 4 | 2013 | 2 | 2014 |
| DFoS - CIDAS PDR | 3 | 2014 | 3 | 2014 |
| DFoS - CIDAS CDD | 4 | 2014 | 4 | 2014 |
| DFoS - CIDAS TEMP | 2 | 2015 | 2 | 2015 |
| DFoS - CIDAS MS B | 2 | 2015 | 2 | 2015 |
| DFoS - CIDAS CDR | 4 | 2015 | 4 | 2015 |
| DFoS - CIDAS DT | 1 | 2016 | 4 | 2016 |
| DFoS - CIDAS OT | 4 | 2017 | 4 | 2017 |
| DFoS - NTA Chemical Decon Initial Efficacy Testing | 3 | 2011 | 4 | 2011 |
| DFoS - NTA Chemical Decon Downselect | 1 | 2012 | 1 | 2012 |
| DFoS - NTA Chemical Decon Coupon Efficacy, Material Compatibility and Detector Compatibility Testing | 1 | 2012 | 1 | 2013 |
| DFoS - NTA Chemical Decon Operational Assessment | 2 | 2013 | 2 | 2013 |
| DFoS - NTA Chemical Decon Capabilities and Limitations Memo | 2 | 2013 | 3 | 2013 |
| DFoS - NTA Decon Assurance Spray Sensitivity Testing | 3 | 2011 | 1 | 2012 |
| DFoS - NTA Decon Assurance Spray Interference and Compatibility testing | 1 | 2012 | 1 | 2013 |
| DFoS - NTA Decon Assurance Spray Operational Assessment | 2 | 2013 | 2 | 2013 |
| DFoS - NTA Decon Assurance Spray Capabilities and Limitations Memo | 2 | 2013 | 3 | 2013 |
| DFoS - Effluent Decon for NTA Contaminated Run-off Paper Study | 4 | 2011 | 4 | 2012 |
| DFoS - Effluent Decon for NTA Contaminated Run-off Modeling and Simulation Analysis | 4 | 2012 | 4 | 2013 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| DFoS - Effluent Decon for NTA Contaminated Run-off Limited Lab/Equipment Verification Study | 4 | 2013 | 2 | 2015 |
| DFoS - Effluent Decon for NTA Contaminated Run-off Transition to DFoS/Milestone Decision | 3 | 2015 | 4 | 2017 |
| DFoS - NTA Strippable/Sealant Coatings Paper Study | 1 | 2012 | 1 | 2013 |
| DFoS - NTA Strippable/Sealant Coatings Modeling and Simulation Analysis | 1 | 2013 | 1 | 2014 |
| DFoS - NTA Strippable/Sealant Coatings Material Compatibility Testing | 1 | 2014 | 3 | 2015 |
| DFoS - NTA Strippable/Sealant Coatings Efficacy Testing | 1 | 2014 | 3 | 2015 |
| DFoS - NTA Strippable/Sealant Coatings Engineering Analysis | 3 | 2015 | 4 | 2017 |
| ** JPID - JPID MS A | 1 | 2011 | 1 | 2011 |
| JPID - JPID ICD | 2 | 2011 | 2 | 2011 |
| JPID - JPID MS and Contracting Documentation | 2 | 2011 | 4 | 2011 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IP4: *INDIVIDUAL PROTECTION (ACD&P)* | 2.200 | - | 1.102 | - | 1.102 | 3.708 | 6.811 | 4.680 | 0.300 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

This project supports the ACD&P of the Joint Service General Purpose Mask (JSGPM) Advanced Respiratory Protection Initiative (ARPI), an improved filtration and protection capability against highest priority Toxic Industrial Chemical (TIC) threats. It addresses a current and significant capability gap to the operating force. The effort is supported by the Capabilities Production Document for the JSGPM, which outlines the need for a robust TIC/TIM protection capability. It is expected that new capabilities demonstrated through the activities in this project will be leveraged and integrated into future increments of UIPE. This Project also supports the Lightweight Chemical Biological Ensemble (LCBE) (renamed the Uniform Integrated Protection Ensemble (UIPE)), 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) JSGPM (ARPI)<br>***FY 2013 Plans:***<br>Verification of technologies data transition of component base filter media from Tech Base. Verification of Toxic Industrial Chemicals (TIC) criteria and test methodology. Testing of performance specifications. | - | - | 1.102 |
| ***Title:*** 2) LCBE (UIPE)<br>***FY 2011 Accomplishments:***<br>LCBE (UIPE) - Prepared and released Request for Proposal (RFP). Initiated development evaluation testing on prototypes to assess performance envelope with respect to reduction of thermal burden and ability to enhance warfighter performance. Performed physical properties testing, chemical agent testing, human physiological testing, and human factors evaluations. Conducted Source Selection, Technology Readiness Assessment (TRA), and Manufacturing Readiness Assessment (MRA). | 2.200 | - | - |
| **Accomplishments/Planned Programs Subtotals** | 2.200 | - | 1.102 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • IP5: *INDIVIDUAL PROTECTION (SDD)* | 20.862 | 11.490 | 13.971 | | 13.971 | 17.046 | 1.603 | 1.990 | 6.370 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JI0003: *JOINT SERVICE GENERAL PURPOSE MASK (JSGPM/JSCESM)* | 51.265 | 58.523 | 48.466 | | 48.466 | 46.657 | 99.151 | 70.882 | 123.496 | Continuing | Continuing |

**D. Acquisition Strategy**

JSGPM

JSGPM (ARPI): The Advanced Respiratory Protection Initiative (ARPI) will address improved masks protection, filter protection against TICs/TIMs and improved profile and breathing resistance; and wearability compatibility/integration. This will be accomplished by: 1) Class-Based Analysis, 2) Filtration Advanced Screening Test (FAST), Desorption Study; and Advanced CBRN Filtration efforts. Accomplishments to date include development of the prioritization approach and class based analysis; development of challenge levels for performance curve through modeling; FAST of ASZM-TDA, BSC, and EUMC against the priority TIC LIST; test of representative chemicals demonstrating the applicability of the class based analysis, and Scientific literature review of filter desorption.

LCBE

The LCBE program has been renamed as the Uniform Integrated Protection Ensemble (UIPE) program.

Strategy based on incremental development in accordance with prescribed Chemical Biological Radiological Nuclear Defense Joint Requirements Office (CBRND-JRO) approved capabilities documents. The objective of the UIPE is to fully integrate chemical, biological, radiological, nuclear (CBRN) and toxic industrial material (TIM) protection into an ensemble, identical in fit and form to the combat uniform (including mask - helmet integration, protective boots and gloves), thus negating the need for separate protective ensemble components. This integrated protection approach will result in increased warfighter operational performance in a CBRN environment.

UIPE is aimed specifically at providing enhanced individual protection capabilities to the warfighter through reduction of physiological and psychological effects associated with CBRN protective garment thermal burden, weight, and bulk. UIPE will pursue a Modified Commercial-Off-The-Shelf/Non-Developmental Item (COTS/NDI) Acquisition Strategy; full and open competition will be used. During the Technology Development (TD) phase UIPE will issue a Request for Proposal (RFP), conduct competitive prototyping, and down-select industry candidates demonstrating the greatest ability to meet UIPE requirements. Following Milestone (MS) B approval contracts will be awarded and integrated Developmental Test/Operational Test (DT/OT) will be initiated on selected candidate system(s). UIPE is supported by an Initial Capability Document (ICD), a Capability Development Document (CDD), and a MS A. UIPE will ultimately provide CB protective equipment with improved operational capability to the U.S. Navy and U.S. Special Operations Command.

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

Future increments of UIPE shall be defined via separate capabilities documents. Each successive increment will follow a similar path/process from MS A or MS B through MS C 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 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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)* | |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JSGPM - HW C - Filters | MIPR | ECBC:APG, MD | - | - | | 0.100 | Feb 2013 | - | | 0.100 | Continuing | Continuing | 0.000 |
| | | Subtotal | - | - | | 0.100 | | - | | 0.100 | | | 0.000 |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JSGPM - ES C - Filters | MIPR | ECBC:APG, MD | - | - | | 0.100 | Feb 2013 | - | | 0.100 | Continuing | Continuing | 0.000 |
| | | Subtotal | - | - | | 0.100 | | - | | 0.100 | | | 0.000 |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JSGPM - DTE C - Filters | MIPR | ECBC:APG, MD | - | - | | 0.514 | Feb 2013 | - | | 0.514 | Continuing | Continuing | 0.000 |
| | | Subtotal | - | - | | 0.514 | | - | | 0.514 | | | 0.000 |

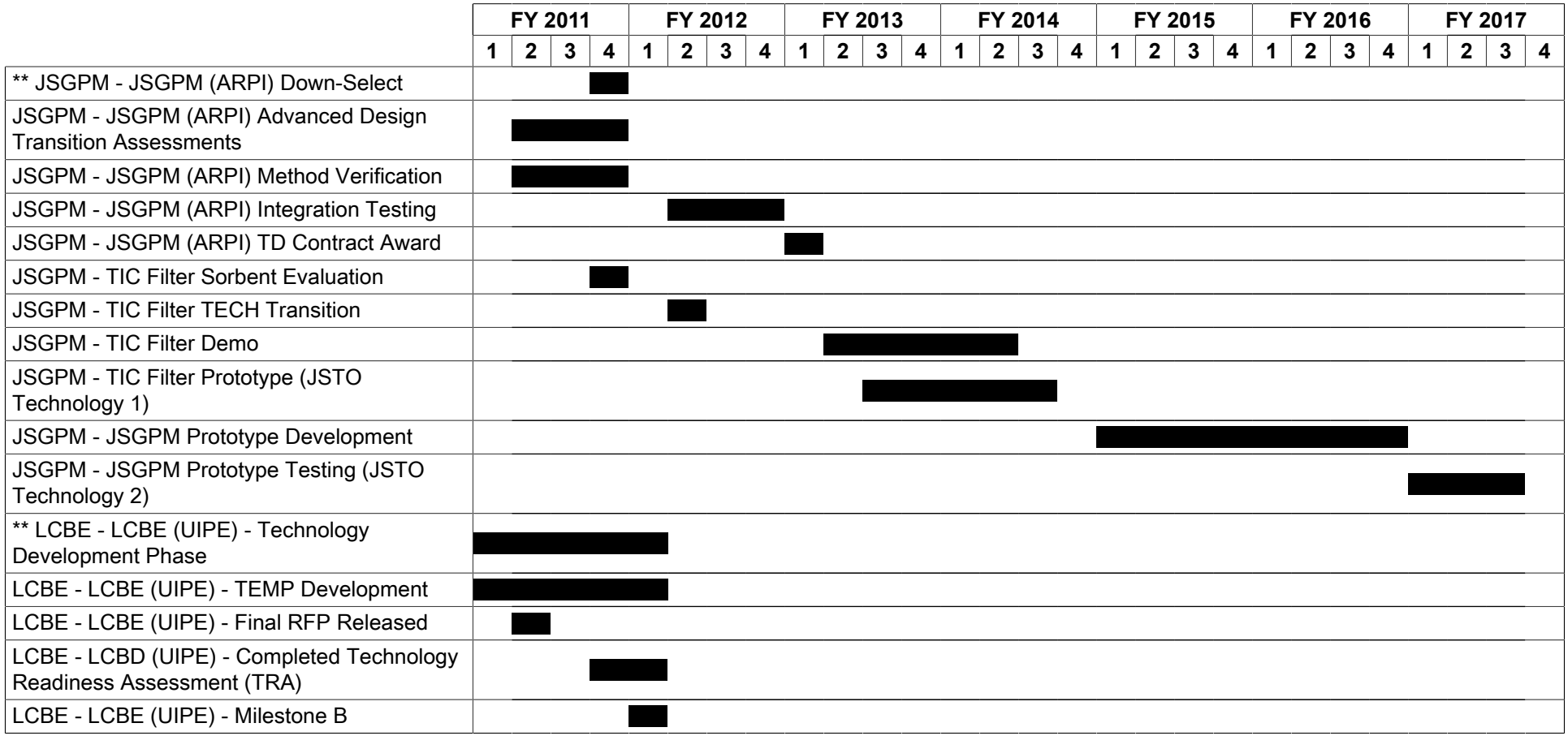
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JSGPM - PM/MS C - Filters | MIPR | Various: | - | - | | 0.388 | Feb 2013 | - | | 0.388 | Continuing | Continuing | 0.000 |
| | | Subtotal | - | - | | 0.388 | | - | | 0.388 | | | 0.000 |

| | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | - | - | | 1.102 | | - | | 1.102 | | | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** JSGPM - JSGPM (ARPI) Down-Select | 4 | 2011 | 4 | 2011 |
| JSGPM - JSGPM (ARPI) Advanced Design Transition Assessments | 2 | 2011 | 4 | 2011 |
| JSGPM - JSGPM (ARPI) Method Verification | 2 | 2011 | 4 | 2011 |
| JSGPM - JSGPM (ARPI) Integration Testing | 2 | 2012 | 4 | 2012 |
| JSGPM - JSGPM (ARPI) TD Contract Award | 1 | 2013 | 1 | 2013 |
| JSGPM - TIC Filter Sorbent Evaluation | 4 | 2011 | 4 | 2011 |
| JSGPM - TIC Filter TECH Transition | 2 | 2012 | 2 | 2012 |
| JSGPM - TIC Filter Demo | 2 | 2013 | 2 | 2014 |
| JSGPM - TIC Filter Prototype (JSTO Technology 1) | 3 | 2013 | 3 | 2014 |
| JSGPM - JSGPM Prototype Development | 1 | 2015 | 4 | 2016 |
| JSGPM - JSGPM Prototype Testing (JSTO Technology 2) | 1 | 2017 | 3 | 2017 |
| ** LCBE - LCBE (UIPE) - Technology Development Phase | 1 | 2011 | 1 | 2012 |
| LCBE - LCBE (UIPE) - TEMP Development | 1 | 2011 | 1 | 2012 |
| LCBE - LCBE (UIPE) - Final RFP Released | 2 | 2011 | 2 | 2011 |
| LCBE - LCBD (UIPE) - Completed Technology Readiness Assessment (TRA) | 4 | 2011 | 1 | 2012 |
| LCBE - LCBE (UIPE) - Milestone B | 1 | 2012 | 1 | 2012 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IS4: *INFORMATION SYSTEMS (ACD&P)* | 11.032 | 7.420 | 13.831 | - | 13.831 | 5.672 | 10.496 | 0.260 | - | 0.000 | 48.711 |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

This Project provides for Advanced Component Development and Prototypes (ACD&P). Specifically it supports the Joint Effects Model (JEM) Program and the Joint Warning and Reporting Network (JWARN) Program.

The Joint Effects Model (JEM) is DoD's only accredited model for predicting hazards associated with the release of contaminants into the environment. JEM is a software-only, ACAT III program that 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; high altitude releases, incident source prediction to include NTA events, urban CBRN/Toxic Industrial Hazard environments, human inhalation, contagious/infectious disease, population movements, efficacy of medical countermeasures, industrial transport; building interiors, and human performance degradation. Battlespace 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 interfaces and communicates with the other programs such as JWARN, weather systems, intelligence systems, and various databases.

The Joint Warning and Reporting Network (JWARN) will provide the Joint Forces with a comprehensive Integrated Early Warning, 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 CBRN warning technology which will collect, analyze, identify, locate, report, and disseminate warnings. JWARN will be compatible and integrated with Joint Service C4ISR Systems. JWARN will transition from platform specific Common Operating Environment (COE) standards to a Web-based Service Oriented Architecture (SOA). JWARN will also 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. 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 and 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 JWARN capability described above will be developed utilizing an incremental approach based on Service requirements and host system architecture.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) JEM Increment 2 | 0.689 | - | - |
| ***Description:*** Analysis of Alternatives Support | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2011 Accomplishments:***<br>Provided Chemical, Biological, Radiological and Nuclear subject matter experts to support the Analysis of Alternatives (AoA) on the next required increment of JEM capability. | | | |
| ***Title:*** 2) JEM Increment 2<br>***Description:*** Prototyping<br>***FY 2011 Accomplishments:***<br>Initiated and completed prototyping of components for the next increment of JEM capability - modeling to support biological surveillance, medical incidents, urban modeling, source term estimation, population migration, and littoral/coastal zone weather.<br>***FY 2013 Plans:***<br>Award competitive prototyping contracts for development and integration of JEM Increment 2 capabilities. | 4.863 | - | 4.301 |
| ***Title:*** 3) JEM Increment 2<br>***Description:*** Test & Evaluation (T&E)<br>***FY 2011 Accomplishments:***<br>Continued the development and staffing of the TES. Initiated development testing, analysis and provide input on source selection on competitive prototypes. Supported Technology Readiness Assessments of software transitioned from Science and Technology providers. Developed Test & Evaluation Master Plan (TEMP) for the next increment of capability of JEM. Supported Capabilities Development Document (CDD) generation.<br>***FY 2013 Plans:***<br>Initiate governmental development testing in support of competitive prototypes. Prepare Test & Evaluation documentation for the Preliminary Design Review (PDR) and down-select decision. | 1.287 | - | 1.626 |
| ***Title:*** 4) JEM Increment 2<br>***Description:*** Administrative Preparation for Development and Prototyping Contracts<br>***FY 2011 Accomplishments:***<br>Completed the contractual planning efforts in preparation for MS A and Technology Development/prototyping phase. As a cost cutting measure, evaluated option to continue use of existing contract vehicle in support of Prototyping efforts. Initiated pre-MS B contractual efforts: developed proposal package, released draft Request for Proposal (RFP), prepared final Engineering and | 0.836 | - | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Manufacturing Development (EM&D) phase request for proposal, released RFP, conduct source selection training, conducted source selection and completed proposal evaluations. | | | |
| ***Title:*** 5) JEM Increment 2<br>***Description:*** Management Support<br>***FY 2011 Accomplishments:***<br>Continued efforts to provide strategic, tactical planning, program/financial management, costing, contracting, scheduling and acquisition oversight support. Assisted in the development of Capabilities Development Document (CDD) and other acquisition documents required for MS B. Perform Life-Cycle Cost Estimate.<br>***FY 2013 Plans:***<br>Provide program planning, financial management, contracting, schedule, and acquisition oversight support. Update JEM Integrated Master Schedule. Coordinate Preliminary Design Review (PDR) with stakeholders. | 1.159 | - | 1.341 |
| ***Title:*** 6) JEM Increment 2<br>***Description:*** Technical Support<br>***FY 2011 Accomplishments:***<br>Continued risk-reduction efforts to demonstrate viability of the technology concepts proposed for the next increment of JEM capability. Developed preliminary design documentation in support of component prototyping. Provided technical support during the development of the Capabilities Development Document (CDD) and requirements analysis processes.<br>***FY 2013 Plans:***<br>Prepare technical documentation to support the Preliminary Design Review (PDR). Develop Verification and Validation Plan for the next increment of JEM capability. Provide technical support during the competitive prototyping phase and requirements analysis processes. | 2.198 | - | 0.994 |
| ***Title:*** 7) JWARN - Increment 2<br>***Description:*** Analysis of Alternatives (AoA) Support and Analysis of Technical Alternatives (ATA) Evaluation<br>***FY 2012 Plans:***<br>Initiate programmatic and Chemical, Biological, Radiological and Nuclear (CBRN) subject matter expertise to support the next increment of JWARN capabilities during the AoA. Conduct and evaluate and assess results of AoA/ATA including a Technology | - | 0.446 | 0.218 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Readiness Assessment of the candidate technologies. Analyze impact of implementing the emerging technologies into the JWARN architecture.<br>***FY 2013 Plans:***<br>Continue programmatic and Chemical, Biological, Radiological and Nuclear (CBRN) subject matter expertise to support the next increment of JWARN capabilities during the AoA. | | | |
| ***Title:*** 8) JWARN Increment 2<br>***Description:*** Prototyping<br>***FY 2012 Plans:***<br>Initiate competitive prototyping contracting efforts for JWARN to reduce technical risk, validate design and cost estimates as well as refine requirements.<br>***FY 2013 Plans:***<br>Continue competitive prototyping contracting efforts for JWARN and select candidate for advancement. | - | 4.172 | 1.607 |
| ***Title:*** 9) JWARN Increment 2<br>***Description:*** Technology Demonstrations and User Assessments<br>***FY 2012 Plans:***<br>Prepare for and conduct JWARN Technology Demonstrations and User Assessments to evaluate and prove component and subsystem maturity of critical science and technology, system performance, and validate requirements within the developed software prototype(s).<br>***FY 2013 Plans:***<br>Continue JWARN Technology Demonstrations and User Assessments to evaluate and prove component and subsystem maturity of critical science and technology, system performance, and validate requirements within the developed software prototype(s). | - | 0.526 | 0.598 |
| ***Title:*** 10) JWARN Increment 2<br>***Description:*** Test and Evaluation<br>***FY 2012 Plans:***<br>Initiate government developmental testing and analysis of component and subsystem maturity, to include Technology Readiness Assessment(s), of software submitted for evaluation during competitive prototyping.<br>***FY 2013 Plans:*** | - | 0.668 | 0.891 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue government developmental testing and analysis of component and subsystem maturity, to include Technology Readiness Assessment(s), of software submitted for evaluation during competitive prototyping. Prepare required documentation to support the DoD Information Assurance Certification and Accreditation Process and Joint Interoperability Certification process. Incorporate changes in the Test and Evaluation Master Plan (TEMP). | | | |
| ***Title:*** 11) JWARN Increment 2<br>***Description:*** Development Contract<br>***FY 2012 Plans:***<br>Initiate pre-MS B contractual efforts to include: developing and releasing Technology Development Request for Proposal (RFP), conducting source selection training, and completing proposal evaluations.<br>***FY 2013 Plans:***<br>Draft technical evaluation report for contract award and award contract to develop the next increment of capability. | - | 0.446 | 0.843 |
| ***Title:*** 12) JWARN Increment 2<br>***Description:*** Management Support<br>***FY 2012 Plans:***<br>Provide strategic, tactical planning, program/financial management, costing, contracting, scheduling, acquisition oversight, and milestone documentation for the program.<br>***FY 2013 Plans:***<br>Continue strategic, tactical planning, program/financial management, costing, contracting, scheduling, acquisition oversight, and milestone documentation for the program. | - | 0.612 | 0.629 |
| ***Title:*** 13) JWARN Increment 2<br>***Description:*** Technical Support<br>***FY 2012 Plans:***<br>Provide engineering and technical support for JWARN development. Provide independent system verification, validation and class type accreditation as required.<br>***FY 2013 Plans:*** | - | 0.452 | 0.783 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue engineering and technical support JWARN development. Continue independent system verification, validation and class type accreditation as required. | | | |
| ***Title:*** 14) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.098 | - |
| **Accomplishments/Planned Programs Subtotals** | 11.032 | 7.420 | 13.831 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • IS5: *INFORMATION SYSTEMS (SDD)* | 15.689 | 2.423 | 2.045 | | 2.045 | 11.794 | 9.884 | 24.826 | 23.267 | Continuing | Continuing |
| • IS7: *INFORMATION SYSTEMS (OP SYS DEV)* | 1.789 | 6.911 | 10.091 | | 10.091 | 6.618 | 4.090 | 5.615 | 9.915 | Continuing | Continuing |
| • G47101: *JOINT WARNING & REPORTING NETWORK (JWARN)* | 6.783 | 3.880 | 2.646 | | 2.646 | 1.112 | 0.766 | 0.456 | 4.589 | Continuing | Continuing |
| • JC0208: *JOINT EFFECTS MODEL (JEM)* | 3.421 | 0.000 | 0.000 | | 0.000 | 0.000 | 1.343 | 1.553 | 1.553 | 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. JEM 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 Joint Program Executive Office for Chemical Biological Defense (JPEO-CBD) architectures and technologies, as well as, with Service Command and Control (C2) systems. JEM will develop three distinct increments of software. JEM is a web-services based application and has been granted an Interoperability Certificate by the Joint Interoperability Test Command (JITC). The program plans to award competitive contracts using fixed price or cost-plus as appropriate.

JWARN

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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JWARN will develop and provide Integrated Early Warning capabilities to specified (Common Operating Environment (COE-based)) operational-level Service Command and Control (C2) systems at the Global Command and Control System (GCCS) level, extend the integration effort into the Service tactical (non COE-based) C2 systems, provide connectivity to legacy and newly developed sensors, and complete the development of JWARN.

JWARN will extend these baseline capabilities to emerging, net-centric, Service C2 systems and Service CBRN sensors and detectors as they are developed and fielded. JWARN will also ensure CBRN warning and reporting capabilities remain synchronized with the changing demands of the Warfighter while keeping pace with evolving C2 systems and their architectures, and will further evolve by integrating next generation sensors, detectors and emerging Medical and Biological Surveillance requirements into the CBRN Enterprise.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
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**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JEM - SW SB - JEM Increment 2 | MIPR | SPAWAR Systems Center:San Diego, CA | 7.332 | - | | 1.205 | Feb 2013 | - | | 1.205 | 0.000 | 8.537 | 0.000 |
| ** JWARN - SW S - JWARN | SS/CPAF | TBD: | - | 4.172 | Feb 2012 | 1.776 | Feb 2013 | - | | 1.776 | 0.000 | 5.948 | 0.000 |
| | | **Subtotal** | 7.332 | 4.172 | | 2.981 | | - | | 2.981 | 0.000 | 14.485 | 0.000 |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JEM - TD/D SB - JEM Increment 2 | C/CPFF | Various: | 10.714 | - | | 1.936 | Feb 2013 | - | | 1.936 | 0.000 | 12.650 | 0.000 |
| ** JWARN - TD/D S - JWARN | MIPR | Various: | - | 0.453 | Feb 2012 | 0.653 | Feb 2013 | - | | 0.653 | 0.000 | 1.106 | 0.000 |
| | | **Subtotal** | 10.714 | 0.453 | | 2.589 | | - | | 2.589 | 0.000 | 13.756 | 0.000 |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JEM - DTE S - JEM Increment 2 | MIPR | Various: | 3.229 | - | | 3.722 | Feb 2013 | - | | 3.722 | 0.000 | 6.951 | 0.000 |
| ** JWARN - OTHT SB - JWARN | PO | Various: | - | 1.195 | Feb 2012 | 1.548 | Feb 2013 | - | | 1.548 | 0.000 | 2.743 | 0.000 |
| | | **Subtotal** | 3.229 | 1.195 | | 5.270 | | - | | 5.270 | 0.000 | 9.694 | 0.000 |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JEM - PM/MS S - JEM Increment 2 | C/CPFF | Battelle Memorial Institute:Columbus, OH | 3.325 | - | | 1.399 | Feb 2013 | - | | 1.399 | 0.000 | 4.724 | 0.000 |

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**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JWARN - PM/MS S - JWARN Management Support | SS/CPAF | Various: | - | 1.502 | Nov 2011 | 1.592 | Feb 2013 | - | | 1.592 | 0.000 | 3.094 | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 0.098 | | - | | - | | - | 0.000 | 0.098 | 0.000 |
| | | **Subtotal** | 3.325 | 1.600 | | 2.991 | | - | | 2.991 | 0.000 | 7.916 | 0.000 |

| | Total Prior Years Cost | FY 2012 | | FY 2013 Base | | FY 2013 OCO | | FY 2013 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 24.600 | 7.420 | | 13.831 | | - | | 13.831 | 0.000 | 45.851 | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
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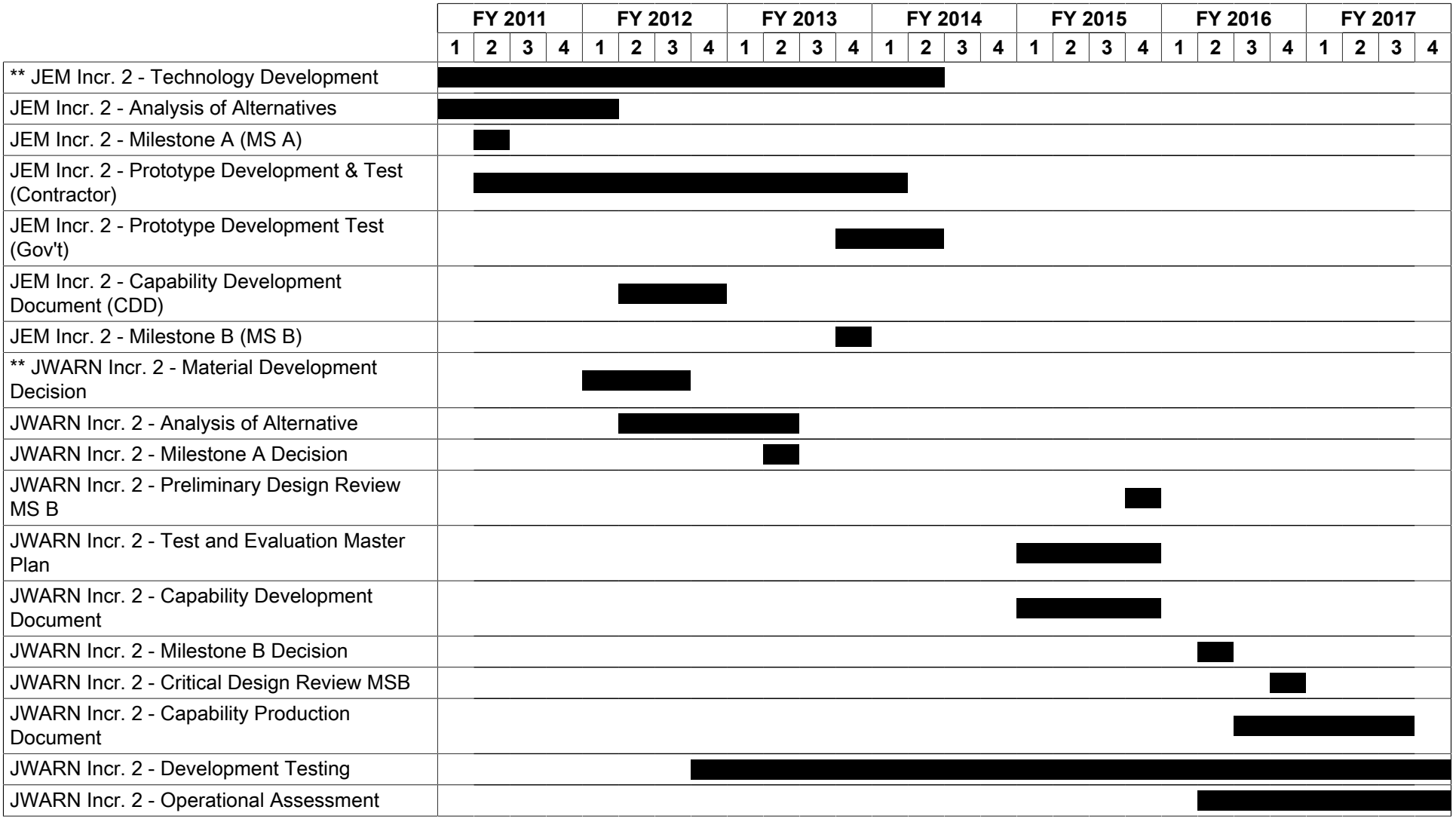

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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| | FY 2011 | | | | FY 2012 | | | | FY 2013 | | | | FY 2014 | | | | FY 2015 | | | | FY 2016 | | | | FY 2017 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 |
| JWARN Incr. 2 - Milestone C Decision | | | | | | | | | | | | | | | | | | | | | | | | | | | | ■ |
| JWARN Incr. 2 - Low-Rate Initial Production | | | | | | | | | | | | | | | | | | | | | | | | | | | | ■ |
| JWARN Incr. 2 - Multi-Service Operational Testing (MOT&E) | | | | | | | | | | | | | | | | | | | | | | | | | | | | ■ |

| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** JEM Incr. 2 - Technology Development | 1 | 2011 | 2 | 2014 |
| JEM Incr. 2 - Analysis of Alternatives | 1 | 2011 | 1 | 2012 |
| JEM Incr. 2 - Milestone A (MS A) | 2 | 2011 | 2 | 2011 |
| JEM Incr. 2 - Prototype Development & Test (Contractor) | 2 | 2011 | 1 | 2014 |
| JEM Incr. 2 - Prototype Development Test (Gov't) | 4 | 2013 | 2 | 2014 |
| JEM Incr. 2 - Capability Development Document (CDD) | 2 | 2012 | 4 | 2012 |
| JEM Incr. 2 - Milestone B (MS B) | 4 | 2013 | 4 | 2013 |
| ** JWARN Incr. 2 - Material Development Decision | 1 | 2012 | 3 | 2012 |
| JWARN Incr. 2 - Analysis of Alternative | 2 | 2012 | 2 | 2013 |
| JWARN Incr. 2 - Milestone A Decision | 2 | 2013 | 2 | 2013 |
| JWARN Incr. 2 - Preliminary Design Review MS B | 4 | 2015 | 4 | 2015 |
| JWARN Incr. 2 - Test and Evaluation Master Plan | 1 | 2015 | 4 | 2015 |
| JWARN Incr. 2 - Capability Development Document | 1 | 2015 | 4 | 2015 |
| JWARN Incr. 2 - Milestone B Decision | 2 | 2016 | 2 | 2016 |
| JWARN Incr. 2 - Critical Design Review MSB | 4 | 2016 | 4 | 2016 |
| JWARN Incr. 2 - Capability Production Document | 3 | 2016 | 3 | 2017 |
| JWARN Incr. 2 - Development Testing | 4 | 2012 | 4 | 2017 |
| JWARN Incr. 2 - Operational Assessment | 2 | 2016 | 4 | 2017 |
| JWARN Incr. 2 - Milestone C Decision | 4 | 2017 | 4 | 2017 |
| JWARN Incr. 2 - Low-Rate Initial Production | 4 | 2017 | 4 | 2017 |
| JWARN Incr. 2 - Multi-Service Operational Testing (MOT&E) | 4 | 2017 | 4 | 2017 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
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| COST ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)* | 129.682 | 116.653 | 133.254 | - | 133.254 | 194.502 | 155.024 | 81.188 | 23.593 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

This Advanced Component Development and Prototypes (ACD&P) Project supports:

The Medical Countermeasures Advanced Development and Manufacturing (ADM) program was established to provide a dedicated, agile, flexible and enduring capability to the Department of Defense (DoD) to support the development, licensure, and production of Medical Countermeasures (MCMs). The ADM will provide an integrated infrastructure to support a medical countermeasures pipeline, and respond to Warfighter and National security needs. The ADM effort is being executed in two phases. Phase I is a two year base period to establish, commission, and validate facilities and equipment for two ADM suites using single use, disposable, modular and multi-product technologies for medical countermeasures advanced development and manufacturing. Both suites must meet Biological Safety Level-3 (BSL-3) standards. Phase 2 consist of four (4) two-year options to support and maintain ADM capability in a state of readiness to support medical countermeasures development (under the animal rule as applicable) and manufacturing and assist in training personnel in its use. Once commissioned, the ADM will support transition of enabling science and technology (S&T) and novel platform and expression systems for delivery of products by leveraging technological and regulatory science advancements.

The Next Generation Diagnostic System addresses the mission needs identified in the CBRN Field Analytics ICD (2010). The mission of the Next Generation Diagnostic System is to provide chemical, biological, and radiological diagnostic systems. NGDS Increment 1 materiel solutions will significantly improve analytical and diagnostic capabilities across the continuum of biological warfare threat agents and operations (peacetime, wartime, and deployed). NGDS Increment 1 medical diagnostic capabilities will provide health care providers with more timely and accurate information to inform individual patient treatment. NGDS Increment 1 clinical analytical and interconnectivity capabilities will provide commanders with situational awareness of biological warfare hazards to support Force Protection and Force Health Protection decision making.

The (1) Hemorrhagic Fever Virus (HFV) Therapeutic Medical Countermeasures (MCM), which will provide broad spectrum (multi-agent), platform-based therapeutics against Ebola and Marburg viruses. TMT efforts to be conducted for the medical countermeasures during this period include Phase 1 human clinical safety trials, non-clinical studies to demonstrate safety and efficacy, and animal model development / refinement. DoD anticipates the FDA will require use of the Animal Rule for the HFV therapeutic medical countermeasures, which allows for the demonstration of efficacy in relevant animal model(s) when human testing is not ethically feasible. ; (2) Emerging Infectious Disease (EID) MCM Increment 1, Many conditions result in the inability to provide effective vaccines to service members and civilians. Effective vaccines do not exist for all known strains of influenza virus. The emergence of a new pandemic strain with no existing effective vaccine or therapeutic is highly likely. EID-Flu will provide a broad spectrum EID MCM to protect service members from naturally occurring, biologically or genetically engineered Influenza viruses. EID Flu, a rapidly adaptable, broad spectrum therapeutic (3) CBRN Biosurveillance (BSV), a new start program, will initiate systems development, engineering, logistics planning, and test planning for integration of existing commercial and developmental next generation systems and clinical and non-clinical sample collection and analysis tools

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to provide pre/post event real-time alarm and near-real time confirmation of CBRN threats, to enhance battlespace awareness, and provide high-quality biosurveillance data.

The Joint Vaccine Acquisition Program (JVAP), under Chemical Biological Medical Systems (CBMS) Joint Program Management Office, 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. JVAP has three product lines in the early development phase: Filovirus vaccine, Ricin vaccine, and Western/Eastern/ Venezuelan Equine Encephalitis vaccine (WEVEE). JVAP initiated the Filovirus Vaccine program in FY10. The Ricin and WEVEE vaccine programs will be initiated in early FY13. Efforts to be conducted during this period include develop pilot scale manufacturing processes to support nonclinical and clinical studies; development vaccine formulation that meets the logistical requirements of the DoD; conduct non-clinical studies to demonstrate safety and efficacy; submit Investigational New Drug (IND) application; and conduct Phase 1 clinical human safety studies. JVAP anticipates that the FDA will approve these products using the Animal Rule, which allows for the demonstration of efficacy in relevant animal model(s). JVAP also has the mission to maintain IND vaccines in Good Manufacturing Practice (GMP) storage and to conduct the periodic potency and sterility testing of these materials to support submissions to the FDA. These IND vaccines are used to possibly provide additional levels of protection to laboratory workers in the Special Immunizations Program (SIP) conducting research on these diseases. The Department of Defense is the Public Health Emergency Countermeasures lead for the advanced development of the Filovirus, Ricin, and WEVEE vaccines.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 1.546 | - |
| ***Title:*** 2) MCMi<br>***FY 2012 Plans:***<br>Initiate technology transfer and process optimization to transition medical countermeausres (MCMs) into an advanced development and manufacturing (ADM) capability. Compile and manage technology information for MCMs information and perform advanced process development activities for selected MCMs to be manufactured at the ADM. | - | 9.184 | - |
| ***Title:*** 3) MCMi<br>***FY 2012 Plans:***<br>Initiate and maintain a process development laboratory. Benchmark process laboratory activities in various stages of development for expression platforms. Initiate and maintain a pilot plant capable of performing scale-up studies and manufacture of bulk products for early stage clinical trials or bridging studies. | - | 13.404 | - |
| ***Title:*** 4) MCMi<br>***FY 2012 Plans:*** | - | 4.629 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Initiate evaluation of candidate manufacturing platform processes to be transitioned to the ADM. | | | |
| ***Title:*** 5) ADM<br><br>***FY 2013 Plans:***<br>Initiate studies and manufacturing to support early stage clinical trials or bridging studies. Compile and manage MCM information and perform advanced process development activities for selected MCMs to be manufactured at the ADM. Activities will support MCM schedule acceleration. | - | - | 12.764 |
| ***Title:*** 6) ADM<br><br>***FY 2013 Plans:***<br>Initiate engineering and design studies to support regulatory sciences and/or manufacturing technology insertion into the ADM capability. Continue evaluation of candidate manufacturing platform processes to be transitioned to the ADM. Activities will support technology transfer and process optimization. | - | - | 8.573 |
| ***Title:*** 7) ADM<br><br>***FY 2013 Plans:***<br>Maintain a Government Program Management Office that includes Government and contractor personnel. Identify, hire and retain Government personnel to oversee the MCM ADM. Initiate and maintain contract support to oversee the MCM ADM capability. | - | - | 3.948 |
| ***Title:*** 8) NGDS Increment 1<br><br>***FY 2012 Plans:***<br>Develop prototype test plan, prepare Request for Proposal, award contract, and evaluate prototype systems and new technologies | - | 0.986 | - |
| ***Title:*** 9) TMTI<br><br>***Description:*** TMTI received funds for four projects: (1) HFV Therapeutic MCM, (2) EID FLU MCM, (3) IBP Therapeutics, and (4) Platform Technologies. Beginning in FY12, Transformational Medical Technologies funding was broken out separately for each of the four individual products to provide for greater program control and visibility.<br><br>***FY 2011 Accomplishments:***<br>Initiated Phase 1 Human Clinical Safety Trials for Ebola and Marburg therapeutic drugs. Established program Earned Value Management System baseline and conducted integrated baseline reviews of both performers. Initiated animal model studies to identify animals best suited to understanding Ebola and Marburg disease in humans. | 113.346 | - | - |
| ***Title:*** 10) EID FLU | - | 13.546 | 10.655 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** Emerging Infectious Diseases (EID), Increment 1, Influenza (Flu)- Milestone A approval was received February 2011 to move into Technology Development (TD) for a broad spectrum Medical Countermeasure (MCM) against Influenza, to include H1N1.<br><br>***FY 2012 Plans:***<br>Award advance development contract(s) for the Technology Development Phase for candidate(s) with Investigational New Drug (IND) application(s) already accepted by the Food and Drug Administration (FDA). Establish program earned value management system baseline and conduct integrated baseline review of performer(s). The program will initiate human clinical efficacy trials at the appropriate phase based on the maturity of the candidate(s) selected.<br><br>***FY 2013 Plans:***<br>Achieve Milestone B approval and continue clinical trials to demonstrate product safety and efficacy. Conduct non-clinical studies related to safety and efficacy to support development of New Drug Application (NDA) to meet FDA requirements. | | | |
| ***Title:*** 11) HFV<br><br>***Description:*** Hemorrhagic Fever Virus (HFV) - Broad-spectrum or platform-based MCM candidates will be advanced against viruses such as Ebola and Marburg through the Technology Development phase. Preclinical evaluation achieving IND status will be completed and will complete Phase I clinical studies where drug candidates are introduced into humans and early evidence is gathered on drug safety. TMT will conclude the TD Phase by completing all activities associated with Phase I clinical studies. The results of the TD Phase clinical studies will support a Milestone B decision to continue toward a New Drug Application (NDA) and FDA approval/licensure.<br><br>***FY 2012 Plans:***<br>Continue Phase 1 Human Clinical Safety Trials. Continue to refine animal models in preparation for pivotal animal efficacy studies.<br><br>***FY 2013 Plans:***<br>Complete Phase 1 Human Clinical Safety Trials. Obtain Milestone B decision approval, and transition to the EMD Phase, initiate planning and preparation for pivotal animal efficacy studies and manufacturing of GMP lots. | - | 33.050 | 19.158 |
| ***Title:*** 12) IBP<br><br>***Description:*** Intracellular Bacterial Pathogens (IBPs) - Upon Milestone A approval, Transformational Medical Technologies (TMT) will advance experimental broad-spectrum drug candidates against bacterial diseases such as anthrax and plague through the Technology Development phase. TMT will initiate and complete Phase I clinical studies, where drug candidates are introduced into humans and early evidence is gathered on drug safety. TMT will conclude the TD Phase by completing all | - | 4.629 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| activities associated with Phase 2 clinical studies where drug candidates are evaluated for efficacy. The results of the TD Phase clinical studies will support a Milestone B decision to continue toward a New Drug Application (NDA) and FDA approval/licensure.<br><br>***FY 2012 Plans:***<br>Provides support for program documentation and management support efforts. | | | |
| ***Title:*** 13) TMT/PLTFM<br><br>***Description:*** Description: TMT/Platform Technologies: TMT will establish three functional areas to support MCM development and respondto a biological event: Pathogen Characterization - Identifies and/or characterizes genetically modified or emerging pathogens. Target Identification - identifies genes or pathways within the host or pathogen that are vulnerable to countermeasure intervention. TMT/PLTFM efforts will help inform the technology development phase of the BSV program.<br><br>***FY 2012 Plans:***<br>Continue maturation of pathogen characterization functional area, focusing on integration and timeline reduction. Continue maturation of bioinformatics functional area, focusing on integration and incorporation of additional functionality. Plan and execute two exercises to evaluate the integration of functional areas. | - | 19.395 | - |
| ***Title:*** 14) BSV<br><br>***Description:*** Upon a successful MDD, CBRN BSV will initiate systems development, engineering, logistics planning, and test planning for integration of existing commercial and developmental next generation systems and clinical and non-clinical sample collection and analysis tools to provide pre/post event real-time alarm and near-real time confirmation of CBRN threats, to enhance battlespace awareness, and provide high-quality biosurveillance data.<br><br>***FY 2013 Plans:***<br>Conduct Milestone A and enter into the technology development phase. Initiate systems development, engineering, logistics planning, and test planning activities. | - | - | 12.267 |
| ***Title:*** 15) VAC FILO<br><br>***FY 2011 Accomplishments:***<br>Continued non-clinical efficacy studies. Continued procedures for safeguarding biological select agents and toxins.<br><br>***FY 2012 Plans:***<br>Continue non-clinical efficacy studies. Continue procedures for safeguarding biological select agents and toxins.<br><br>***FY 2013 Plans:*** | 3.294 | 7.374 | 17.347 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue non-clinical efficacy studies and initiate non-clinical safety studies. | | | |
| ***Title:*** 16) VAC FILO<br>***FY 2011 Accomplishments:***<br>Initiated small-scale manufacturing process development.<br>***FY 2012 Plans:***<br>Complete small-scale manufacturing process development. | 10.882 | 5.579 | - |
| ***Title:*** 17) VAC FILO<br>***FY 2011 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>***FY 2012 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>***FY 2013 Plans:***<br>Continue to provide strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. | 2.160 | 1.550 | 2.838 |
| ***Title:*** 18) VAC FILO<br>***Description:*** Regulatory Support<br>***FY 2012 Plans:***<br>Plan and prepare for pre-Investigational New Drug (IND) application meeting.<br>***FY 2013 Plans:***<br>Prepare Investigational New Drug Application and Phase 1 Clinical implementation. Conduct pre-IND meeting. | - | 1.781 | 4.500 |
| ***Title:*** 19) VAC FILO<br>***FY 2013 Plans:***<br>Initiate cGMP Pilot Scale Production. | - | - | 5.699 |
| ***Title:*** 20) VAC FILO<br>***FY 2013 Plans:*** | - | - | 6.984 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Conduct Assay Development and Qualification. | | | |
| ***Title:*** 21) VAC FILO<br>***FY 2013 Plans:***<br>Conduct Final Drug Product Formulation. | - | - | 2.200 |
| ***Title:*** 22) VAC FILO<br>***FY 2013 Plans:***<br>Continue to provide strategic/tactical planning, government systems engineering, program financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. | - | - | 2.407 |
| ***Title:*** 23) VAC RIC<br>***FY 2013 Plans:***<br>Conduct Milestone A. Initiate non-clinical efficacy studies. | - | - | 7.500 |
| ***Title:*** 24) VAC RIC<br>***FY 2013 Plans:***<br>Initiate small-scale manufacturing process development. | - | - | 6.032 |
| ***Title:*** 25) VAC RIC<br>***FY 2013 Plans:***<br>Initiate Assay Development. | - | - | 2.500 |
| ***Title:*** 26) VAC WEVEE<br>***FY 2013 Plans:***<br>Conduct Milestone A. Initiate non-clinical efficacy studies. | - | - | 2.097 |
| ***Title:*** 27) VAC WEVEE<br>***FY 2013 Plans:***<br>Initiate small-scale manufacturing process development. | - | - | 3.785 |
| ***Title:*** 28) VAC WEVEE<br>***FY 2013 Plans:***<br>Initiate Assay Development. | - | - | 2.000 |
| **Accomplishments/Planned Programs Subtotals** | 129.682 | 116.653 | 133.254 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* | 75.657 | 216.715 | 214.056 | | 214.056 | 246.295 | 187.101 | 213.001 | 238.653 | Continuing | Continuing |
| • MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)* | 0.000 | 5.448 | 0.498 | | 0.498 | 0.499 | 3.266 | 0.496 | 9.355 | Continuing | Continuing |
| • JM8788: *NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)* | 0.000 | 2.965 | 26.934 | | 26.934 | 14.154 | 0.000 | 0.000 | 0.000 | 0.000 | 44.053 |
| • JX0005: *DOD BIOLOGICAL VACCINE PROCUREMENT* | 4.777 | 0.180 | 0.185 | | 0.185 | 4.482 | 19.949 | 21.514 | 26.101 | Continuing | Continuing |
| • JX0210: *CRITICAL REAGENTS PROGRAM (CRP)* | 0.000 | 0.998 | 1.012 | | 1.012 | 1.011 | 1.011 | 1.005 | 1.005 | Continuing | Continuing |

**D. Acquisition Strategy**

MCMI

The Medical Counter Measures Initiative (MCMI) began in response to White House Memorandum of 29 December 2009. The MCMI has three components: Science and Technology (S&T), Advanced Development and Manufacturing (ADM) and Test and Evaluation. The efforts described herein are for the establishment, commissioning, facility validation and maintenance of the agile and flexible Advanced Development and Manufacturing (ADM) capability. The ADM will be a dedicated DoD enduring capability that provides DoD MCM development with a set of core services (Contract Manufacturing Organization (CMO), Contract/Clinical Research Organization (CRO), Test and Evaluation (T&E), Fill and Finish (F&F)) to increase efficiency and apply lessons learned to future MCM developments. The ADM Capability will use a FAR based ten (10) year [two (2) year base with four (4) two (2) year options] Cost Plus Fixed fee (CPFF) contract - Full and Open competition with best value to the government. A Request for Proposal (RFP) was released in August 2011, and contract award is planned for 2QFY12. The establishment of the CMO component of the ADM will occur within the base period while the other core service components (CRO, T&E, F&F) will be available shortly after the contract award. The CMO will utilize modular and disposable/single use equipment to allow for flexibility in manufacturing various MCM products within the same facility. The contractor will complete facility commissioning, support independent validation, and attain Current Good Manufacturing Practice (cGMP) and Current Good Laboratory Practice (cGLP) status within 24 months following contract award and provide expertise necessary to maintain the facility in readiness to support the development and manufacture of MCMs, and conduct training. The DoD will continue to issue future separate contracts for specific MCM products - i.e. the MCM "pipeline".

ADM

The Medical Counter Measures Initiative (MCMI) began in response to White House Memorandum of 29 December 2009. The MCMI has three components: Science and Technology (S&T), Advanced Development and Manufacturing (ADM) and Test and Evaluation. The efforts described herein are for the establishment, commissioning, facility validation and maintenance of the agile and flexible Advanced Development and Manufacturing (ADM) capability. The ADM will be a dedicated

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DoD enduring capability that provides DoD MCM development with a set of core services (Contract Manufacturing Organization (CMO), Contract/Clinical Research Organization (CRO), Test and Evaluation (T&E), Fill and Finish (F&F)) to increase efficiency and apply lessons learned to future MCM developments. The ADM Capability will use a FAR based ten (10) year [two (2) year base with four (4) two (2) year options] Cost Plus Fixed fee (CPFF) contract - Full and Open competition with best value to the government. A Request for Proposal (RFP) was released in August 2011, and contract award is planned for 2QFY12. The establishment of the CMO component of the ADM will occur within the base period while the other core service components (CRO, T&E, F&F) will be available shortly after the contract award. The CMO will utilize modular and disposable/single use equipment to allow for flexibility in manufacturing various MCM products within the same facility. The contractor will complete facility commissioning, support independent validation, and attain Current Good Manufacturing Practice (cGMP) and Current Good Laboratory Practice (cGLP) status within 24 months following contract award and provide expertise necessary to maintain the facility in readiness to support the development and manufacture of MCMs, and conduct training. The DoD will continue to issue future separate contracts for specific MCM products - i.e. the MCM "pipeline".

NGDS

The Next Generation Diagnostic System (NGDS) will develop and field an enhanced CBRN analytical and diagnostic system to the Joint force through an evolutionary acquisition strategy. NGDS Increment 1 will follow a modified Commercial Off The Shelf (COTS) acquisition strategy to field BWA diagnostic analytical devices to the Combat Health Support System. Additional DoD-unique capabilities will be added to the initial commercial capabilities FY14-17. Increment 1 MS A is planned 2nd Qtr FY12. FY12 BA4 funds will be used to conduct operational assessments on the commercial prototypes immediately following MS A. It is anticipated that NGDS Increment 1 will proceed from MS A to MS C in accordance with the modified COTS acquisition strategy and based on the demonstrated military utility from FY12-14 Competitive Prototyping and independent medical testing by AMEDD, and achieving submittal of a 510(k) application for FDA clearance of one BWA assay.

EID FLU

The program goal for increment 1is the delivery of FDA-approved therapeutic against Orthomyxoviridae viruses - the cause of seasonal, epidemic, and pandemic influenza. The objective is the delivery of an FDA-approved Post Exposure Prophylactic (PEP) and/or therapeutic against Orthomyxoviridae viruses - the cause of seasonal, epidemic, and pandemic influenza, for use by to the Warfighter. The acquisition strategy uses a parallel evaluation of drug candidates to achieve competitive prototyping in the Technology Development Phase. A technically mature candidate to meet Warfighter needs is being sought to reduce risk and accelerate delivery of MCM. The Technology Readiness Level of candidate will determine the point of entry into the FDA clinical trial process. Activities during this phase will be tailored to the technical level of the candidate and will include conducting pre-clinical animal safety studies and completion of human safety and efficacy trials required for FDA approval. The performer(s) will submit a New Drug Application(s) for the Influenza therapeutic during the EMD Phase. During the Production and Deployment Phase, full rate manufacturing and stockpile production will be pursued. If the FDA mandates post-marketing surveillance studies, they will be conducted during Production and Deployment.

HFV

The acquisition strategy uses a parallel evaluation of drug candidates against the lethal Ebola and Marburg viruses to achieve competitive prototyping in the Technology Development Phase. Activities during this phase include conducting a pre-clinical animal safety studies, submission of Investigation New Drug

Applications, and completion of Phase 1 human safety trials. Following a successful Milestone B and entry into Engineering and Manufacturing Development, the program will conduct Phase 2 human clinical safety, definitive animal efficacy, and toxicology studies, required for FDA approval. The performer(s) will submit a New Drug Application(s) for the Ebola and Marburg therapeutics during the EMD Phase. During the Production and Deployment Phase, full rate manufacturing and stockpile production will be pursued. If the FDA mandates post-marketing surveillance studies, they will be conducted during Production and Deployment. This Department of Defense program is the Public Health Emergency Countermeasures lead for the development of this therapeutic, and is leveraging expertise across the Federal and International sectors to ensure programmatic success.

IBP

The acquisition strategy uses a parallel evaluation of drug candidates against the intracellular bacterial pathogens to achieve competitive prototyping in the Technology Development Phase. Activities during this phase include conducting a pre-clinical animal safety studies, submission of Investigation New Drug Applications, and completion of Phase 1 human safety trials. Following a successful Milestone B and entry into Engineering and Manufacturing Development, the program will conduct Phase 2 human clinical safety, definitive animal efficacy, and toxicology studies, required for FDA approval. The performer(s) will submit a New Drug Application(s) for the Ebola and Marburg therapeutics during the EMD Phase. During the Production and Deployment Phase, full rate manufacturing and stockpile production will be pursued. If the FDA mandates post-marketing surveillance studies, they will be conducted during Production and Deployment.

PLTFM

The Transformational Medical Technologies (TMT) Program will incrementally develop and integrate pathogen characterization, target identification and bioinformatics functional areas. In order to create this DoD-inherent capability, TMT will invest in USG labs to buy equipment, train personnel and establish pathogen characterization/ identification and bioinformatics capabilities. Through the USG labs, TMT will leverage capabilities of USG agencies, academia and industry to mature/refine DoD processes and train personnel.

BSV

Objective is the delivery of the capability to acquire, integrate, and analyze medical, environmental, and incident management data using existing and next generation systems, medical and non-medical sample collections tools and identifiers / diagnostics, adaptable to pre and post event confirmation of traditional, emerging, and engineered threats. The acquisition strategy will address the materiel solutions identified out of the BSV AoA. Data and information will be collected and shared in a low-side biosurveillance collaboration and information-sharing environment integrating CBRN medical, environmental, and incident management data in a common web-based framework. The CBRN Biosurveillance acquisition strategy will emphasize opportunities for common component technology and modularity, including conducting application specific integration, test, and procurement, while maintaining continuous technology and requirements surveillance. The project office will employ systems engineering best practices throughout the lifecycle, monitored via technical reviews to reduce program risk and identify potential management issues in a timely manner. After the Materiel Development Decision, Analysis of Alternatives, and Milestone A, the Request for Proposal will be released seeking the best value for the government for development of the CBRN Biosurveillance capability. Activities during the TD Phase will inform the development of the Test and Evaluation Master Plan (TEMP), Systems Engineering Plan(SEP), Program Protection Plan (PPP), Information Support Plan, documentation of the validated

system support and maintenance objectives and requirements, inputs to the Integrated Baseline Review, affordability assessment, cost and manpower estimates, a completed, reviewed and approved System Allocated Baseline and a Preliminary Design Review Report, and developmental testing will be conducted. Following Milestone B, operational testing of competitive prototypes in the relevant environments will inform the development of the Product Baseline, product support element requirements, updated risk assessment, TEMP, PPP, and system safety analysis. After Milestone C, during the Production and Deployment phase, the system will achieve operational capability that satisfies mission needs, conduct a Low-Rate Production Decision Review and a Full-Rate Production Decision Review, leading to Full-Rate Production and Deployment.

VAC FILO

The Chemical Biological Medical Systems (CBMS) - Joint Vaccine Acquisition Program (JVAP) will conduct the advanced development efforts of a Trivalent Filovirus Vaccine. The Filovirus Vaccine program was initiated in FY10 with the ultimate goal to deliver a single trivalent vaccine to protect the Warfighter against exposure to Ebola viruses and Marburg viruses. To satisfy the competitive prototyping requirement outlined in the DoD 5000.2, CBMS-JVAP will develop an alternate filovirus vaccine candidate through a Phase 1 clinical trial. CBMS-JVAP will serve as the integrator for the Technology Development Phase by managing and coordinating the various vaccine development contracts. At MS B, the best prototype will be selected through a full and open competition to transition to the Engineering, Manufacturing, and Development Phase with delivery of a FDA licensed Filovirus Vaccine. The MS B decision is anticipated for FY15. The development contracts will be a mix of Cost Plus and Firm Fixed Price. In addition, CBMS-JVAP will partner with DoD agencies and laboratories to include U.S. Army Medical Research Institute of Infectious Diseases, Medical Countermeasure Initiative (MCMI) Advanced Development Manufacturing, and the MCMI Test & Evaluation Facility.

This Department of Defense program is the Public Health Emergency Countermeasures lead for the advanced development of this vaccine, and is leveraging expertise across the Federal and International sectors to ensure programmatic success.

VAC RIC

The Chemical Biological Medical Systems (CBMS) - Joint Vaccine Acquisition Program (JVAP) will conduct the advanced development efforts of a Ricin Vaccine. To satisfy the competitive prototyping requirement outlined in the DoD 5000.2, CBMS-JVAP will develop two candidates through the Technology Development (TD) Phase. CBMS-JVAP will serve as the integrator for the TD Phase by managing and coordinating the various vaccine development contracts efforts. At MS B, the best prototype will be selected through full and open competition to transition to the Engineering, Manufacturing, and Development Phase and final delivery of a FDA licensed Ricin Vaccine. The MS B decision is anticipated for FY17. The development contracts will be a mix of Cost Plus and Firm Fixed Price. In addition, CBMS-JVAP will partner with DoD agencies and laboratories to include U.S. Army Medical Research Institute of Infectious Diseases, Medical Countermeasure Initiative (MCMI) Advanced Development Manufacturing, and the MCMI Test & Evaluation Facility.

The Department of Defense program will be the Public Health Emergency Countermeasures lead for the advanced development of this vaccine, and is leveraging expertise across the Federal and International sectors to ensure programmatic success.

VAC WEVEE

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The Chemical Biological Medical Systems (CBMS) - Joint Vaccine Acquisition Program (JVAP) will conduct the advanced development efforts of a Multivalent Equine Encephalitis Vaccine (WEVEE). To satisfy the competitive prototyping requirement outlined in the DoD 5000.2, CBMS-JVAP will develop two candidates through the Technology Development (TD) Phase. CBMS-JVAP will serve as the integrator for the TD Phase by managing and coordinating the various vaccine development contracts efforts. At MS B, the best prototype will be selected through full and open competition to transition to the Engineering, Manufacturing and Development Phase and final delivery of a FDA licensed WEVEE Vaccine. The MS B decision is anticipated for FY17. The development contracts will be a mix of Cost Plus and Firm Fixed Price. In addition, CBMS-JVAP will partner with DoD agencies and laboratories to include U.S. Army Medical Research Institute of Infectious Diseases, Medical Countermeasure Initiative (MCMI) Advanced Development Manufacturing, and the MCMI Test & Evaluation Facility.

The Department of Defense program will be the Public Health Emergency Countermeasures lead for the advanced development of this vaccine, and is leveraging expertise across the Federal and International sectors to ensure programmatic success.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** MCMI - HW S - Tech Dev Manufacturing Platforms | C/CPFF | TBD: | - | 27.217 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** ADM - HW S - ADM Studies & Engineering to Support Early Stage Clinical Trials | Various | TBD: | - | - | | 12.764 | Feb 2013 | - | | 12.764 | Continuing | Continuing | 0.000 |
| HW S - ADM Engineering & Design Studies | Various | TBD: | - | - | | 8.573 | Feb 2013 | - | | 8.573 | Continuing | Continuing | 0.000 |
| ** EID FLU - SW SB - EID FLU FDA Defined Base Period | C/CPFF | TBD: | - | 11.150 | Nov 2011 | - | | - | | - | Continuing | Continuing | 0.000 |
| SW SB - EID FLU Defined Option 1 | C/CPFF | TBD: | - | - | | 8.806 | Feb 2013 | - | | 8.806 | Continuing | Continuing | 0.000 |
| ** HFV - SW SB - Conduct Phase I Clinical Trials | C/CPIF | TEKMIRA/AVI BIOPHARMA: | - | 27.206 | May 2012 | 6.776 | Nov 2012 | - | | 6.776 | Continuing | Continuing | 0.000 |
| SW SB - Animal Models | Allot | USAMRIID:Frederick, MD | - | 1.320 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| SW SB - Animal Models #2 | Various | TBD: | - | - | | 2.394 | Feb 2013 | - | | 2.394 | Continuing | Continuing | 0.000 |
| ** PLTFM - SW SB - Platform Technology - Bioinformatics | MIPR | ECBC:Edgewood, MD | - | 4.294 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| SW S - Predictive Systems | MIPR | JPM-IS - Predictive Systems: | - | 6.739 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| SW S - Response Systems | C/CPFF | TBD: | - | 4.932 | May 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** BSV - SW SB - Proof Of Concept - Predictive Model | MIPR | TBD: | - | - | | 7.500 | Feb 2013 | - | | 7.500 | Continuing | Continuing | 0.000 |
| SW SB - BSV - Program Direct | Various | TBD: | - | - | | 3.807 | Feb 2013 | - | | 3.807 | Continuing | Continuing | 0.000 |
| ** VAC FILO - HW S - Non Clinical Studies | MIPR | USAMRIID:Fort Detrick, MD | 11.284 | 2.000 | Feb 2012 | 5.618 | Nov 2012 | - | | 5.618 | Continuing | Continuing | 0.000 |
| HW S - Manufacturing | C/FP | Paragon:Baltimore, MD | - | 3.711 | Nov 2011 | 7.654 | Feb 2013 | - | | 7.654 | Continuing | Continuing | 0.000 |
| HW S - Manufacturing cGMP Pilot | C/FPIF | TBD: | - | - | | 5.546 | Nov 2012 | - | | 5.546 | Continuing | Continuing | 0.000 |
| HW S - Formulation Development | C/FPIF | TBD: | - | - | | 1.513 | Nov 2012 | - | | 1.513 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** VAC RIC - HW S - Manufacturing and Process Development | C/FPIF | TBD: | - | - | | 5.240 | Feb 2013 | - | | 5.240 | Continuing | Continuing | 0.000 |
| HW S - Non-Clinical Studies | MIPR | USAMRIID:Fort Detrick, MD | - | - | | 2.000 | Feb 2013 | - | | 2.000 | Continuing | Continuing | 0.000 |
| ** VAC WEVEE - HW S - Manufacturing and Process Development | C/CPIF | TBD: | - | - | | 2.523 | May 2013 | - | | 2.523 | Continuing | Continuing | 0.000 |
| HW S - Non-Clinical Studies #2 | MIPR | USAMRIID:Fort Detrick, MD | - | - | | 1.097 | Feb 2013 | - | | 1.097 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 11.284 | 88.569 | | 81.811 | | - | | 81.811 | | | 0.000 |

**Remarks**

Phase 1 and 2 clinical trials funded with MB4. Phase 3 multi-center human clinical trials funded with MB5.

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** NGDS - ES S - Initiate evaluation of prototype systems and new technologies | MIPR | TBD: | - | 0.400 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** VAC FILO - ES S - Regulatory Integration (Environmental and FDA Documentation) and Delivery System | MIPR | USAMMDA:Fort Detrick, MD | 2.463 | 0.250 | Feb 2012 | 2.805 | Nov 2012 | - | | 2.805 | Continuing | Continuing | 0.000 |
| ES S - Regulatory Integration | MIPR | TBD: | - | - | | 4.028 | Nov 2012 | - | | 4.028 | Continuing | Continuing | 0.000 |
| ** VAC RIC - ES S - Regulatory Integration | MIPR | USAMMDA:Fort Detrick, MD | - | - | | 0.917 | Feb 2013 | - | | 0.917 | Continuing | Continuing | 0.000 |
| ** VAC WEVEE - ES S - Regulatory Integration | MIPR | USAMMDA:Fort Detrick, MD | - | - | | 1.869 | Feb 2013 | - | | 1.869 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 2.463 | 0.650 | | 9.619 | | - | | 9.619 | | | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** VAC FILO - OTHT SB - Testing, Evaluation, and Clinical Trials | MIPR | CBRNIAC. Columbus:OH | 5.943 | 6.665 | Feb 2012 | 5.765 | Feb 2013 | - | | 5.765 | Continuing | Continuing | 0.000 |
| OTE C - Assay Development | C/FPIF | TBD: | - | - | | 2.992 | Nov 2012 | - | | 2.992 | Continuing | Continuing | 0.000 |
| DTE C - Manufacturing | C/FPIF | TBD: | - | - | | 1.290 | Nov 2012 | - | | 1.290 | Continuing | Continuing | 0.000 |
| ** VAC RIC - DTE C - Test and Evaluation Animal Model | MIPR | USAMRIID:Fort Detrick, MD | - | - | | 3.000 | Feb 2013 | - | | 3.000 | Continuing | Continuing | 0.000 |
| DTE C - Assay Development | MIPR | CBRNIAC:Columbus, OH | - | - | | 2.500 | Feb 2013 | - | | 2.500 | Continuing | Continuing | 0.000 |
| ** VAC WEVEE - OTE C - Test and Evaluation Assay Development | MIPR | USAMRIID:Frederick, MD | - | - | | 1.126 | Feb 2013 | - | | 1.126 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 5.943 | 6.665 | | 16.673 | | - | | 16.673 | | | 0.000 |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 1.546 | | - | | - | | - | Continuing | Continuing | 0.000 |
| ** ADM - PM/MS S - Program Management | MIPR | Various: | - | - | | 3.948 | Nov 2012 | - | | 3.948 | Continuing | Continuing | 0.000 |
| ** NGDS - PM/MS S - Product Management Support | MIPR | CBMS:Fort Detrick, MD | - | 0.200 | Nov 2011 | - | | - | | - | Continuing | Continuing | 0.000 |
| PM/MS S - Product Management Systems Support | Allot | CBMS:Fort Detrick, MD | - | 0.386 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** EID FLU - PM/MS SB - Management Support | Allot | JPEOCBD:Edgewood, MD | - | 0.721 | Feb 2012 | 0.074 | Feb 2013 | - | | 0.074 | Continuing | Continuing | 0.000 |
| PM/MS SB - TMT Internal Operational Costs | Various | JPM TMT:Fort Belvoir, VA | - | 1.675 | Feb 2012 | 1.775 | Feb 2013 | - | | 1.775 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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)* | |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** HFV - PM/MS SB - Management Support | Allot | JPEOCBD:EDGEWOOD, MD | - | 1.758 | Feb 2012 | 1.382 | Feb 2013 | - | | 1.382 | Continuing | Continuing | 0.000 |
| PM/MS SB - TMT OPERATIONAL COST | Allot | JPM-TMT:FT BELVOIR, VA | - | 2.766 | Feb 2012 | 1.552 | Feb 2013 | - | | 1.552 | Continuing | Continuing | 0.000 |
| PM/MS SB - A&AS CONTRACT | C/FFP | KALMAN CO INC:VIRGINIA BEACH, VA | - | - | | 7.054 | Aug 2013 | - | | 7.054 | Continuing | Continuing | 0.000 |
| ** IBP - PM/MS SB - Management Support | Allot | JPEO:EDGEWOOD, MD | - | 0.315 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| PM/MS SB - JPM-TMT | Allot | JPM-TMT FT. BELVOIR:VA | - | 0.435 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| PM/MS SB - JPM-TMT #2 | C/FFP | KALMAN CO INC:VIRGINIA BEACH, VA | - | 3.879 | Aug 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** PLTFM - PM/MS SB - BSV - Management Support | Allot | JPEOCBD:EDGEWOOD, MD | - | 1.032 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| PM/MS SB - JPM-TMT OPERATIONAL COST | Allot | JPM-TMT:FT. BELVOIR, VA | - | 2.398 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** BSV - PM/MS SB - BSV - Management Support | Allot | JPEOCBD:Edgewood, MD | - | - | | 0.209 | Feb 2013 | - | | 0.209 | Continuing | Continuing | 0.000 |
| PM/MS SB - JPM TMT Operational Cost | Various | JPM TMT:Fort Belvoir, VA | - | - | | 0.436 | Feb 2013 | - | | 0.436 | Continuing | Continuing | 0.000 |
| PM/MS S - JPEO Program Management Support | Allot | JPM TMT:Fort Belvoir, VA | - | - | | 0.315 | Feb 2013 | - | | 0.315 | Continuing | Continuing | 0.000 |
| ** VAC FILO - PM/MS S - Program Management/ Program Manager Support | Allot | CBMS:Fort Detrick, MD | 1.149 | 0.931 | Aug 2012 | 1.305 | Feb 2013 | - | | 1.305 | Continuing | Continuing | 0.000 |
| PM/MS S - Contractor Systems Engineering/Program Management Support | SS/FFP | Goldbelt Raven LLC:Frederick, MD | 2.160 | 1.000 | Feb 2012 | 0.700 | Feb 2013 | - | | 0.700 | Continuing | Continuing | 0.000 |
| PM/MS - Joint Vaccine Acquisition Program Management | Allot | CBMS:Fort Detrick, MD | 1.014 | 0.723 | Feb 2012 | 0.500 | Feb 2013 | - | | 0.500 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

**Management Services ($ in Millions)**

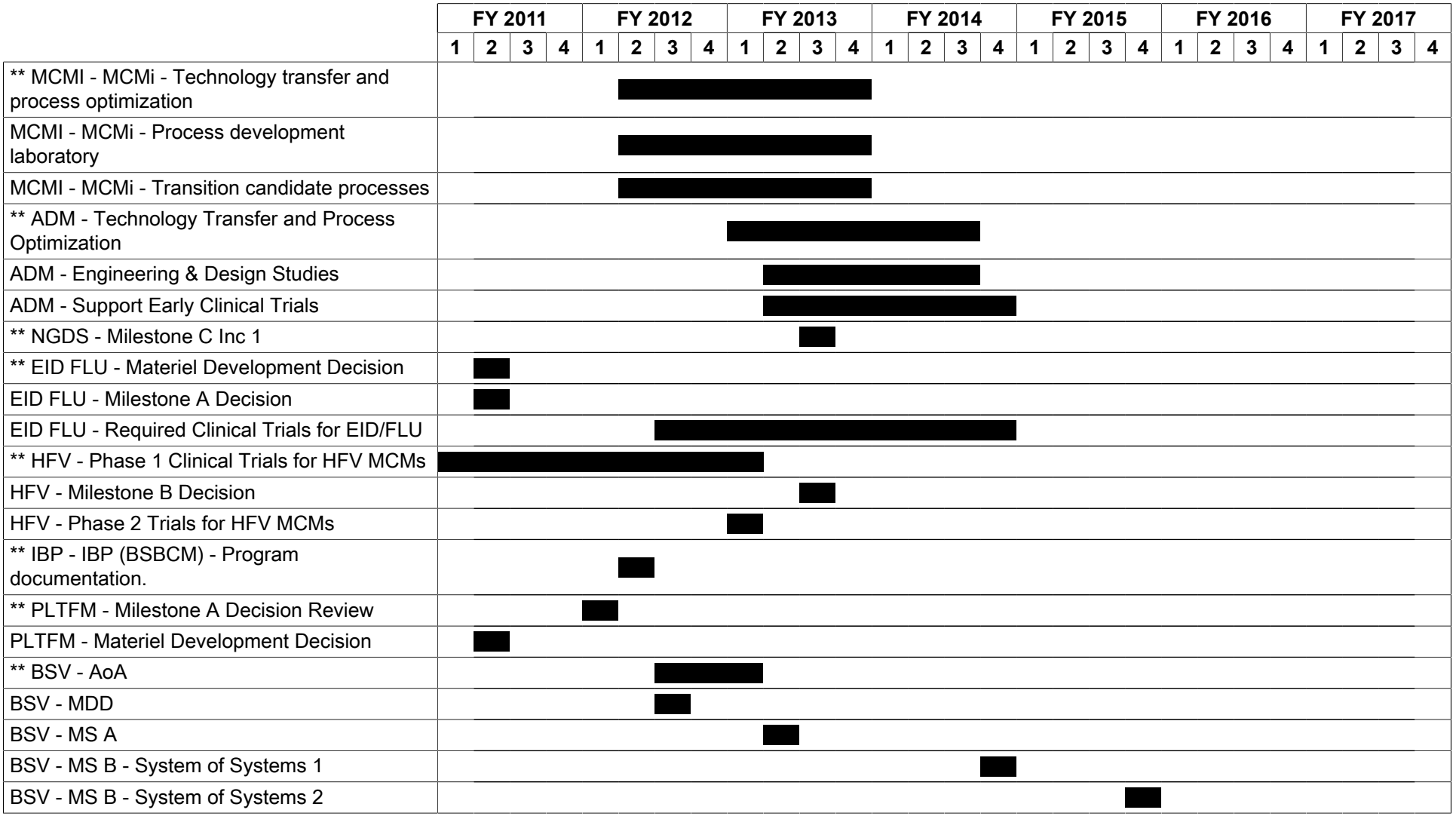
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PM/MS C - PM/MS S-Program Management Program Manager Support | Allot | JPEO-CBD:APG, MD | 0.850 | 1.004 | Feb 2012 | 0.338 | Feb 2013 | - | | 0.338 | Continuing | Continuing | 0.000 |
| PM/MS S - Contractor Support | C/FFP | Goldbelt Raven LLC:Frederick, MD | - | - | | 0.595 | May 2013 | - | | 0.595 | Continuing | Continuing | 0.000 |
| PM/MS S - Program Manager Support | Allot | CBMS:Fort Detrick, MD | - | - | | 0.763 | Nov 2012 | - | | 0.763 | Continuing | Continuing | 0.000 |
| PM/MS S - JVAP Program Management | Allot | CBMS:Fort Detrick, MD | - | - | | 0.422 | Nov 2012 | - | | 0.422 | Continuing | Continuing | 0.000 |
| PM/MS S - Program Management Support | Allot | JPEO-CBD:APG, MD | - | - | | 0.141 | Nov 2012 | - | | 0.141 | Continuing | Continuing | 0.000 |
| ** VAC RIC - PM/MS S - Program Management | Allot | CBMS:Fort Detrick, MD | - | - | | 1.000 | Nov 2012 | - | | 1.000 | Continuing | Continuing | 0.000 |
| PM/MS S - Contractor Systems Program Management Support | C/FP | Goldbelt Raven LLC:Frederick, MD | - | - | | 0.687 | May 2013 | - | | 0.687 | Continuing | Continuing | 0.000 |
| PM/MS S - Joint Vaccine Acquisition Program Management | Allot | CBMS:Fort Detrick, MD | - | - | | 0.458 | Nov 2012 | - | | 0.458 | Continuing | Continuing | 0.000 |
| PM/MS S - Program Management Support #2 | Allot | JPEO-CBD:APG, MD | - | - | | 0.230 | Nov 2012 | - | | 0.230 | Continuing | Continuing | 0.000 |
| ** VAC WEVEE - PM/MS S - Program Manger Support | Allot | CBMS:Fort Detrick, MD | - | - | | 0.517 | Nov 2012 | - | | 0.517 | Continuing | Continuing | 0.000 |
| PM/MS S - Contractor Systems Engineering Program Support | C/FFP | Goldbelt Raven LLC:Frederick MD | - | - | | 0.308 | May 2013 | - | | 0.308 | Continuing | Continuing | 0.000 |
| PM/MS S - Joint Vaccine Acquisition Program Management #2 | Allot | CBMS:Fort Detrick, MD | - | - | | 0.363 | Nov 2012 | - | | 0.363 | Continuing | Continuing | 0.000 |
| PM/MS SB - JPEO Program Management Support | Allot | JPEO-CBD:APG, MD | - | - | | 0.079 | Nov 2012 | - | | 0.079 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 5.173 | 20.769 | | 25.151 | | - | | 25.151 | | | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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)* | |

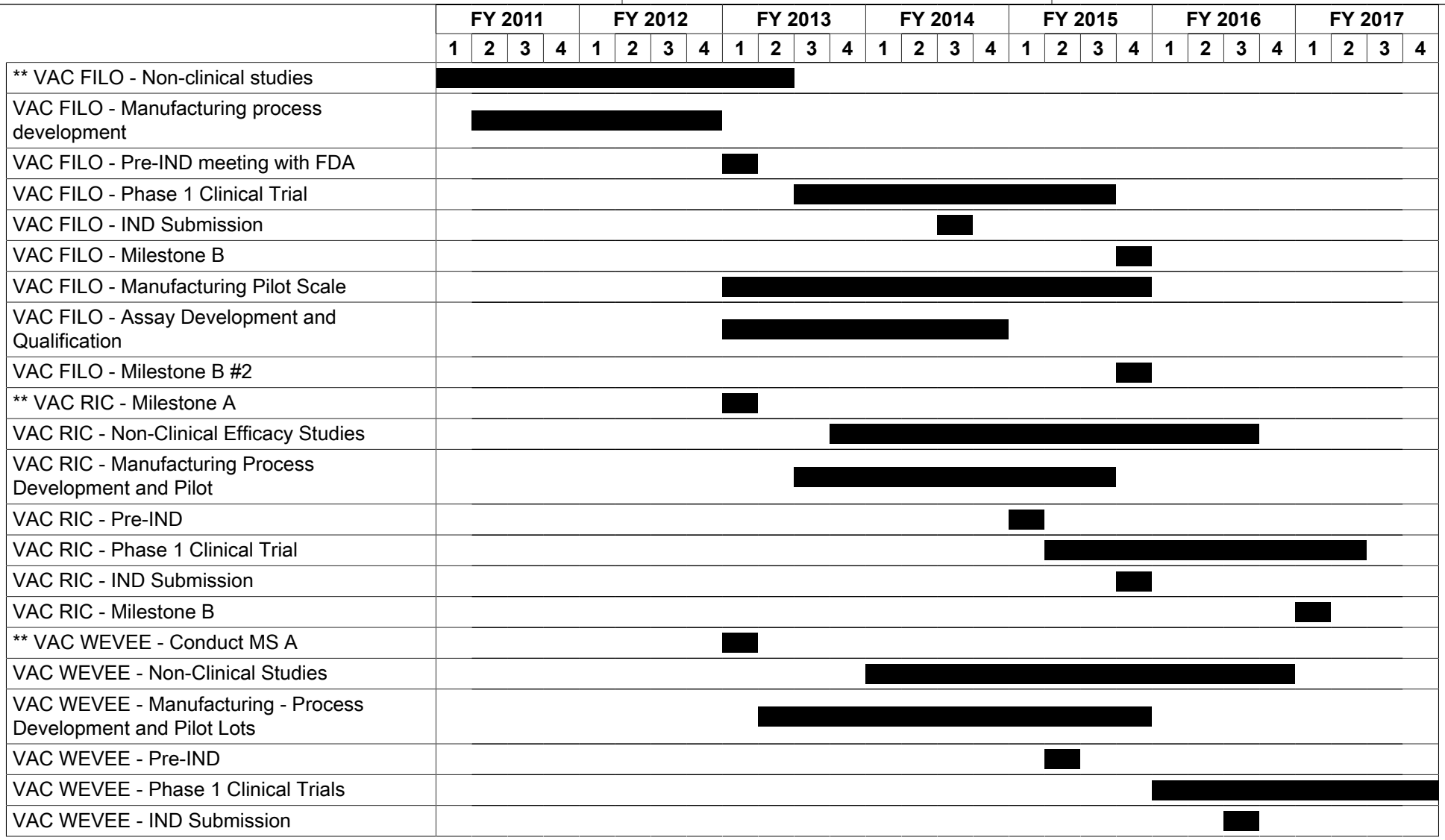
| | Total Prior Years Cost | FY 2012 | | FY 2013 Base | | FY 2013 OCO | | FY 2013 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 24.863 | 116.653 | | 133.254 | | - | | 133.254 | | | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2011 | | | | FY 2012 | | | | FY 2013 | | | | FY 2014 | | | | FY 2015 | | | | FY 2016 | | | | FY 2017 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 |
| VAC WEVEE - Milestone B | | | | | | | | | | | | | | | | | | | | | | | | | | | | ■ |

| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** MCMI - MCMi - Technology transfer and process optimization | 2 | 2012 | 4 | 2013 |
| MCMI - MCMi - Process development laboratory | 2 | 2012 | 4 | 2013 |
| MCMI - MCMi - Transition candidate processes | 2 | 2012 | 4 | 2013 |
| ** ADM - Technology Transfer and Process Optimization | 1 | 2013 | 3 | 2014 |
| ADM - Engineering & Design Studies | 2 | 2013 | 3 | 2014 |
| ADM - Support Early Clinical Trials | 2 | 2013 | 4 | 2014 |
| ** NGDS - Milestone C Inc 1 | 3 | 2013 | 3 | 2013 |
| ** EID FLU - Materiel Development Decision | 2 | 2011 | 2 | 2011 |
| EID FLU - Milestone A Decision | 2 | 2011 | 2 | 2011 |
| EID FLU - Required Clinical Trials for EID/FLU | 3 | 2012 | 4 | 2014 |
| ** HFV - Phase 1 Clinical Trials for HFV MCMs | 1 | 2011 | 1 | 2013 |
| HFV - Milestone B Decision | 3 | 2013 | 3 | 2013 |
| HFV - Phase 2 Trials for HFV MCMs | 1 | 2013 | 1 | 2013 |
| ** IBP - IBP (BSBCM) - Program documentation. | 2 | 2012 | 2 | 2012 |
| ** PLTFM - Milestone A Decision Review | 1 | 2012 | 1 | 2012 |
| PLTFM - Materiel Development Decision | 2 | 2011 | 2 | 2011 |
| ** BSV - AoA | 3 | 2012 | 1 | 2013 |
| BSV - MDD | 3 | 2012 | 3 | 2012 |
| BSV - MS A | 2 | 2013 | 2 | 2013 |
| BSV - MS B - System of Systems 1 | 4 | 2014 | 4 | 2014 |
| BSV - MS B - System of Systems 2 | 4 | 2015 | 4 | 2015 |
| ** VAC FILO - Non-clinical studies | 1 | 2011 | 2 | 2013 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| VAC FILO - Manufacturing process development | 2 | 2011 | 4 | 2012 |
| VAC FILO - Pre-IND meeting with FDA | 1 | 2013 | 1 | 2013 |
| VAC FILO - Phase 1 Clinical Trial | 3 | 2013 | 3 | 2015 |
| VAC FILO - IND Submission | 3 | 2014 | 3 | 2014 |
| VAC FILO - Milestone B | 4 | 2015 | 4 | 2015 |
| VAC FILO - Manufacturing Pilot Scale | 1 | 2013 | 4 | 2015 |
| VAC FILO - Assay Development and Qualification | 1 | 2013 | 4 | 2014 |
| VAC FILO - Milestone B #2 | 4 | 2015 | 4 | 2015 |
| ** VAC RIC - Milestone A | 1 | 2013 | 1 | 2013 |
| VAC RIC - Non-Clinical Efficacy Studies | 4 | 2013 | 3 | 2016 |
| VAC RIC - Manufacturing Process Development and Pilot | 3 | 2013 | 3 | 2015 |
| VAC RIC - Pre-IND | 1 | 2015 | 1 | 2015 |
| VAC RIC - Phase 1 Clinical Trial | 2 | 2015 | 2 | 2017 |
| VAC RIC - IND Submission | 4 | 2015 | 4 | 2015 |
| VAC RIC - Milestone B | 1 | 2017 | 1 | 2017 |
| ** VAC WEVEE - Conduct MS A | 1 | 2013 | 1 | 2013 |
| VAC WEVEE - Non-Clinical Studies | 1 | 2014 | 4 | 2016 |
| VAC WEVEE - Manufacturing - Process Development and Pilot Lots | 2 | 2013 | 4 | 2015 |
| VAC WEVEE - Pre-IND | 2 | 2015 | 2 | 2015 |
| VAC WEVEE - Phase 1 Clinical Trials | 1 | 2016 | 4 | 2017 |
| VAC WEVEE - IND Submission | 3 | 2016 | 3 | 2016 |
| VAC WEVEE - Milestone B | 4 | 2017 | 4 | 2017 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)* | 4.134 | 7.804 | - | - | - | 16.947 | 20.395 | 37.513 | 25.134 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

This Project provides for the development of medical materiel and other medical equipment items necessary for the Technology Development phase of the acquisition life cycle for the advanced development of medical countermeasures (MCMs) for chemical agents including diagnostic equipment, prophylactic, pre-treatment, and therapeutic drugs, and individual/casualty decontamination compounds. A family-of-systems approach for 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, pre-treatment, and therapeutic drugs and medical devices requires Food and Drug Administration (FDA) approval. Given the family-of-systems approach for development of chemical MCMs for the treatment of nerve agent intoxication, multiple long-term studies are required to obtain FDA approval to deliver products that effectively integrate with current and projected therapeutic regimens. Efficacy testing of most candidate drugs against chemical warfare agents cannot be conducted in humans; therefore, animal surrogate models must be developed and employed. The program currently funds: (1) Bioscavenger, a new capability, to be used as a prophylaxis against nerve agents; (2) Centrally Acting Nerve Agent Treatment System (CANATS), an adjunct that augments the current capability, will treat adverse effects of nerve agent intoxication occurring in the central nervous system and will provide improved survival, reduced morbidity, and decreased neurological damage; and (3) Improved Nerve Agent Treatment System (INATS), a replacement and improvement to existing capability, to be used as a treatment for nerve agent intoxication; the INATS effort also includes expanding the indications for Pyridostigmine Bromide (PB) that will be integrated with current therapeutic regimens. The INATS program efforts do not continue beyond FY12. CANATS advanced development efforts have been delayed beyond FY13.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) BSCAV | 0.534 | - | - |
| ***FY 2011 Accomplishments:***<br>Continued evaluation of alternative manufacturing studies. | | | |
| ***Title:*** 2) CANATS | - | 2.927 | - |
| ***FY 2012 Plans:***<br>Initiate testing of candidates against Non-Traditional Agents (NTAs). | | | |
| ***Title:*** 3) INATS | 2.900 | 1.474 | - |
| ***FY 2011 Accomplishments:***<br>Initiated Phase 1 Clinical Trial. | | | |
| ***FY 2012 Plans:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Complete Phase 1 Clinical Trial. | | | |
| ***Title:*** 4) INATS<br>***FY 2012 Plans:***<br>Initate and complete animal tox studies. | - | 2.700 | - |
| ***Title:*** 5) INATS<br>***FY 2011 Accomplishments:***<br>Continued process development and chemistry manufacturing and control (CMC) efforts of enhanced formulation to support clinical trials. | 0.700 | - | - |
| ***Title:*** 6) INATS<br>***FY 2012 Plans:***<br>Initiated and completed studies to support the Equipment and Material Transfer Agreement (E&MTA) with the UK. | - | 0.600 | - |
| ***Title:*** 7) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.103 | - |
| **Accomplishments/Planned Programs Subtotals** | 4.134 | 7.804 | - |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* | 3.801 | 2.407 | 9.642 | | 9.642 | 41.257 | 45.477 | 50.862 | 58.935 | Continuing | Continuing |
| • JM6677: *ADVANCED ANTICONVULSANT SYSTEM (AAS)* | 0.000 | 0.000 | 4.466 | | 4.466 | 8.951 | 0.000 | 0.000 | 0.000 | 0.000 | 13.417 |

**D. Acquisition Strategy**

BSCAV

Bioscavenger acquisition strategy uses a serial evaluation of candidates to achieve competitive prototyping in the Technology Development Phase. Initially, the Medical Identification and Treatment Systems (MITS) Joint Product Management Office (JPMO) exercised management oversight and a commercial partner as the system integrator during the Technology Development Phase to examine a human plasma-derived butyrylcholinesterase. Activities included small scale

manufacturing, conduct of pre-clinical animal safety studies, submission of an Investigational New Drug (IND) application, and completion of a Phase 1 human clinical safety study. Subsequently, the MITS JPMO evaluated a goat-derived recombinant butyrylcholinesterase candidate and multiple small molecule candidates. The small molecule candidates were not pursued beyond initial toxicology/safety testing in animals. For goat-derived Bioscavenger, activities included small scale manufacturing, conduct of pre-clinical animal safety studies, submission of an IND application, completion of a Phase 1 human clinical safety study and conduct of preliminary animal efficacy studies. The goat-derived Bioscavenger candidate was discontinued after the product failed to demonstrate sufficient product performance in the preliminary animal efficacy studies. During FY11, the program completed a system engineering trade off analysis resulting in a reduction of the initial operating capability/full operational capability (IOC/FOC) quantities and consequently an estimated cost avoidance of $1.14B over the product life.

The path forward will include a formal Request For Proposal (RFP) to select the best value for the government for a prophylaxis to support an initial limited user group. Concurrently the MITS JPMO will conduct an analysis of alternative manufacturing technologies and investigate additional product indications. Subsequently, an expanded force solution prophylaxis will be pursued, once appropriate technologies have matured. Following a successful Milestone B and entry into Engineering and Manufacturing Development (EMD), the MITS JPMO will continue to exercise management oversight with system integration support of a commercial partner to ensure that manufacturing of the product is in accordance with Food and Drug Administration (FDA) regulations and guidelines. The RFP for product manufacturing will include options for transition to the Medical Countermeasures Initiative (MCMI) Advanced Development Manufacturing (ADM) capability. Prior to FDA licensure, a commercial partner will perform a Phase 2 human clinical safety study, definitive animal efficacy studies, and toxicology studies. The system integrator will also develop and manufacture a product formulation and delivery system and will submit a New Drug Application and seek FDA approval. The EMD phase will culminate in FDA licensure of the Bioscavenger. During the Production and Deployment phase, the MITS JPMO, in conjunction with a commercial partner, will pursue full rate production and conduct any FDA-mandated post-marketing surveillance studies.

CANATS

The Medical Identification and Treatment Systems (MITS) Joint Product Management Office (JPMO) will serve as the system integrator during the Technology Development Phase and will conduct non-clinical animal studies and Phase 1 human clinical safety studies with the centrally acting drug candidate(s) that will serve as adjunct therapy to the already available nerve agent treatment regimen. If multiple centrally acting candidates are transitioned from tech base, the MITS JPMO will down-select and determine the final configuration of the CANATS autoinjector prior to Milestone B. After Milestone B, during the Engineering and Manufacturing (EMD) Phase, the MITS JPMO and/or a commercial partner (product dependent) will serve as the system integrator to conduct Phase 2 human clinical safety, definitive animal efficacy and toxicology studies required for FDA approval. The system integrator will also develop and manufacture a product formulation and autoinjector delivery system that is stable under operationally relevant temperatures. The system integrator will seek FDA approval for the CANATS product during the EMD Phase. During the Production and Deployment Phase, and full rate and stockpile production will be pursued. Any FDA mandated post-marketing surveillance studies will be conducted during the Production and Deployment Phase.

INATS

The Medical Identification and Treatment Systems (MITS) Joint Product Management Office (JPMO) will serve as the system integrator during the Technology Development Phase and conduct formulation development, pre-clinical animal studies and Phase 1 human clinical safety studies for the candidate oxime to replace

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

2-pralidoxime chloride in the Antidote Treatment Nerve Agent Autoinjector (ATNAA). The animal studies will be used to expand the indications for Pyridostigimine bromide (SNAPP/PB) beyond Soman. After Milestone B, during the Engineering and Manufacturing (EMD) Phase, the MITS JPMO and/or a commercial partner (product dependent) will serve as the system integrator to conduct Phase 2 human clinical safety, definitive animal efficacy and toxicology studies required for FDA approval. The system integrator will also develop and manufacture a product formulation and autoinjector delivery system that is stable under operationally relevant temperatures. The system integrator will submit a New Drug Application and seek FDA approval for the INATS product during the EMD Phase. During the Production and Deployment Phase, and full rate and stockpile production will be pursued. Any FDA mandated post-marketing surveillance studies will be conducted during the Production and Deployment Phase.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** INATS - ES S - INATS - Regulatory Integration, IND, and NDA Support Efforts | MIPR | Defense Technical Information Center:Edgewood, MD (Battelle) | 1.528 | 0.300 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 1.528 | 0.300 | | - | | - | | - | | | 0.000 |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CANATS - DTE S - CANATS - NTA Studies | MIPR | Defense Technical Information Center:Edgewood, MD (Battelle) | - | 2.251 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** INATS - DTE C - INATS - Phase 1 Clinical Trial | MIPR | Defense Technical Information Center:Edgewood, MD (Battelle) | 1.900 | 1.336 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| HW S - INATS - Toxocological Studies | MIPR | Defense Technical Information Center:Edgewood, MD (Battelle) | - | 2.400 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 1.900 | 5.987 | | - | | - | | - | | | 0.000 |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CANATS - PM/MS C - CANATS - Program Management Support | Allot | CBMS:Fort Detrick, MD | - | 0.420 | Aug 2012 | - | | - | | - | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

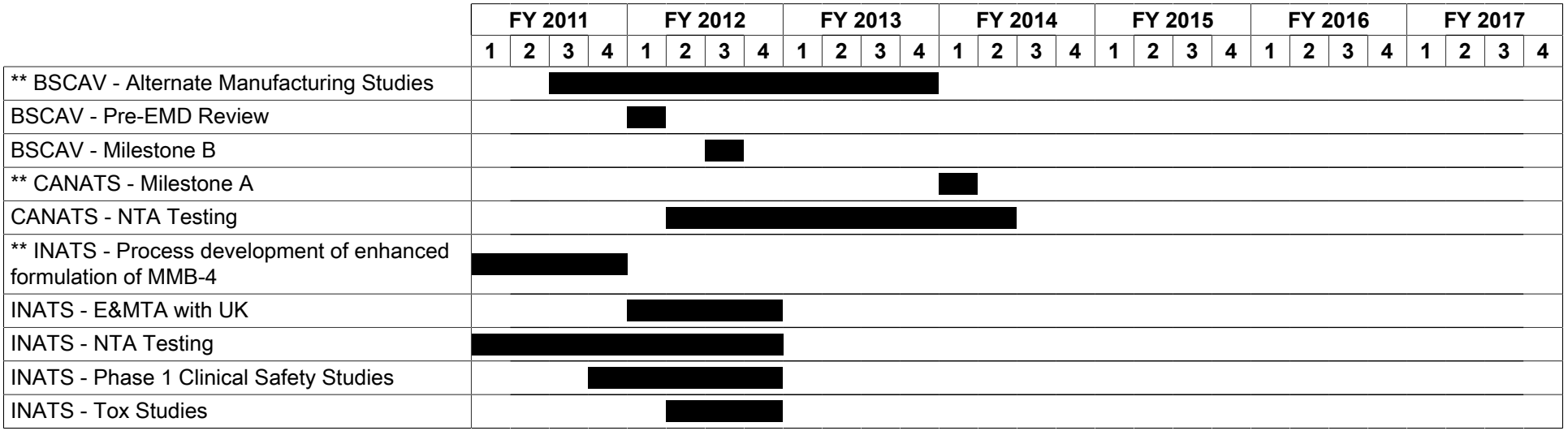
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PM/MS C - CANATS - Program Management Support | Allot | JPEO:APG, MD | - | 0.256 | Aug 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** INATS - PM/MS S - INATS - Product Management Support | SS/FFP | Goldbelt Raven LLC:Frederick, MD | 1.903 | 0.626 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| PM/MS S - INATS - Chem Bio Medical Systems | Allot | CBMS:Frederick, MD | 1.438 | 0.112 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 0.103 | | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 3.341 | 1.517 | | - | | - | | - | | | 0.000 |

| | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 6.769 | 7.804 | | - | | - | | - | | | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** BSCAV - Alternate Manufacturing Studies | 3 | 2011 | 4 | 2013 |
| BSCAV - Pre-EMD Review | 1 | 2012 | 1 | 2012 |
| BSCAV - Milestone B | 3 | 2012 | 3 | 2012 |
| ** CANATS - Milestone A | 1 | 2014 | 1 | 2014 |
| CANATS - NTA Testing | 2 | 2012 | 2 | 2014 |
| ** INATS - Process development of enhanced formulation of MMB-4 | 1 | 2011 | 4 | 2011 |
| INATS - E&MTA with UK | 1 | 2012 | 4 | 2012 |
| INATS - NTA Testing | 1 | 2011 | 4 | 2012 |
| INATS - Phase 1 Clinical Safety Studies | 4 | 2011 | 4 | 2012 |
| INATS - Tox Studies | 2 | 2012 | 4 | 2012 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MR4: *MEDICAL RADIOLOGICAL DEFENSE (ACD&P)* | 1.129 | - | 4.050 | - | 4.050 | - | - | - | - | 0.000 | 5.179 |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

Operational forces have an immediate need to survive, safely operate, and sustain operations in a radiological/nuclear (R/N) threat environment across a continuum of global, contingency, special operations/low intensity conflict, homeland defense, and other high-risk missions. There are no FDA-approved prophylactics, treatments, or biodosimetry capabilities against radiation exposure. Treatment of R/N casualties depends on effective use of multiple medical capabilities in an integrated manner. Thus, this program supports the development of medical radiological countermeasures (MRADC) using a family-of-systems approach to provide a full spectrum capability to protect against the radiation threat which includes prophylactic, treatment, and biodosimetry capabilities. Individual countermeasure solutions will be developed using a single step to a full capability (FDA approval) strategy. Multiple contractors will serve as individual product integrators throughout development and will be responsible for conducting activities associated with drug development in a manner consistent with eventual approval by the FDA. Each contractor will sponsor the drug to the FDA and hold all approvals and/or licenses. The Technology Development phase includes pre-clinical studies, completion of manufacturing scale up, Phase 1 human clinical safety studies and initiation of manufacturing scale up activities, potentially utilizing the Medical Countermeasures Initiative (MCMI) Advanced Development Manufacturing (ADM) capability. 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 (IOC) and Full Operational Capability (FOC) will be purchased. Subsequent purchases will be made by the Defense Logistics Agency (DLA). Any post-marketing surveillance studies requested by the FDA will be conducted.

Medical Radiological Countermeasures (MRADC) efforts include development of multiple countermeasures required to protect U.S. Forces against a myriad of injuries caused by exposure to radiation and to restore casualties to pre-exposure health. 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 throughout the full spectrum of healthcare operations.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) MRADC TX | 0.900 | - | - |
| ***FY 2011 Accomplishments:***<br>Initiated and completed animal efficacy studies. | | | |
| ***Title:*** 2) MRADC TX | 0.229 | - | - |
| ***FY 2011 Accomplishments:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Initiated evaluation of additional candidate. | | | |
| ***Title:*** 3) MRADC TX<br>***FY 2013 Plans:***<br>Continue evaluation of additional candidate. | - | - | 2.221 |
| ***Title:*** 4) MRADC TX<br>***FY 2013 Plans:***<br>Initiate preliminary animal efficacy studies. | - | - | 1.550 |
| ***Title:*** 5) MRADC TX<br>***FY 2013 Plans:***<br>Conduct Milestone B prep activities. | - | - | 0.279 |
| **Accomplishments/Planned Programs Subtotals** | 1.129 | - | 4.050 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • MR5: *MEDICAL RADIOLOGICAL DEFENSE (SDD)* | 0.000 | 0.000 | 2.027 | | 2.027 | 16.610 | 18.103 | 6.101 | 7.115 | Continuing | Continuing |

**D. Acquisition Strategy**

MRADC

Medical Identification and Treatment Systems (MITS) Joint Product Management Office is the life-cycle manager of Medical Radiation Countermeasures (MRADC) for the Department of Defense (DoD). The DoD is working very closely with the Department of Health and Human Services (HHS), which also has a radiation countermeasure program. In support of the Integrated National Biodefense Portfolio, a Memorandum of Understanding (MOU) was established between HHS and DoD to prevent duplication of efforts and create synergies in the development of MRADC. In support of the MOU, the establishment of an interagency working group provides oversight and guidance to both agency programs and allows leveraging of knowledge and successes to advance the DoD MRADC program. Under the MOU, MITS executes Interagency Agreements with the Biomedical Advanced Research and Development Authority (BARDA), HHS' advanced developer, to promote the science of MRADC.

This project funds the advanced development of candidate therapeutic medical countermeasures to mitigate the consequences of exposure to ionizing radiation from nuclear or radiological attacks. There are currently no FDA-approved products to treat Acute Radiation Syndrome (ARS). Exposure to ionizing radiation causes

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

ARS which includes damage to blood-forming cells (hematopoietic system), gastrointestinal system, and central nervous system. 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 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 development of multiple countermeasures required to protect U.S. Forces against a myriad of injuries caused by exposure to radiation and to restore casualties to pre-exposure health. 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 throughout the full spectrum of healthcare operations.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** MRADC - HW C - Evaluate additional candidate | C/CPIF | TBD: | - | - | | 1.978 | Nov 2012 | - | | 1.978 | 0.000 | 1.978 | 0.000 |
| | | **Subtotal** | - | - | | 1.978 | | - | | 1.978 | 0.000 | 1.978 | 0.000 |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** MRADC - DTE C - Animal Efficacy Studies | C/CPIF | TBD: | - | - | | 1.395 | Nov 2012 | - | | 1.395 | 0.000 | 1.395 | 0.000 |
| | | **Subtotal** | - | - | | 1.395 | | - | | 1.395 | 0.000 | 1.395 | 0.000 |

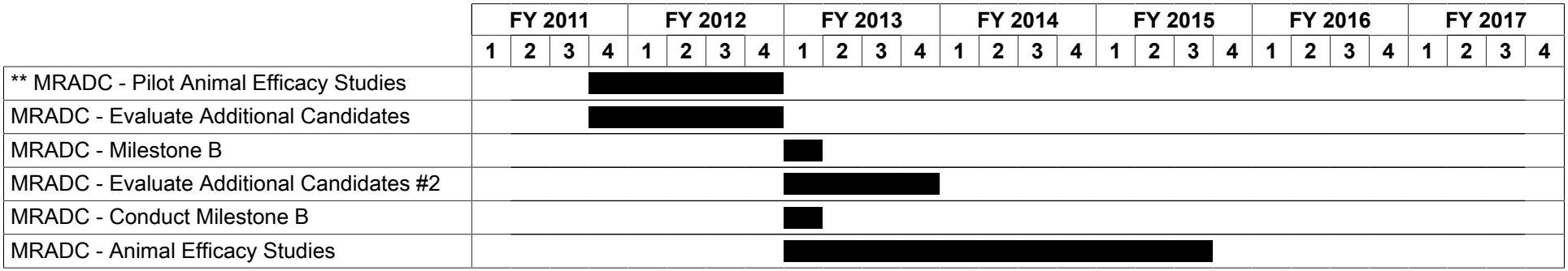
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** MRADC - PM/MS C - MRADC - Management Support | C/FFP | Goldbelt Raven LLC:Frederick, MD | - | - | | 0.552 | Feb 2013 | - | | 0.552 | 0.000 | 0.552 | 0.000 |
| PM/MS C - MRADC - Management Support | Allot | CBMS:Fort Detrick, MD | - | - | | 0.125 | Nov 2012 | - | | 0.125 | 0.000 | 0.125 | 0.000 |
| | | **Subtotal** | - | - | | 0.677 | | - | | 0.677 | 0.000 | 0.677 | 0.000 |

| | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | - | - | | 4.050 | | - | | 4.050 | 0.000 | 4.050 | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** MRADC - Pilot Animal Efficacy Studies | 4 | 2011 | 4 | 2012 |
| MRADC - Evaluate Additional Candidates | 4 | 2011 | 4 | 2012 |
| MRADC - Milestone B | 1 | 2013 | 1 | 2013 |
| MRADC - Evaluate Additional Candidates #2 | 1 | 2013 | 4 | 2013 |
| MRADC - Conduct Milestone B | 1 | 2013 | 1 | 2013 |
| MRADC - Animal Efficacy Studies | 1 | 2013 | 3 | 2015 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TE4: *TEST & EVALUATION (ACD&P)* | 19.054 | 5.438 | 4.994 | - | 4.994 | 12.771 | 20.408 | 15.872 | 13.044 | 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 three groups to include: (1) Sense Laboratory (Chemical); (2) Sense Laboratory (Biological); and (3) Individual Protection, Collective Protection and Decontamination (Shield and Sustain).

(1) Sense Laboratory (Chemical): The product for this area is the Non-Traditional Agent Defense Test System (NTADTS). The NTADTS provides a new capability at the Edgewood Chemical Biological Center (ECBC) to conduct highly toxic materials testing using new, emerging threat agents. The NTADTS supports testing of decontamination, collective protection, individual protection, and contamination avoidance products. The CBD acquisition program supported is the Joint Chemical Agent Detector (JCAD); Next Generation Chemical Point Detection (NGCPD) System; Joint Protective Aircrew Ensemble (JPACE); Joint Services Aircrew Mask (JSAM) - Fixed Wing (FW), Rotary Wing (RW), and Joint Strike Fighter (JSF) variants; Joint Service Chemical environment Survivability Mask (JSCESM); Joint Chemical Ensemble (JCE); Uniform Individual Protective Ensemble (UIPE); Joint Service Lightweight Integrated Suit Technology (JSLIST); and Joint Chemical/ Biological Coverall for Combat Vehicle Crewmen (JC3).

(2) Sense Laboratory (Biological): The product for this area is a biological live agent standoff chamber to collect biological agent signature data, location: TBD. The Chamber supports Joint Biological standoff detection testing by providing optical scattering cross sections and signatures in biological live agent environments. The CBD acquisition program supported is the Joint Biological Standoff Detection System (JBSDS) Increment 2.

(3) Individual Protection, Collective Protection and Decontamination (Shield and Sustain): The product for the area is an Individual Protection Ensemble Mannequin System (IPEMS), and Chemical Biological Agent Resistance Test Fixtures (CBART) at Dugway Proving Ground (DPG), UT. IPEMS provides an articulated robotic mannequin that simulates Warfighters activities and includes under ensemble agent sensing capability for evaluating IPE against chemical warfare agents. IPEMS consists of an articulated robotic mannequin, exposure chamber, control room, and real time under-ensemble sensor system. CBART provides a state of the art material swatch test fixture for individual and collective protection system. The CBD programs supported are: Joint Protective Aircrew Ensemble (JPACE); Joint Service General Purpose Mask (JSGPM); Joint Service Aircrew Mask (JSAM) - Fixed Wing (FW), Rotary Wing (RW), and Joint Strike Fighter (JSF) variants; Joint Service Chemical Environment Survivability Mask (JSCESM); Joint Chemical Ensemble (JCE); Uniform Individual Protective Ensemble (UIPE); Joint Service Lightweight Integrated Suit Technology (JSLIST); and Joint Chemical/Biological Coverall for Combat Vehicle Crewmen (JC3).

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) PD TESS - Non-Traditional Agent Defense Test System (NTADTS)<br>***FY 2011 Accomplishments:***<br>Completed design of NTADTS. Conducted Human Factors Studies and completed simulant and agent testing on two test fixtures. Continued compound monitoring and decontamination method development.<br>***FY 2012 Plans:***<br>Initiate laboratory revitalization. Fabricate test chambers. Perform decontamination studies.<br>***FY 2013 Plans:***<br>Complete laboratory revitalization and fabrication of test chambers. Installation of test chambers and integration of test fixtures. Commissioning and verification. | 15.297 | 4.395 | 4.894 |
| ***Title:*** 2) PD TESS - Bio Standoff Facility<br>***FY 2011 Accomplishments:***<br>Developed final design concepts for the Bio Standoff Facility. Initiated final specifications and drawings for Bio Standoff Facility.<br>***FY 2012 Plans:***<br>Develop final specifications and drawings for the Bio Standoff Facility. | 2.018 | 0.970 | - |
| ***Title:*** 3) PD TESS - IPEMS<br>***FY 2011 Accomplishments:***<br>Completed mannequin chemical sensor repackaging, test, and evaluation. | 1.739 | - | - |
| ***Title:*** 4) PD TESS - Chemical Biological Agent Resistance Test Fixture (CBART)<br>***FY 2013 Plans:***<br>Initiate CBART final specifications and drawings. | - | - | 0.100 |
| ***Title:*** 5) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.073 | - |
| **Accomplishments/Planned Programs Subtotals** | 19.054 | 5.438 | 4.994 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TE5: *TEST & EVALUATION (SDD)* | 30.653 | 11.043 | 6.394 | | 6.394 | 20.202 | 12.033 | 14.200 | 14.200 | Continuing | Continuing |
| • TE7: *TEST & EVALUATION (OP SYS DEV)* | 4.732 | 3.597 | 4.156 | | 4.156 | 3.690 | 3.642 | 2.846 | 2.846 | 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 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** PD TESS - HW S - NTA Defense Test System Design/ Fabrication/Installation | C/CPFF | MRIGlobal:Kansas City, MO | 29.500 | 2.501 | | 1.821 | May 2012 | - | | 1.821 | Continuing | Continuing | 0.000 |
| HW S - NTA Defense Test System Design/Fabrication/ Installation | MIPR | Various: | 8.141 | 0.599 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| HW S - Bio Standoff Facility Feasibility/Design | MIPR | Dugway Proving Ground/NAVSEA/ Hanscom AFB: | 3.276 | 0.970 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| SW SB - CBART - Design/ Fabrication | MIPR | Various: | - | - | | 0.100 | Nov 2012 | - | | 0.100 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 40.917 | 4.070 | | 1.921 | | - | | 1.921 | | | 0.000 |

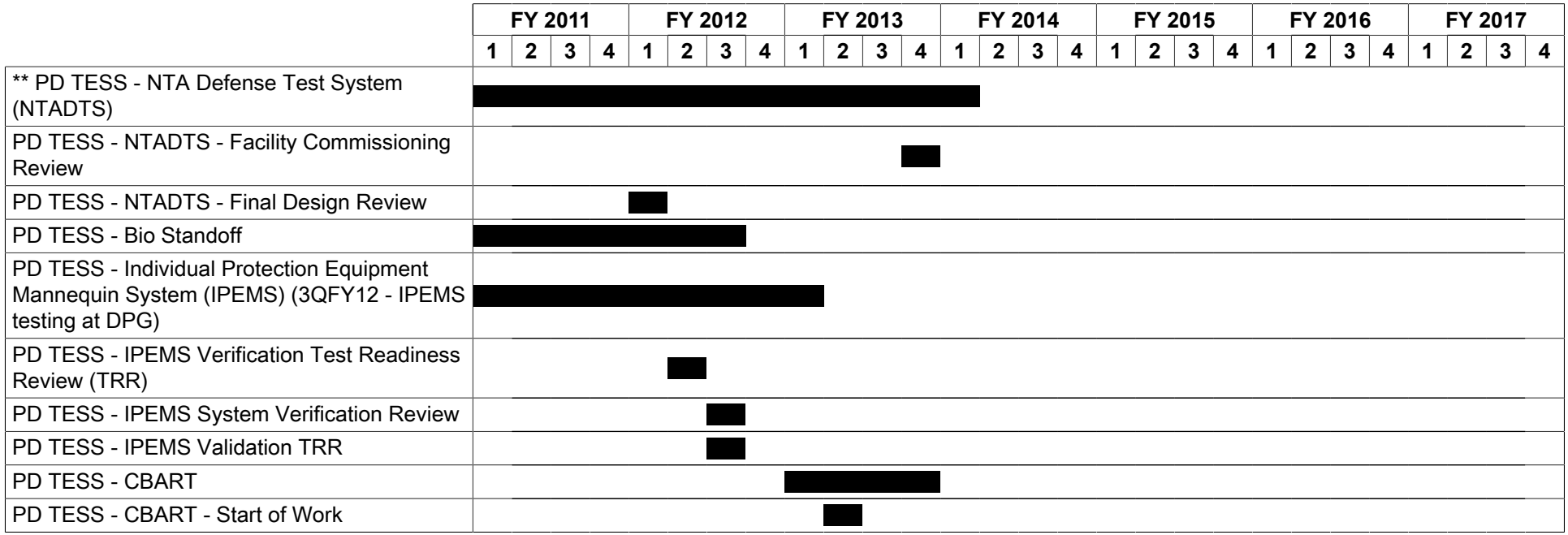
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** PD TESS - PM/MS S - Management/Systems/ Engineering Support | MIPR | JPM NBC CA:APG, MD | 6.601 | 1.295 | Nov 2011 | 3.073 | Nov 2012 | - | | 3.073 | Continuing | Continuing | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/ STTR | PO | HQ:AMC, Alexandria | - | 0.073 | | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 6.601 | 1.368 | | 3.073 | | - | | 3.073 | | | 0.000 |

| | Total Prior Years Cost | FY 2012 | | FY 2013 Base | | FY 2013 OCO | | FY 2013 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 47.518 | 5.438 | | 4.994 | | - | | 4.994 | | | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** PD TESS - NTA Defense Test System (NTADTS) | 1 | 2011 | 1 | 2014 |
| PD TESS - NTADTS - Facility Commissioning Review | 4 | 2013 | 4 | 2013 |
| PD TESS - NTADTS - Final Design Review | 1 | 2012 | 1 | 2012 |
| PD TESS - Bio Standoff | 1 | 2011 | 3 | 2012 |
| PD TESS - Individual Protection Equipment Mannequin System (IPEMS) (3QFY12 - IPEMS testing at DPG) | 1 | 2011 | 1 | 2013 |
| PD TESS - IPEMS Verification Test Readiness Review (TRR) | 2 | 2012 | 2 | 2012 |
| PD TESS - IPEMS System Verification Review | 3 | 2012 | 3 | 2012 |
| PD TESS - IPEMS Validation TRR | 3 | 2012 | 3 | 2012 |
| PD TESS - CBART | 1 | 2013 | 4 | 2013 |
| PD TESS - CBART - Start of Work | 2 | 2013 | 2 | 2013 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)* | 26.051 | 3.022 | 3.377 | - | 3.377 | 4.096 | 7.296 | 7.821 | 7.821 | 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 Joint Capability Technology Demonstrations (JCTDs) 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 four major thrust areas (one of which is a new thrust areas to address DoD emphasis on an interagency collaboration for biological detection, surveillance, recovery and resilience and is annotated as such below): Hazard Mitigation, Early Warning, Comprehensive Innovative Protection (CIP) and Interagency Countering Bio-threats Initiative (ICBI). The Hazard Mitigation thrust area 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 Early Warning 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 transitions mature technologies to improve individual and collective protection capabilities for U.S. and coalition Warfighters. The Interagency Countering Bio-threats Initiative is targeted to reduce biological threats by: (1) improving DoD access to the life sciences to combat infectious disease regardless of its cause; (2) establishing and reinforcing DoD concept of operations (CONOPS) against the misuse of the life sciences; and (3) instituting a suite of coordinated DoD and interagency activities that collectively will help influence, identify, inhibit, and/or interdict those who seek to misuse the life sciences. The following is a description of specific efforts funded under each thrust area:

Hazard Mitigation:
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 completed in FY10.

Early Warning:
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,

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

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.

Comprehensive Innovative Protection (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.

Joint Medical Distance Support and Evaluation (JMDSE) - A JCTD that seeks to develop new detect-to-treat CONOPS enabled by the deployment of new chemical and biological detection and identification capabilities to front line forces.

Interagency Countering Bio-threats Initiative (ICBI):
Transatlantic Collaborative Biological Resiliency Demonstration (TaCBRD) - A Department of Defense (DoD) managed effort in collaboration with Department of State and Department of Homeland Security (DHS). This collaborative effort that will provide a coordinated, systems approach to the response and recovery of a overseas partner nation with DoD assistance. This will include Department of Defense (DoD) infrastructures and high traffic areas.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.035 | - |
| ***Title:*** 2) TT DEMO - ART (HaMMER)<br>***Description:*** ART (Hazard Mitigation Material and Equipment Restoration (HaMMER))<br>***FY 2011 Accomplishments:*** | 7.453 | - | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Conducted and completed total system decontamination processes to ensure collective applications can be employed to eliminate or reduce chemical and biological decontamination. Project defines and provides a flexible system design that leverages individual technologies that address both hazard mitigation and dose-based risk assessment concepts. Transitioned system of systems chemical/biological decontamination apparatus; Tactics, Techniques, and Procedures (TTPs); and CONOPS to JPM-Protection. | | | |
| ***Title:*** 3) TT DEMO - EW-MARS (JFP)<br>***Description:*** EW-MARS (Military Applications in Reconnaissance Systems for Joint Force Protection (MARS-JFP))<br>***FY 2011 Accomplishments:***<br>Completed operational concept generation, software development, operational prototype and mockup development. Monitored three SBIR contracts to completion of Phase 2 efforts. Effort terminated due to elimination of corresponding Program of Records. | 3.336 | - | - |
| ***Title:*** 4) TT DEMO - EW-MARS (RASR)<br>***Description:*** EW-MARS (Rapid Area Surveillance/Reconnaissance (RASR))<br>***FY 2011 Accomplishments:***<br>Completed operational concept planning and exercise planning; technology readiness assessments; operational mockup, lesson plans and final development planning; conducted and finalized surety testing; conducted several technical and operational demonstrations; conducted several Military Utility Assessments (MUA) to assess value to Warfighter; reconditioned complete system in preparation for transition to operational manager and combat developer. | 11.961 | - | - |
| ***Title:*** 5) TT DEMO - EW-MARS (PIWID)<br>***Description:*** EW-MARS Thrust Area (Post Intercept Weapons of Mass Destruction Identification (PIWID))<br>***FY 2011 Accomplishments:***<br>Assessed standoff data, chem/bio data, and current plan for Unmanned Aerial Vehicle (UAV) point-based, sensor approaches. Conducted standoff sensor and UAV CONOPS. Conducted laboratory demonstration within cross domain environment. Transitioned data to JPM-NBC CA and JPM-BD. | 1.796 | - | - |
| ***Title:*** 6) TT DEMO - CIP (JSMDE)<br>***Description:*** CIP (Joint Medical Distance Support and Evaluation (JMSDE))<br>***FY 2011 Accomplishments:*** | 1.505 | - | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Completed field demonstrations and military utility assessments; completed CONOPS and training, test, and security plans. Completed software development and integration. Transitioned to JPM-Bio Detection. | | | |
| ***Title:*** 7) TT DEMO - ICBI (TaCBRD)<br>***Description:*** (ICBI) Transatlantic Collaborative Biological Recovery Demonstration (TaCBRD)<br><br>***FY 2012 Plans:***<br>Initiate concept exploration and risk reduction efforts. Conduct baseline study to understand capability gaps associated with partner nation recovery and resilience in an overseas environment. In FY13, this research area is realigned within TT4 to TECHTRAN - ICBI (TaCBRD). | - | 2.987 | - |
| ***Title:*** 8) TECHTRAN - ICBI (TaCBRD)<br>***Description:*** (ICBI) Transatlantic Collaborative Biological Recovery Demonstration (TaCBRD)<br><br>***FY 2013 Plans:***<br>Initiate Coalition Warfare Program S&T efforts with international partner in EUCOM AOR. Conduct persistent agent fate and contagious bio agent information systems studies, technical demonstrations and exercises. Initiate bio-resiliency planning efforts in a second AOR. In FY13, this research area is realigned within TT4 from TT DEMO - ICBI (TaCBRD). | - | - | 3.377 |
| **Accomplishments/Planned Programs Subtotals** | 26.051 | 3.022 | 3.377 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TE3: *TEST & EVALUATION (ATD)* | 11.346 | 11.199 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 22.545 |
| • TT3: *TECHBASE TECHNOLOGY TRANSITION* | 4.433 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 4.433 |

**D. Acquisition Strategy**

TT DEMO

The Advanced Technology Demonstrations (ATDs) and Joint Capability Technology Demonstrations (JCTDs) exploit mature and maturing technologies to solve important military problems. ATDs and JCTDs 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

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

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. In addition, the ATDs utilize the Defense Threat Reduction Agency (DTRA) Broad Area Announcement process to fund promising technologies between Technology Readiness Level (TRL) 4 and TRL 6. 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

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** TT DEMO - HW C - TaCBRD ATD | MIPR | ECBC:Edgewood, MD | - | 0.390 | Nov 2011 | - | | - | | - | Continuing | Continuing | 0.000 |
| HW C- TaCBRD ATD | MIPR | SPAWAR:San Diego, CA | - | 0.975 | Nov 2011 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** TECHTRAN - HW C-TaCBRD ATD | MIPR | Edgewood Chemical and Biological Center (ECBC):Edgewood, MD | - | - | | 0.103 | Nov 2012 | - | | 0.103 | Continuing | Continuing | 0.000 |
| HW C-TaCBRD ATD | MIPR | SPAWAR:San Diego, CA | - | - | | 0.792 | Nov 2012 | - | | 0.792 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | - | 1.365 | | 0.895 | | - | | 0.895 | | | 0.000 |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** TT DEMO - ILS C- TaCBRD ATD | MIPR | SPAWAR:San Diego, CA | - | 0.300 | Nov 2011 | - | | - | | - | Continuing | Continuing | 0.000 |
| ILS C-TaCBRD ATD | MIPR | Edgewood Chemical Biological Center (ECBC):Aberdeen, MD | - | 0.200 | Nov 2011 | - | | - | | - | Continuing | Continuing | 0.000 |
| ILS C-TaCBRD ATD #2 | MIPR | US European Command:Stuttgart, GE | - | 0.300 | Nov 2011 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** TECHTRAN - ILS C - TaCBRD ATD | MIPR | SPAWAR:San Diego, CA | - | - | | 0.300 | Nov 2012 | - | | 0.300 | Continuing | Continuing | 0.000 |
| ILS C -TaCBRD ATD | MIPR | Edgewood Chemical and Biological Center (ECBC):Edgewood MD | - | - | | 0.500 | Nov 2012 | - | | 0.500 | Continuing | Continuing | 0.000 |
| ILS C -TaCBRD ATD #2 | MIPR | US European Command:Stuttgart, GE | - | - | | 0.300 | Nov 2012 | - | | 0.300 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | - | 0.800 | | 1.100 | | - | | 1.100 | | | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** TT DEMO - OTE C-TaCBRD ATD | MIPR | ECBC:Edgewood, MD | - | 0.300 | Nov 2011 | - | | - | | - | Continuing | Continuing | 0.000 |
| OTE C-TaCBRD ATD | MIPR | SPAWAR:San Diego, CA | - | 0.150 | Nov 2011 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** TECHTRAN - OTE C-TaCBRD ATD | MIPR | Edgewood Chemical and Biological Center (ECBC):Edgewood, MD | - | - | | 0.750 | Nov 2012 | - | | 0.750 | Continuing | Continuing | 0.000 |
| OTE C-TaCBRD ATD #2 | MIPR | SPAWAR:San Diego, CA | - | - | | 0.250 | Nov 2012 | - | | 0.250 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | - | 0.450 | | 1.000 | | - | | 1.000 | | | 0.000 |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 0.035 | | - | | - | | - | Continuing | Continuing | 0.000 |
| ** TT DEMO - PM/MS C - TaCBRD ATD | MIPR | SPAWAR:San Diego, CA | - | 0.200 | Nov 2011 | - | | - | | - | Continuing | Continuing | 0.000 |
| PM/MS C -TaCBRD ATD | MIPR | ECBC:Aberdeen, MD | - | 0.172 | Nov 2011 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** TECHTRAN - PM/MS C-TaCBRD ATD | MIPR | Edgewood Chemical and Biological Center (ECBC):Edgewood, MD | - | - | | 0.190 | Nov 2012 | - | | 0.190 | Continuing | Continuing | 0.000 |
| PM/MS C-TaCBRD ATD | MIPR | SPAWAR:San Diego, CA | - | - | | 0.192 | Nov 2012 | - | | 0.192 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | - | 0.407 | | 0.382 | | - | | 0.382 | | | 0.000 |

**Remarks**

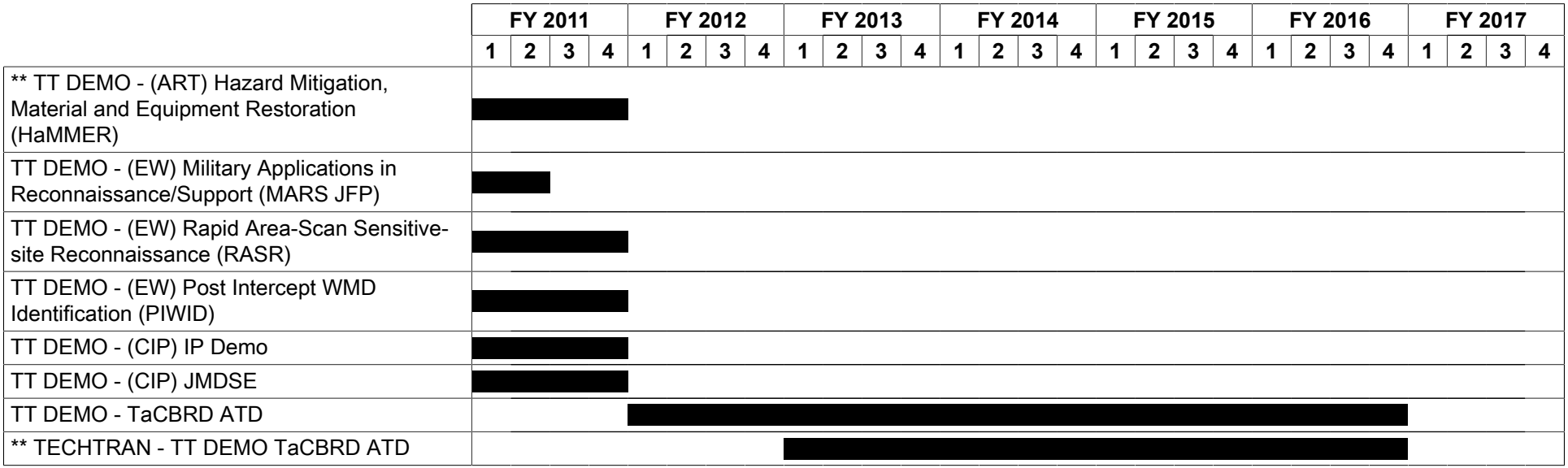
Management service costs cover all ten ATDs described in the R2a of this project (TT4).

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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)* | |

| | Total Prior Years Cost | FY 2012 | | FY 2013 Base | | FY 2013 OCO | | FY 2013 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | - | 3.022 | | 3.377 | | - | | 3.377 | | | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** TT DEMO - (ART) Hazard Mitigation, Material and Equipment Restoration (HaMMER) | 1 | 2011 | 4 | 2011 |
| TT DEMO - (EW) Military Applications in Reconnaissance/Support (MARS JFP) | 1 | 2011 | 2 | 2011 |
| TT DEMO - (EW) Rapid Area-Scan Sensitive-site Reconnaissance (RASR) | 1 | 2011 | 4 | 2011 |
| TT DEMO - (EW) Post Intercept WMD Identification (PIWID) | 1 | 2011 | 4 | 2011 |
| TT DEMO - (CIP) IP Demo | 1 | 2011 | 4 | 2011 |
| TT DEMO - (CIP) JMDSE | 1 | 2011 | 4 | 2011 |
| TT DEMO - TaCBRD ATD | 1 | 2012 | 4 | 2016 |
| ** TECHTRAN - TT DEMO TaCBRD ATD | 1 | 2013 | 4 | 2016 |

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Chemical and Biological Defense Program | | | | | | | | | | DATE: February 2012 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 2011** | **FY 2012** | **FY 2013 Base** | **FY 2013 OCO** | **FY 2013 Total** | **FY 2014** | **FY 2015** | **FY 2016** | **FY 2017** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 294.837 | 316.608 | 311.071 | - | 311.071 | 416.915 | 336.227 | 352.119 | 404.940 | Continuing | Continuing |
| CA5: *CONTAMINATION AVOIDANCE (SDD)* | 122.354 | 52.114 | 33.018 | - | 33.018 | 37.385 | 45.882 | 30.029 | 44.953 | Continuing | Continuing |
| CM5: *HOMELAND DEFENSE (SDD)* | - | 9.109 | 9.952 | - | 9.952 | 7.425 | 3.606 | 1.981 | 1.981 | Continuing | Continuing |
| CO5: *COLLECTIVE PROTECTION (SDD)* | 18.227 | 11.307 | 10.642 | - | 10.642 | 10.249 | 1.600 | - | - | 0.000 | 52.025 |
| DE5: *DECONTAMINATION SYSTEMS (SDD)* | 7.594 | - | 9.324 | - | 9.324 | 8.652 | 10.938 | 9.129 | 9.466 | Continuing | Continuing |
| IP5: *INDIVIDUAL PROTECTION (SDD)* | 20.862 | 11.490 | 13.971 | - | 13.971 | 17.046 | 1.603 | 1.990 | 6.370 | Continuing | Continuing |
| IS5: *INFORMATION SYSTEMS (SDD)* | 15.689 | 2.423 | 2.045 | - | 2.045 | 11.794 | 9.884 | 24.826 | 23.267 | Continuing | Continuing |
| MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* | 75.657 | 216.715 | 214.056 | - | 214.056 | 246.295 | 187.101 | 213.001 | 238.653 | Continuing | Continuing |
| MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* | 3.801 | 2.407 | 9.642 | - | 9.642 | 41.257 | 45.477 | 50.862 | 58.935 | Continuing | Continuing |
| MR5: *MEDICAL RADIOLOGICAL DEFENSE (SDD)* | - | - | 2.027 | - | 2.027 | 16.610 | 18.103 | 6.101 | 7.115 | Continuing | Continuing |
| TE5: *TEST & EVALUATION (SDD)* | 30.653 | 11.043 | 6.394 | - | 6.394 | 20.202 | 12.033 | 14.200 | 14.200 | 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 (CB) threat environment across the continuum of global, contingency, special operations/low intensity conflict, counternarcotics, and other high-risk missions. Operating forces have a critical need for defense against worldwide proliferation of CB warfare capabilities and for medical treatment of CB casualties. Congress 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 medical and non-medical CB defensive equipment and materiel. Projects within BA5 are structured to consolidate Joint and Service-unique tasks within four commodity areas: contamination avoidance, individual and collective force protection, decontamination, and medical countermeasures. This consolidation provides for development and operational testing of equipment for Joint Service use and for Service-unique requirements.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Chemical and Biological Defense Program | DATE: February 2012 |
|---|---|
| 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)* |

Contamination avoidance efforts under this system development program will provide U.S. forces with real-time hazard assessment capabilities. They include multi-agent point and remove chemical detection 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.

The 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.

The Secretary of Defense is responsible for research, development, acquisition, and deployment of medical countermeasure equipment and materiel to prevent or mitigate the health effects of CB threats to the Armed Forces and directs strategic planning for and oversight of programs to support medical countermeasures development and acquisition for our Armed Forces personnel. The CB medical threat to the Armed Forces, in contrast with public health threats to U.S. citizens, encompasses all potential or continuing enemy actions that can render a Service Member combat ineffective. CB medical threats, because they apply as a whole to military units deployed on a specific mission and/or operations, may result in the unit being unable to complete its mission. CB medical countermeasures developed by DoD, unlike those developed to support U.S. population, must support military commanders practical operational requirements and deployment strategies and must emphasizes prevention of injury and illness and protection of the force. Preventive measures in this SDD, such as vaccines and chemical prophylaxis, conserves fighting strength, decreases the logistics burden by reducing the need for larger deployed hospital footprint and greater demand for tactical and strategic medical evacuation, and satisfy the need for greater flexibility in military planning and operations. When vaccines and other prophylactic medical countermeasures are not available, efforts on this SDD support pre-hospitalization treatment, en-route care, hospital care, and long-term clinical outcomes. Specific items in this category include CB diagnostics, and therapeutics to mitigate the consequences of biologic threats and exposure to ionizing radiation due to nuclear or radiological attacks. DoD is the only Federal activity conducting SDD on these prophylactic, therapeutic and rapid identification and diagnostic CB medical countermeasures.

The Department of Defense coordinates its efforts with the Departments of Health and Human Services to promote synergy and minimize redundancy. This Department of Defense ensures coordination by participating in the Public Health Emergency Medical Countermeasures Enterprise interagency strategic planning process ("One Portfolio"). The Department of Defense's longstanding experience and success in CB medical countermeasure research, development, acquisition, and deployment not only ensures protection of the Armed Forces, it also accelerate and improves the overall national efforts in CB medical countermeasure research, development, and acquisition because of its unique facilities, testing capabilities, and trained and experienced personnel.

The projects in this program element support efforts in the engineering and manufacturing phase of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Chemical and Biological Defense Program | DATE: February 2012 |
|---|---|
| **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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 407.162 | 400.608 | 405.991 | - | 405.991 |
| Current President's Budget | 294.837 | 316.608 | 311.071 | - | 311.071 |
| Total Adjustments | -112.325 | -84.000 | -94.920 | - | -94.920 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.599 | - | | | |
| • SBIR/STTR Transfer | -3.599 | - | | | |
| • Other Adjustments | -108.127 | -84.000 | -94.920 | - | -94.920 |

**Change Summary Explanation**

Funding: FY11

-$1.527M Congressional General Reductions - Section 8117 (CA5 -$466K; CM5 -$4K; CO5 -$69K; DE5 -$106K; IP5 -$46K; IS5 -$51K; MB5 -$534K; MC5 -$186K; MR5 -$4K; TE5 -$61K)

-$41.000M Congressional Directed Reductions (CA5 -$15,000K; DE5 -$9,000K; MB5 -$5,000K; MC5 -$12,000K)

-$65.600M Congressional Directed Transfer (MB5 -$65,600K) Medical Realignment to Tech Base

-$.599M Reprogrammings (CA5 +$13,985K; CM5 -$1,152K; DE5 -$11,548K; IP5 +$11,338K; IS5 +$2,016K; MB5 -$6,367K; MC5 -$35,432K; MR5 -$1,129K TE5 +$14,956K)

-$3.599M SBIR Transfers (CA5 -$1,101K; CM5 -$10K; CO5 -$163K; DE5 -$251K; IP5 -$108K; IS5 -$120K; MB5 -$1,256K; MC5 -$437K; MR5 -$10K; TE5 -$143K)

-$1.323M Other Adjustments (MC5 -$1,323K)

FY12

-$84.000M Congressional Reductions (DE4 -$4,370K; MB4 -$55,630K; MC4 -$24,000K)

FY13

-$94.920M Other Adjustments

(-$98.760M) Other Adjustments (CA5 -$30,914K; CM5 -$4,000K; CO5 -$4,000K; DE5 +$20K; IP5 +$2,030K; IS5 -$7,503K; MB5 -$47,625K; MC5 -$9,337K; MR5 +$2,002K; TE5 +$567K)

(+$3.840M) Inflation Adjustments (All Programs)

Schedule: N/A

| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Chemical and Biological Defense Program | DATE: February 2012 |
|---|---|
| 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)* |

Technical: N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CA5: *CONTAMINATION AVOIDANCE (SDD)* | 122.354 | 52.114 | 33.018 | - | 33.018 | 37.385 | 45.882 | 30.029 | 44.953 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

This project 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 included in this project are: (1) Chemical, Biological, Radiological, and Nuclear Dismounted Reconnaissance Systems (CBRN DRS); (2) Joint Biological Point Detection System (JBPDS); (3) Joint Biological Tactical Detection System (JBTDS); (4) Joint Chemical Agent Detector (JCAD); (5) Major Defense Acquisition Program (MDAP) Support; (6) Next Generation Chemical Standoff Detection (NGCSD); (7) Non-Traditional Agent (NTA) Detection Support; and (8) Sensor Suite Integration for NBC Reconnaissance Systems (SSI NBCRS).

The CBRN Dismounted Reconnaissance Systems (CBRN DRS) consists of portable, commercial and government off-the-shelf equipment to provide personnel protection from current and emerging CBRN hazards and detection, identification, sample collection, decontamination, marking, and hazard reporting of CBRN threats. The system supports dismounted Reconnaissance, Surveillance, and CBRN Site Assessment missions to enable more detailed CBRN information reports for commanders. The program will support emerging CBRN threat capability to provide an enhanced capability in the future.

The Joint Biological Point Detection System (JBPDS) is a Joint Service biological detection system. The Army platforms include the JBPDS on the Biological Integrated Detection System (BIDS) and the Stryker Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV). The Navy installs the JBPDS on Aegis class ships. Engineering Changes to refresh the technology of the JBPDS consist of two separate efforts (one funded by procurement and one RDT&E funded) that, when combined, will reduce lifecycle costs and address obsolescence concerns. The existing computer hardware and operating system in the JBPDS will not be supportable beyond FY13 due to obsolescence. Under the existing production contract, an engineering effort is underway to address the computer and operating system obsolescence concerns. The element being developed under RDT&E funding is a new detector technology that will reduce false positives by a rate of 30:1 resulting in reduced consumable use and reduced operational and maintenance costs.

The Joint Biological Tactical Detection System (JBTDS) will integrate, test and produce the first lightweight (less than 37 lbs), 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 archive sample for follow-on analyses. JBTDS will provide near real time local audio and visual alarm for use by any Military Occupational Specialty (MOS). JBTDS components will be man portable, battery operable and easy to employ. JBTDS will be used organically at battalion level and below and 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. Units equipped with JBTDS will conduct biological surveillance missions to detect BWA aerosol clouds, collect a sample, and identify the agent to support time sensitive force protection decisions.

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 Joint Chemical Agent Detector (JCAD) is 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 an improvement of the M4 JCAD (M4A1). Production of the M4A1 began 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 M4A1 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 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. This program does not continue beyond FY11.

The Next Generation Chemical Standoff Detection (NGCSD), a next generation chemical standoff effort initiated under the JSLSCAD program, will provide an assessment of current standoff detection capabilities 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 evaluate industry developed standoff sensor technologies for future standoff systems. Findings will support development of the future detection system. This program does not continue beyond FY11.

The Non-Traditional Agent (NTA) Detection projects will develop, procure and sustain detection and identification system(s) through follow-on tech insertion that will enhance the Domestic Response Capability, Advanced Threat (AT) Box, CBRN DRS (Dismounted Reconnaissance Sets, Kits, and Outfits), and Next Generation Chemical Point Detection programs to attain situational awareness and respond to emerging and escalating threats. The projects will test, optimize and sustain technology capabilities provided within the fielded NTA detection components and explore the passive defense mission space. The products provide a mid-term capability to detect priority emerging threat materials and afford the Warfighter the ability to support domestic response and force protection missions. These products leverage common core technologies to detect and identify threats that can be exploited for lab deployable, fixed site and handheld applications. Conduct systems engineering analysis to prioritize capability gaps and outline issues that require investment. These projects will continue to address next priority passive defense mission areas and escalating threats by continuing to qualify and improve key detection and identification equipment.

Sensor Suite Integration for NBC Reconnaissance Systems (SSI NBCRS) will evaluate technologies' ability to provide biological warfare agents (BWA), liquid Chemical Warfare Agent (CWA), Toxic Industrial Chemical (TIC), and Non-Traditional Agent (NTA) identification using a single detection technology. This effort will provide improved capability and significant cost savings to the warfighter by reducing consumables, reducing false alarms, and providing the ability to rapidly upgrade to detect emerging threats. The program will demonstrate a modular, "plug and play" capability, which may support mounted and dismounted CBRN reconnaissance, fixed site, lab deployable, and handheld applications. Feasibility of a single sensor concept for CWA, TIC, and biological aerosols was demonstrated in FY11 technology evaluation. A low volatile chemical surface contamination detection capability will provide improved identification of CWAs, TICs, and NTAs. Continued prototype development will mitigate risk for future programs including NTA Detection products and Next Generation Chemical Point Detection.

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) CBRN DRS - Dismounted Reconnaissance Sets, Kits, and Outfits (DR SKO)<br>***FY 2011 Accomplishments:***<br>Completed documentation, systems engineering, and design to support Milestone (MS) B. Initiated documentation, systems engineering, and design to support Milestone (MS) C Low Rate Initial Production (LRIP). Continued Integrated Product Team (IPT) support.<br>***FY 2012 Plans:***<br>Continue documentation, systems engineering, and design to support MS C LRIP. Continue IPT support.<br>***FY 2013 Plans:***<br>Complete documentation, systems engineering, and design to support MS C. Continue IPT support. | 2.516 | 3.900 | 4.167 |
| ***Title:*** 2) CBRN DRS - DR SKO<br>***FY 2011 Accomplishments:***<br>Completed developmental test planning. Initiated developmental testing at the component level. Initiated system level developmental testing.<br>***FY 2012 Plans:***<br>Complete component and system level developmental testing.<br>***FY 2013 Plans:***<br>Initiate and complete Multi-Service Operational Test and Evaluation (MOT&E). Initiate Failure Mode, Effects, and Criticality Analysis (FMECA). | 12.450 | 1.821 | 6.248 |
| ***Title:*** 3) CBRN DRS - DR SKO<br>***FY 2011 Accomplishments:***<br>Initiated technical manual and logistics products development for Operational Assessment for Dismounted Reconnaissance Sets, Kits, and Outfits (DR SKO).<br>***FY 2012 Plans:***<br>Initiate and complete Operational Assessment for DR SKO. Continue technical manual development and logistics products development.<br>***FY 2013 Plans:***<br>Complete technical manual development. Continue logistics products development. | 5.000 | 9.048 | 4.266 |
| ***Title:*** 4) CBRN DRS - DR SKO | 8.350 | 2.602 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2011 Accomplishments:***<br>Fabricated Engineering and Manufacturing Development (EMD) systems for test (2 Navy systems, $675K each; 2 Air Force systems, $975K each; 2 Army systems, $1125K each; 2 Marine Corps systems, $1400K each).<br>***FY 2012 Plans:***<br>Retrofit Engineering and Manufacturing Development (EMD) systems. | | | |
| ***Title:*** 5) CBRN DRS - Emerging Threats<br>***FY 2011 Accomplishments:***<br>Initiated and completed Developmental Testing (DT) and Operational Assessment (OA) to support initial emerging capability to meet urgent need for Domestic Response Capability.<br>***FY 2012 Plans:***<br>Assess emerging technical solutions from ONS investments. | 3.314 | 2.929 | - |
| ***Title:*** 6) CBRN DRS - Emerging Threats<br>***FY 2011 Accomplishments:***<br>Initiated and completed engineering solution for integrated emerging threats kit to address capability shortfalls identified in the operational assessment. | 5.324 | - | - |
| ***Title:*** 7) CBRN DRS - Emerging Threats<br>***FY 2011 Accomplishments:***<br>Supported testing and integration of capability shortfalls with engineering solutions and CONOPs development for cutting edge solutions to provide systems that address emerging threats. | 6.200 | - | - |
| ***Title:*** 8) CBRN DRS - Emerging Threats<br>***FY 2011 Accomplishments:***<br>Completed Commercial Off-the-Shelf (COTS)/Government Off-the-Shelf (GOTS) evaluation for Sensitive Site Assessment and Consequence Management mission areas, and initiated and completed evaluation in force protection mission area of environmental monitor technology. | 1.617 | - | - |
| ***Title:*** 9) CBRN DRS - Emerging Threats<br>***FY 2011 Accomplishments:*** | 2.700 | - | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Initiated and completed COTS Detection Fast Track to upgrade and develop training for specialized CBRN forces COTS solutions. Benefit to field enhanced capabilities to Civil Support Teams and transition possibilities for Next Generation Chemical Point Detector (NGCPD). | | | |
| ***Title:*** 10) CBRN DRS - Emerging Threats<br>***FY 2011 Accomplishments:***<br>Initiated and completed validation of analytical methods that enables high throughput on site analysis of environmental samples for rapid site recovery. Benefit to field enhanced capabilities to Civil Support Teams and transition possibilities for Next Generation Chemical Point Detector (NGCPD). | 0.950 | - | - |
| ***Title:*** 11) JBPDS<br>***FY 2011 Accomplishments:***<br>Continued strategic and tactical planning, government system engineering, program/financial management, costing, contracting, scheduling, acquisition oversight and technical support.<br>***FY 2012 Plans:***<br>Continue strategic and tactical planning, government system engineering, program/financial management, costing, contracting, scheduling, acquisition oversight and technical support.<br>***FY 2013 Plans:***<br>Complete strategic and tactical planning, government system engineering, program/financial management, costing, contracting, scheduling, acquisition oversight and technical support. | 3.476 | 0.926 | 0.328 |
| ***Title:*** 12) JBPDS<br>***FY 2011 Accomplishments:***<br>Continued development of a new detector for the JBPDS program.<br>***FY 2012 Plans:***<br>Complete development of a new detector for the JBPDS program.<br>***FY 2013 Plans:***<br>Complete development of a new detector for the JBPDS program. | 12.688 | 1.994 | 1.017 |
| ***Title:*** 13) JBPDS<br>***FY 2011 Accomplishments:***<br>Initiated component level testing of the prototype detector.<br>***FY 2012 Plans:*** | 1.000 | 2.000 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Complete component level testing of the new detector. | | | |
| ***Title:*** 14) JBTDS<br>***FY 2013 Plans:***<br>Provide strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. | - | - | 1.904 |
| ***Title:*** 15) JBTDS<br>***FY 2013 Plans:***<br>Provide user representation and involvement (i.e. integrated product teams and working groups). | - | - | 1.135 |
| ***Title:*** 16) JBTDS<br>***FY 2013 Plans:***<br>Initiate Engineering Manufacturing & Development (EMD) Contract Award. | - | - | 6.923 |
| ***Title:*** 17) JCAD<br>***FY 2011 Accomplishments:***<br>Completed purchase of prototype detection systems for Technology Evaluation (6 prototypes at a price of $600K each) and technical support. | 3.965 | - | - |
| ***Title:*** 18) JCAD<br>***FY 2011 Accomplishments:***<br>Completed test and evaluation of software enhancements to incorporate into CBRN DRS to meet Navy specific requirements for Visit Board Search & Seizure (VBSS) mission and TIC testing. | 2.679 | - | - |
| ***Title:*** 19) JCAD<br>***FY 2011 Accomplishments:***<br>Completed program management, systems engineering, and Integrated Product Team (IPT) support. | 2.967 | - | - |
| ***Title:*** 20) MDAP SPRT<br>***Description:*** Development of modular CBRN sensing capabilities for the Small Unmanned Ground Vehicle (SUGV) and Multifunction Utility/Logistics Equipment (MULE).<br>***FY 2011 Accomplishments:***<br>Completed the design, development and test of the Chemical Point Sensor (CPS), Common CBRN Sensor Interface (CCSI) Compliant Radiological Detector (CCRD), and a CCSI Sensor Mounting Cradle to meet Brigade Combat Team Modernization | 0.470 | - | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| (BCTM) CBR detection requirements for the Small Unmanned Ground Vehicle (SUGV) and the Multifunction Utility/Logistics Equipment (MULE), unmanned vehicle platforms. | | | |
| ***Title:*** 21) MDAP SPRT<br>***Description:*** Decontamination capabilities to meet Joint Strike Fighter (JSF) survivability requirements.<br>***FY 2011 Accomplishments:***<br>Completed the design and development of one transportable shelter system prototype at an estimated unit cost of $1.5 million. Completed component level testing of the transportable shelter system. Conducted system level testing of the portable shelter system. | 1.993 | - | - |
| ***Title:*** 22) MDAP SPRT - JSF<br>***Description:*** Development of an aircrew mask to meet Joint Strike Fighter (JSF) Survivability Requirements.<br>***FY 2011 Accomplishments:***<br>Completed the design and development of a JSF specific aircrew mask. | 4.830 | - | - |
| ***Title:*** 23) MDAP SPRT<br>***Description:*** Provide strategic tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support.<br>***FY 2011 Accomplishments:***<br>Conducted strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, and technical support. | 2.682 | - | - |
| ***Title:*** 24) NGCSD<br>***FY 2011 Accomplishments:***<br>Provided program management, systems engineering, and Integrated Product Team (IPT) support. | 1.455 | - | - |
| ***Title:*** 25) NTA DETECT - COTS/GOTS Mission Analysis<br>***FY 2011 Accomplishments:***<br>Completed DT for Commercial Off-the-Shelf (COTS)/Government Off-the-Shelf (GOTS) evaluation for Sensitive Site Assessment (SSA) and Consequence Management (CM) mission areas. Continued analysis for Commercial Off-the-Shelf (COTS)/ Government Off-the-Shelf (GOTS) evaluation in force protection mission area. Initiate COTS/GOTS dual use assessment.<br>***FY 2012 Plans:*** | 2.340 | 2.920 | 1.952 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Initiate exploring passive defense mission space. Complete analysis for Commercial Off-the-Shelf (COTS)/Government Off-the-Shelf (GOTS) evaluation in force protection mission area. Continue COTS/GOTS dual use assessment.<br>***FY 2013 Plans:***<br>Initiate and complete DT and Limited Objective Experiment (LOE) to assess performance Commercial Off-the-Shelf (COTS)/ Government Off-the-Shelf (GOTS) solution in passive defense mission space. Optimize system configuration, develop sampling improvements and provide system support. Complete COTS/GOTS dual use assessment. | | | |
| ***Title:*** 26) NTA DETECT - DESI Mass Spectrometer<br>***FY 2011 Accomplishments:***<br>Completed library development, integration, and DT for the lab deployable Desorption Electrospray Ionization (DESI) Mass Spectrometer. Initiated engineering to support reduced form factor for the Man Portable Mass Spectrometer and improve sampling techniques.<br>***FY 2012 Plans:***<br>Continue engineering to support reduced form factor, improve sampling techniques and ruggedize the Man Portable Mass Spectrometer.<br>***FY 2013 Plans:***<br>Continue engineering to support reduced form factor, improve sampling techniques, ruggedize and integration for the Man Portable DESI Mass Spectrometer. Transition Man Portable DESI Mass Spectrometer as candidate to NGCPD. | 4.192 | 4.611 | 2.043 |
| ***Title:*** 27) NTA DETECT - Environmental Monitor<br>***FY 2011 Accomplishments:***<br>Continued engineering, integration of COTS and initiate DT to provide environmental monitoring capability.<br>***FY 2012 Plans:***<br>Continue optimization, improve sampling techniques, and continue DT to optimize and ruggedize environmental monitoring COTS capability to assess military utility. These efforts provide technology inserts for advanced threat box, domestic response capability, and adoption by programs of record. Continue DT to assess performance of environmental monitoring capability including Chemical Hazard Indicating and Ranging Pack (CHIRP) and Instantaneous Biological Aerosol Collector (IBAC) for Chem.<br>***FY 2013 Plans:*** | 1.623 | 2.197 | 2.141 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Complete DT and initiate Limited Objective Experiment (LOE) of environmental monitor (CHIRP and IBAC for Chem) to support force protection and domestic response mission. Transition as possible candidate technology to Next Generation Chemical Point Detection (NGCPD) and/or CBRN DRS (DR SKO Inc II). | | | |
| ***Title:*** 28) NTA DETECT - SSA and CM Gaps<br>***FY 2011 Accomplishments:***<br>Continued DT and OA to address NTA detection capability shortfall and critical data gaps.<br>***FY 2012 Plans:***<br>Update and complete integration of NTA detection capability with CBRN DRS to provide enhanced NTA detection solution for SSA and CM mission areas. Complete DT and OA to address NTA detection capability shortfall and critical data gaps for SSA and CM mission areas. | 3.217 | 1.472 | - |
| ***Title:*** 29) NTA DETECT - Systems Engineering<br>***FY 2011 Accomplishments:***<br>Continued systems engineering analysis to prioritize technology investment strategies for SSA and CM missions.<br>***FY 2012 Plans:***<br>Continue systems engineering analysis to prioritize technology investment strategies across multiple missions.<br>***FY 2013 Plans:***<br>Update systems engineering model to refine capability shortfalls with current technology advances and developmental test data inputs. | 1.153 | 1.933 | 0.894 |
| ***Title:*** 30) NTA DETECT - Fielded System Evaluation<br>***FY 2011 Accomplishments:***<br>Initiated and completed characterization of current equipment performance against emerging threats. | 9.419 | - | - |
| ***Title:*** 31) SSI NBCRS<br>***FY 2011 Accomplishments:***<br>Continued program management, systems engineering, and Integrated Product Team (IPT) support.<br>***FY 2012 Plans:***<br>Continue program management, systems engineering, and Integrated Product Team (IPT) support. | 3.646 | 2.274 | - |
| ***Title:*** 32) SSI NBCRS<br>***FY 2011 Accomplishments:*** | 5.240 | 4.850 | - |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continued chemical biological (CB) sensor testing, development, support and demonstration using competitive prototypes.<br>***FY 2012 Plans:***<br>Complete CB sensor testing, demonstration and prototyping (3 vendors, 1 system each at $800K per system) to transition to Next Generation Chemical Point Detection (NGCPD). | | | |
| ***Title:*** 33) SSI NBCRS<br>***FY 2011 Accomplishments:***<br>Initiated low volatile test development and evaluation efforts.<br>***FY 2012 Plans:***<br>Complete low volatile sensor test support, development, and evaluation efforts. | 4.898 | 5.950 | - |
| ***Title:*** 34) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.687 | - |
| **Accomplishments/Planned Programs Subtotals** | 122.354 | 52.114 | 33.018 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CA4: *CONTAMINATION AVOIDANCE (ACD&P)* | 57.121 | 33.952 | 3.038 | | 3.038 | 19.803 | 38.588 | 39.729 | 34.595 | Continuing | Continuing |
| • JC0100: *JOINT BIO POINT DETECTION SYSTEM (JBPDS)* | 45.294 | 26.300 | 30.934 | | 30.934 | 52.732 | 50.223 | 0.000 | 0.000 | 0.000 | 205.483 |
| • JF0100: *JOINT CHEMICAL AGENT DETECTOR (JCAD)* | 39.372 | 35.172 | 15.212 | | 15.212 | 19.130 | 50.985 | 57.966 | 47.758 | Continuing | Continuing |
| • JN0900: *NON TRADITIONAL AGENT DETECTION (NTAD)* | 4.105 | 3.891 | 4.770 | | 4.770 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 12.766 |
| • MC0100: *JOINT NBC RECONNAISSANCE SYSTEM (JNBCRS)* | 22.117 | 63.714 | 96.244 | | 96.244 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 182.075 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • MC0101: *CBRN DISMOUNTED RECONNAISSANCE SYSTEMS (CBRN DRS)* | 12.644 | 6.991 | 15.080 | | 15.080 | 34.698 | 95.081 | 95.889 | 90.109 | Continuing | Continuing |

**D. Acquisition Strategy**

CBRN DRS

The Chemical Biological Radiological Nuclear Dismounted Reconnaissance Systems (CBRN DRS) program uses a government-off-the-shelf (GOTS)/commercial-off-the-shelf (COTS) non-developmental item (NDI) single step to full capability acquisition approach. Upon further review of the CBRN capabilities at the Materiel Development Decision (MDD), the program restructured in 4QFY10 to begin the acquisition process at Milestone (MS) B. Funding finalized the Analysis of Materiel Solutions (AMS), materiel/prototype testing, and design to provide the Services with enhanced full spectrum CBRN detection capability to support strategic, operational, and tactical objectives at lower life cycle costs. Dismounted Reconnaissance Sets, Kits, and Outfits (DR SKO) 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.

The Emerging Threat efforts develop, test, procure, and sustain dismounted reconnaissance and sensitive site analysis systems for urgent needs for Domestic Response Capability Systems and Advanced Threat Boxes. Funding also informs the Materiel Development Decision and requirements development for the CBRN DRS.

JBPDS

Engineering changes to refresh the technology of the Joint Biological Point Detection System (JBPDS) consist of two separate efforts that, when combined, will reduce life cycle costs and address obsolescence concerns. The technology update for the detector focused on the Rapid Agent Aerosol Detector (RAAD) which is being developed by MIT-LL with producibility and logistics support from Kansas City Plant (KCP). JPM-BD will competitively solicit for RAAD full rate production. KCP will transition RAAD production to industry with the use of a technical data package in FY15. The RAAD contractor will provide the new biological warfare agent detector to the JBPDS prime contractor, who was selected in 2010 through a two step competitive process. Through an Engineering Change Order the prime contractor will initiate system integration efforts to accept the new detector technology. A Follow-on Test and Evaluation will be conducted to ensure the new components meet the JBPDS System Production Capabilities Document requirements.

JBTDS

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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The Joint Biological Tactical Detection System (JBTDS) is an Acquisition Category III (ACAT III) program dedicated to developing a lightweight biological warfare agent system that will detect, warn, and provide presumptive identification and samples for follow-on confirmatory analysis. The JBTDS is being developed using an evolutionary acquisition strategy. The JBTDS program will incrementally design, develop, integrate, test, procure and field systems that improve biological detection, sampling and identification capabilities and reduce size, weight, power consumption and logistics footprint over current systems. JBTDS will make maximum use of commercial off-the-shelf (COTS) and Government off-the-shelf (GOTS) technology. The awards for competitive prototyping utilized best value approach via the competitive CBRNE mission support contract to three contractor teams. Full and open competition will be utilized at MS B for the EMD contract with options for Low Rate Initial Production and Full Rate Production. In addition the JPM-BD is coordinating with JPM Guardian and JPM CBMS on the Common Analytical Laboratory System and Next Generation Diagnostic System programs respectively to share information and leverage potential identification technology solutions common to the three programs.

This approach also provides capability to the warfighter in the shortest possible time. The JBTDS program will incrementally design, develop, integrate, test, procure and field systems that improve biological aerosol detection, sampling and identification capabilities and reduce size, weight, power consumption, and logistic footprint over current systems. Again, COTS and GOTS will be utilized to the fullest extent possible.

JCAD

The current strategy employs an 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 M4A1 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 VBSS JCAD exercised a contract option for VBSS-specific software. Upon completion of PVT and an Operational Assessment (under CBRN DRS), standard M4A1 JCADs will be reprogrammed to fill CBRN DRS VBSS needs. The low volatile sensor technology evaluation will purchase prototypes of commercial equipment to evaluate technologies for addressing capability gaps for emerging threats not addressed by M4 and M4A1 JCAD. The results of the low volatile sensor technology evaluation will be used to inform the Analysis of Alternatives for NGCPD.

NTA DETECT

The Non-Traditional Agent (NTA) Detection products will provide a detection capability through incremental acquisition that will afford the Warfighter ability to attain situational awareness and respond to unknown and emerging hazards. The products 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 project will continue to address next priority mission areas and threats by continuing to qualify identified detection equipment. To accomplish these efforts, various competitive contracting strategies will be used, i.e., cost plus type contracts, task orders, and IDIQ.

SSI NBCRS

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The Sensor Suite and Integration for Nuclear Biological and Chemical Reconnaissance System (SSI NBCRS) will evaluate the state of Chemical and Biological sensor manufacturing to support future acquisition programs. In FY11 a technical evaluation was performed on four separate Cost plus Fixed Fee (CPFF) task orders using a competitive omnibus contract. The evaluation focused on using a common sensor technology to detect and identify both chemical and biological threats. Future efforts will modularize the components allowing for potential mounted and dismounted reconnaissance, lab deployable, fixed site, and handheld applications. A similar technical evaluation in FY11-FY12 will assess ability of industry sensors to detect low volatility CWAs, TICs, NTAs and other compounds of interest. This effort will allow the program office to assess current technologies in order to lower program risk, reduce costs, and ensure a higher confidence in selected technologies for the Next Generation Chemical Point Detection (NGCPD) and NTA Detect programs.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CBRN DRS - HW S - DR SKO EMD systems | C/CPFF | FLIR:Elkridge, MD | 8.350 | 2.602 | May 2012 | 1.975 | Nov 2012 | - | | 1.975 | Continuing | Continuing | 0.000 |
| ** JBPDS - HW C - New Detector development | MIPR | MIT/Lincoln Lab:Lexington, MA | 16.229 | 0.893 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| HW C - New Detector development | MIPR | Kansas City Plant:Kansas City, MO | 2.586 | 2.101 | Feb 2012 | 1.017 | Feb 2013 | - | | 1.017 | Continuing | Continuing | 0.000 |
| ** JBTDS - HW C - EMD Contract Award | C/CPIF | TBD: | - | - | | 6.923 | May 2013 | - | | 6.923 | Continuing | Continuing | 0.000 |
| ** NTA DETECT - HW S - DESI Mass Spec | C/CPAF | FLIR:West Lafayette, IN | 1.196 | 3.024 | Feb 2012 | 0.900 | Feb 2013 | - | | 0.900 | Continuing | Continuing | 0.000 |
| HW S - GOTS/COTS Dual Use Assessment | C/CPAF | Battelle:Columbus, OH | 3.105 | 2.200 | Feb 2012 | 0.671 | Feb 2013 | - | | 0.671 | Continuing | Continuing | 0.000 |
| SW S - DESI Mass Spec Library Development | C/CPFF | Battelle:Columbus, OH | 0.819 | 0.200 | Feb 2012 | 0.700 | Feb 2013 | - | | 0.700 | Continuing | Continuing | 0.000 |
| HW S - Environmental Monitor | C/CPAF | FLIR:Pittsburgh, PA | 2.797 | 1.800 | Aug 2012 | 0.400 | Aug 2013 | - | | 0.400 | Continuing | Continuing | 0.000 |
| HW S - System Performance Baseline | C/CPFF | Various: | 0.740 | - | | 0.400 | Aug 2013 | - | | 0.400 | Continuing | Continuing | 0.000 |
| ** SSI NBCRS - HW S - Chemical Biological Sensor Capability Development | C/CPFF | Various: | 12.757 | 2.400 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 48.579 | 15.220 | | 12.986 | | - | | 12.986 | | | 0.000 |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CBRN DRS - ES S - Logistics | MIPR | Edgewood Chemical Biological Center:Edgewood, MD | 1.000 | 0.600 | Nov 2011 | 0.700 | Nov 2012 | - | | 0.700 | Continuing | Continuing | 0.000 |
| ILS S - DR SKO Logistics Products | C/CPFF | FLIR:Arlington, VA | 4.500 | 2.000 | May 2012 | 3.450 | Nov 2012 | - | | 3.450 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JBTDS - ES S - User involvement | MIPR | USA/USN/USAF/ USMC: | - | - | | 1.135 | Nov 2012 | - | | 1.135 | Continuing | Continuing | 0.000 |
| ** NTA DETECT - ES SB - COTS/GOTS Analysis and Evaluation | C/CPFF | Battelle Memorial Institute:Columbus, OH | 1.873 | 0.078 | Feb 2012 | 0.165 | Feb 2013 | - | | 0.165 | Continuing | Continuing | 0.000 |
| ES S - Systems engineering support | C/CPFF | Joint Research & Development Inc.:Stafford, VA | 1.091 | 1.433 | Feb 2012 | 0.894 | Feb 2013 | - | | 0.894 | Continuing | Continuing | 0.000 |
| ES S - Environmental Monitor | C/CPFF | MIT/Lincoln Lab:Lexington, MA | - | 0.500 | Mar 2012 | 0.300 | Feb 2013 | - | | 0.300 | Continuing | Continuing | 0.000 |
| ES S - Mass Spectrometer | C/CPFF | MIT/Lincoln Lab:Lexington, MA | - | 0.300 | Feb 2012 | 0.200 | Feb 2013 | - | | 0.200 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 8.464 | 4.911 | | 6.844 | | - | | 6.844 | | | 0.000 |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CBRN DRS - DTE S - DR SKO Developmental Testing and Operational Assessment | MIPR | Aberdeen Test Center:APG, MD | 1.201 | 1.000 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| DTE S - DR SKO Developmental Testing and Operational Assessment | MIPR | Dugway Proving Ground:DPG, UT | 3.105 | 2.000 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| DTE S - DR SKO Developmental Testing and Operational Assessment #2 | MIPR | Army Test and Evaluation Command:Alexandria, VA | 0.714 | 0.500 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| DTE S - DR SKO Developmental Testing and Operational Assessment #3 | MIPR | Various: | 6.756 | 6.669 | Feb 2012 | 5.556 | Feb 2013 | - | | 5.556 | Continuing | Continuing | 0.000 |
| DTE S - Emerging Threat Enhancements | MIPR | Army Test and Evaluation | 0.240 | 0.500 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Command:Alexandria, VA | | | | | | | | | | | |
| DTE S - Emerging Threat Enhancements #2 | MIPR | Aberdeen Test Center:Aberdeen Proving Ground, MD | 0.184 | 0.500 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** JBPDS - DTE C - New Detector developmental testing. | MIPR | MIT/Lincoln Lab.:Lexington, MA | 1.000 | 1.000 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** NTA DETECT - DTE S - Developmental Test Component | C/CPFF | Battelle Memorial Institute:Columbus, OH | 5.087 | 2.400 | Feb 2012 | 1.400 | Feb 2013 | - | | 1.400 | Continuing | Continuing | 0.000 |
| ** SSI NBCRS - OTHT S - Chemical Biological Prototype Evaluation | MIPR | Various: | 0.974 | 2.450 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| OTHT S - Low Volatile Sensor Evaluation | MIPR | Various: | 4.898 | 2.750 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| OTHT S - Low Volatile Sensor Support | C/CPFF | Various: | - | 3.200 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 24.159 | 22.969 | | 6.956 | | - | | 6.956 | | | 0.000 |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CBRN DRS - PM/MS-S - Program Management and System Engineering Support | MIPR | Various: | 3.202 | 1.500 | Nov 2011 | 1.500 | Nov 2012 | - | | 1.500 | Continuing | Continuing | 0.000 |
| PM/MS S - Emerging Threat Enhancements Program Management and System Engineering Support | MIPR | JPM NBC CA:APG, MD | 2.099 | 0.600 | Nov 2011 | - | | - | | - | Continuing | Continuing | 0.000 |
| PM/MS S - Integrated Product Team | MIPR | Various: | 2.267 | 1.829 | Nov 2011 | 1.500 | Nov 2012 | - | | 1.500 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

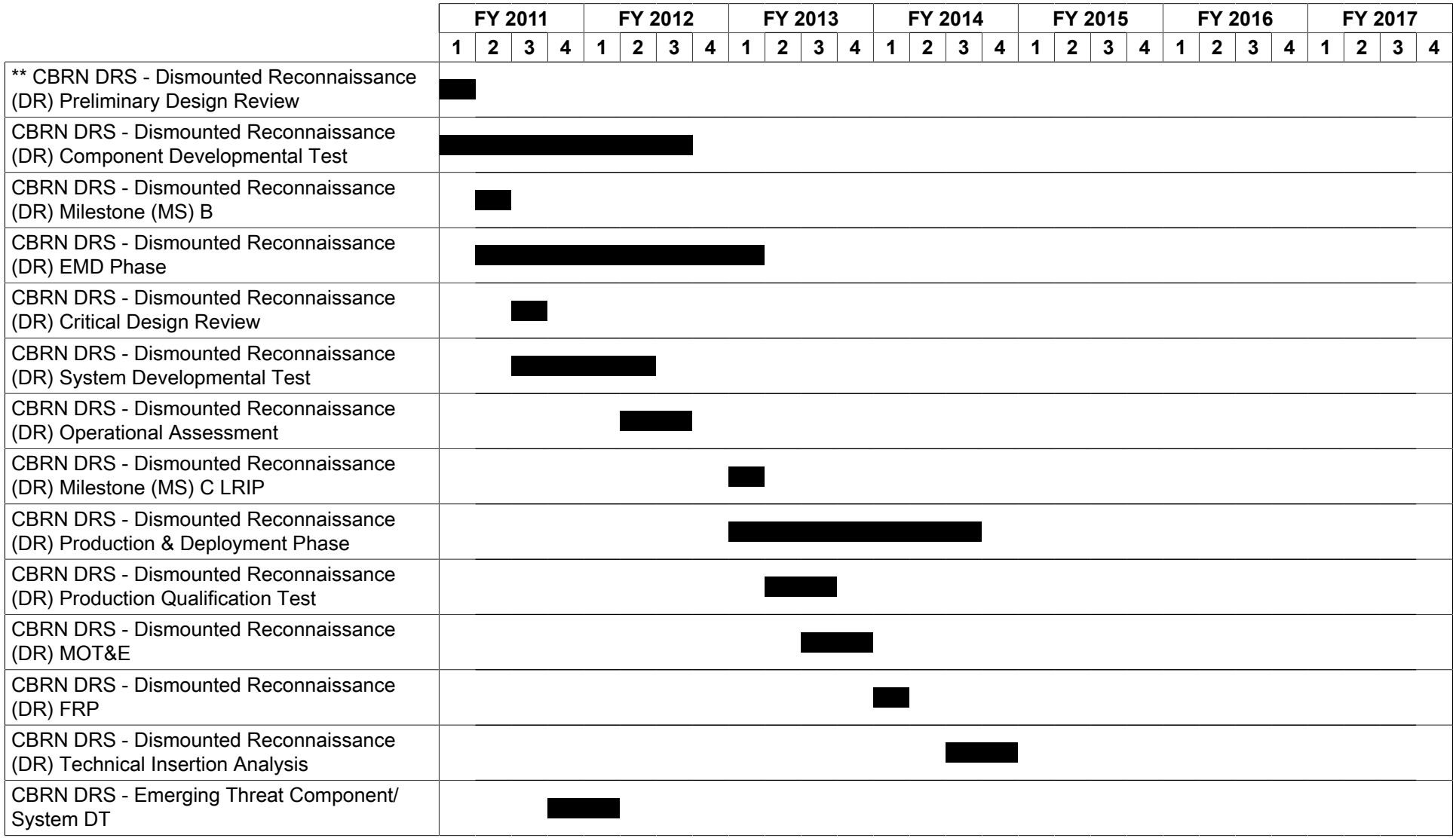
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JBPDS - PM/MS SB - JPM BD and JPEO CBD Project Management and System Engineering Support | MIPR | JPM BD/JPEO CBD:APG, MD | 10.187 | 0.926 | Feb 2012 | 0.328 | Feb 2013 | - | | 0.328 | Continuing | Continuing | 0.000 |
| ** JBTDS - PM/MS SB - JPM BD & JPEO CBD - Management and System Engineering Support | MIPR | JPM BD/JPEO CBD:APG, MD | - | - | | 1.904 | Nov 2012 | - | | 1.904 | Continuing | Continuing | 0.000 |
| ** NTA DETECT - PM/MS S - Program Management support | MIPR | JPM NBC CA:APG, MD | 5.995 | 1.198 | Feb 2012 | 1.000 | Feb 2013 | - | | 1.000 | Continuing | Continuing | 0.000 |
| ** SSI NBCRS - PM/MS S - Program Management and Systems Engineering Support | MIPR | JPM NBC CA:APG, MD | 5.243 | 2.274 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 0.687 | | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 28.993 | 9.014 | | 6.232 | | - | | 6.232 | | | 0.000 |

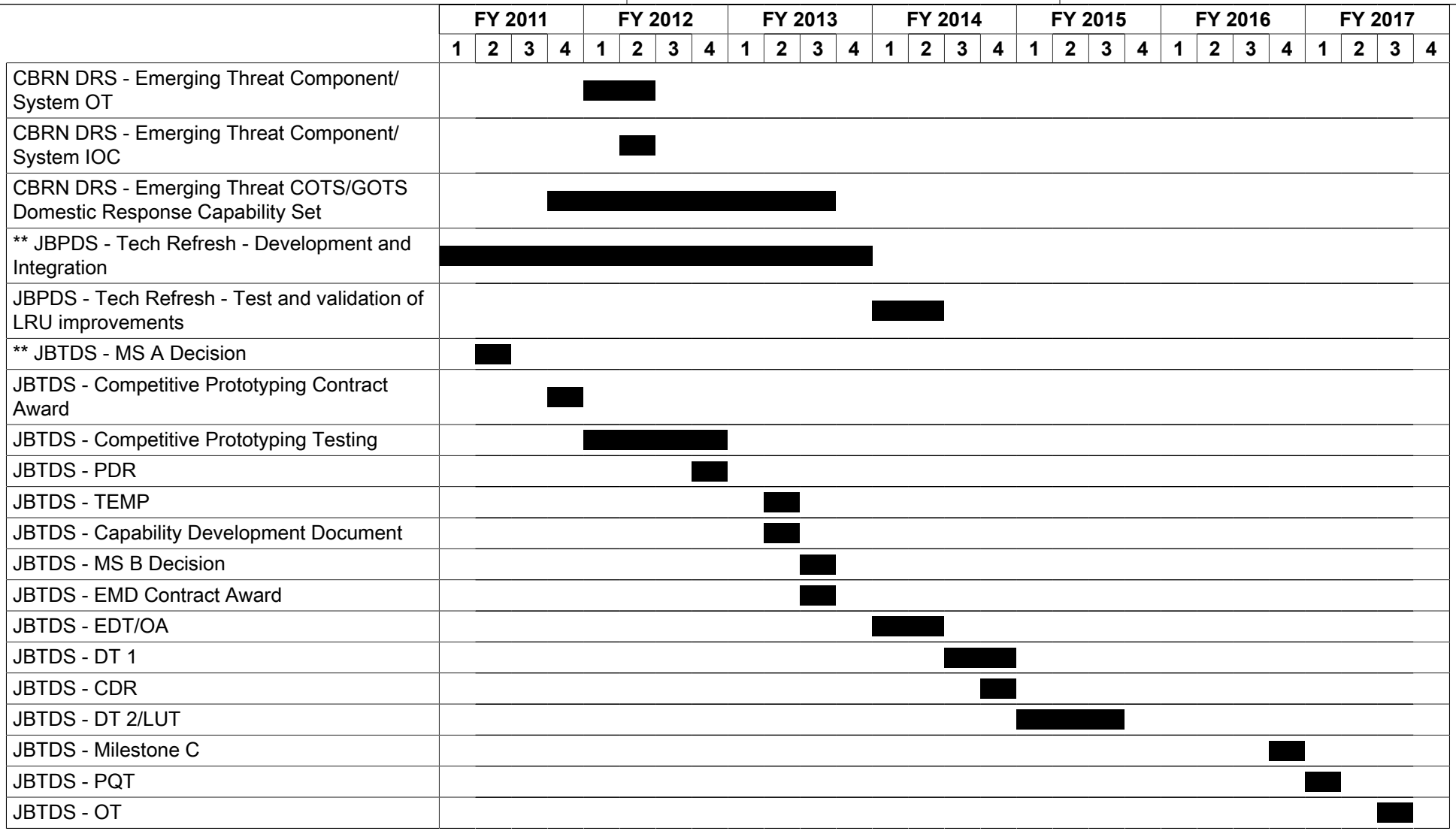
| | Total Prior Years Cost | FY 2012 | | FY 2013 Base | | FY 2013 OCO | | FY 2013 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 110.195 | 52.114 | | 33.018 | | - | | 33.018 | | | 0.000 |

**Remarks**

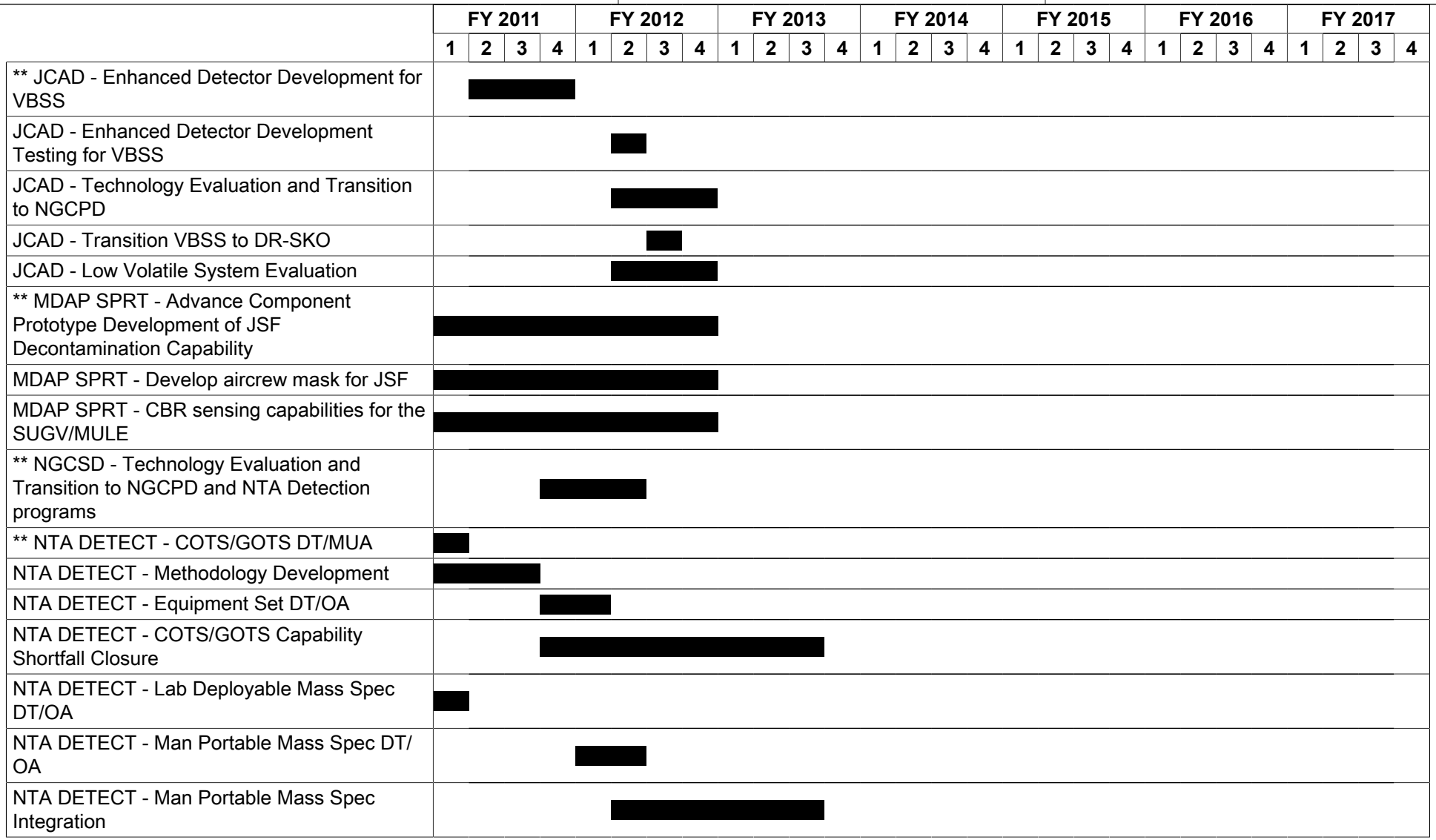
| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CA5: *CONTAMINATION AVOIDANCE (SDD)* |



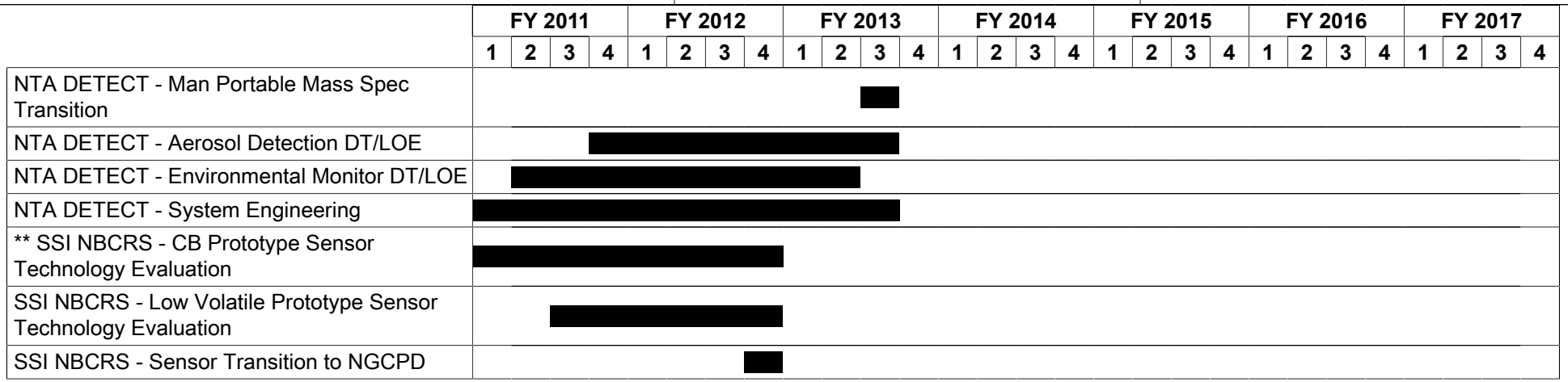
| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>CA5: *CONTAMINATION AVOIDANCE (SDD)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** CBRN DRS - Dismounted Reconnaissance (DR) Preliminary Design Review | 1 | 2011 | 1 | 2011 |
| CBRN DRS - Dismounted Reconnaissance (DR) Component Developmental Test | 1 | 2011 | 3 | 2012 |
| CBRN DRS - Dismounted Reconnaissance (DR) Milestone (MS) B | 2 | 2011 | 2 | 2011 |
| CBRN DRS - Dismounted Reconnaissance (DR) EMD Phase | 2 | 2011 | 1 | 2013 |
| CBRN DRS - Dismounted Reconnaissance (DR) Critical Design Review | 3 | 2011 | 3 | 2011 |
| CBRN DRS - Dismounted Reconnaissance (DR) System Developmental Test | 3 | 2011 | 2 | 2012 |
| CBRN DRS - Dismounted Reconnaissance (DR) Operational Assessment | 2 | 2012 | 3 | 2012 |
| CBRN DRS - Dismounted Reconnaissance (DR) Milestone (MS) C LRIP | 1 | 2013 | 1 | 2013 |
| CBRN DRS - Dismounted Reconnaissance (DR) Production & Deployment Phase | 1 | 2013 | 3 | 2014 |
| CBRN DRS - Dismounted Reconnaissance (DR) Production Qualification Test | 2 | 2013 | 3 | 2013 |
| CBRN DRS - Dismounted Reconnaissance (DR) MOT&E | 3 | 2013 | 4 | 2013 |
| CBRN DRS - Dismounted Reconnaissance (DR) FRP | 1 | 2014 | 1 | 2014 |
| CBRN DRS - Dismounted Reconnaissance (DR) Technical Insertion Analysis | 3 | 2014 | 4 | 2014 |
| CBRN DRS - Emerging Threat Component/System DT | 4 | 2011 | 1 | 2012 |
| CBRN DRS - Emerging Threat Component/System OT | 1 | 2012 | 2 | 2012 |
| CBRN DRS - Emerging Threat Component/System IOC | 2 | 2012 | 2 | 2012 |
| CBRN DRS - Emerging Threat COTS/GOTS Domestic Response Capability Set | 4 | 2011 | 3 | 2013 |
| ** JBPDS - Tech Refresh - Development and Integration | 1 | 2011 | 4 | 2013 |
| JBPDS - Tech Refresh - Test and validation of LRU improvements | 1 | 2014 | 2 | 2014 |
| ** JBTDS - MS A Decision | 2 | 2011 | 2 | 2011 |
| JBTDS - Competitive Prototyping Contract Award | 4 | 2011 | 4 | 2011 |
| JBTDS - Competitive Prototyping Testing | 1 | 2012 | 4 | 2012 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| JBTDS - PDR | 4 | 2012 | 4 | 2012 |
| JBTDS - TEMP | 2 | 2013 | 2 | 2013 |
| JBTDS - Capability Development Document | 2 | 2013 | 2 | 2013 |
| JBTDS - MS B Decision | 3 | 2013 | 3 | 2013 |
| JBTDS - EMD Contract Award | 3 | 2013 | 3 | 2013 |
| JBTDS - EDT/OA | 1 | 2014 | 2 | 2014 |
| JBTDS - DT 1 | 3 | 2014 | 4 | 2014 |
| JBTDS - CDR | 4 | 2014 | 4 | 2014 |
| JBTDS - DT 2/LUT | 1 | 2015 | 3 | 2015 |
| JBTDS - Milestone C | 4 | 2016 | 4 | 2016 |
| JBTDS - PQT | 1 | 2017 | 1 | 2017 |
| JBTDS - OT | 3 | 2017 | 3 | 2017 |
| ** JCAD - Enhanced Detector Development for VBSS | 2 | 2011 | 4 | 2011 |
| JCAD - Enhanced Detector Development Testing for VBSS | 2 | 2012 | 2 | 2012 |
| JCAD - Technology Evaluation and Transition to NGCPD | 2 | 2012 | 4 | 2012 |
| JCAD - Transition VBSS to DR-SKO | 3 | 2012 | 3 | 2012 |
| JCAD - Low Volatile System Evaluation | 2 | 2012 | 4 | 2012 |
| ** MDAP SPRT - Advance Component Prototype Development of JSF Decontamination Capability | 1 | 2011 | 4 | 2012 |
| MDAP SPRT - Develop aircrew mask for JSF | 1 | 2011 | 4 | 2012 |
| MDAP SPRT - CBR sensing capabilities for the SUGV/MULE | 1 | 2011 | 4 | 2012 |
| ** NGCSD - Technology Evaluation and Transition to NGCPD and NTA Detection programs | 4 | 2011 | 2 | 2012 |
| ** NTA DETECT - COTS/GOTS DT/MUA | 1 | 2011 | 1 | 2011 |
| NTA DETECT - Methodology Development | 1 | 2011 | 3 | 2011 |
| NTA DETECT - Equipment Set DT/OA | 4 | 2011 | 1 | 2012 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| NTA DETECT - COTS/GOTS Capability Shortfall Closure | 4 | 2011 | 3 | 2013 |
| NTA DETECT - Lab Deployable Mass Spec DT/OA | 1 | 2011 | 1 | 2011 |
| NTA DETECT - Man Portable Mass Spec DT/OA | 1 | 2012 | 2 | 2012 |
| NTA DETECT - Man Portable Mass Spec Integration | 2 | 2012 | 3 | 2013 |
| NTA DETECT - Man Portable Mass Spec Transition | 3 | 2013 | 3 | 2013 |
| NTA DETECT - Aerosol Detection DT/LOE | 4 | 2011 | 3 | 2013 |
| NTA DETECT - Environmental Monitor DT/LOE | 2 | 2011 | 2 | 2013 |
| NTA DETECT - System Engineering | 1 | 2011 | 3 | 2013 |
| ** SSI NBCRS - CB Prototype Sensor Technology Evaluation | 1 | 2011 | 4 | 2012 |
| SSI NBCRS - Low Volatile Prototype Sensor Technology Evaluation | 3 | 2011 | 4 | 2012 |
| SSI NBCRS - Sensor Transition to NGCPD | 4 | 2012 | 4 | 2012 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CM5: *HOMELAND DEFENSE (SDD)* | - | 9.109 | 9.952 | - | 9.952 | 7.425 | 3.606 | 1.981 | 1.981 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

This project supports Engineering and Manufacturing Development and Low Rate Initial Production (EMD/LRIP) for programs that provide a comprehensive, integrated and layered Chemical Biological Radiological Nuclear (CBRN) protection and response capability for military installations and specialized military consequence management units both at home and abroad. Particular emphasis is placed on improving military-civilian interoperability in CBRN detection and response capabilities; providing tiered levels of CBRN protection and response capabilities to military installations; and tailored modular and integrated COTS solutions to consequence management units.

Efforts included in this project are:

The Common Analytical Laboratory System capability (CALS) will be modular, scalable and adaptable to a variety of concept of operations (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 Weapons of Mass Destruction Civil Support Team Program supports the ongoing assessment and acquisition of COTS and GOTS analytical detection, protection, decontamination and sampling equipment for survey in order to expand/enhance the operational capabilities of the (57) WMD CST Teams.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) CALS - System Engineering and Program Management | - | - | 1.661 |
| ***Description:*** System engineering and technical control, as well as the business management of the system/program. It encompasses the overall planning, direction and control of the definition, development, and production of the system/program, including functions of logistics engineering and integrated logistics support (ILS) management (e.g., maintenance support, facilities, personnel, training, testing, and activation of the system). | | | |
| ***FY 2013 Plans:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue System and Program Management Support at the initiation of the Engineering Manufacturing and Development Phase, provide management and engineering support, System Integration Laboratory Efforts in preparation of Critical Design Review, Manufacture of Prototypes and testing. | | | |
| ***Title:*** 2) CALS - Production Engineering and Planning<br>***Description:*** Efforts to ensure the producibility of the developmental material system, item, or component. Involves engineering task necessary to ensure timely, efficient, and economic production of essential materiel and is primarily of a planning nature. Includes efforts related to development of quality assurance (QA) plans, and special production processes to assess producibility.<br>***FY 2013 Plans:***<br>Prepare Quality Assurance plans for system level development and conduct logistics analysis. | - | - | 1.743 |
| ***Title:*** 3) CALS - Development Tooling<br>***Description:*** Planning, design, assembly, installation, and rework of all tools, inspection equipment, and test equipment supporting the development of each system level prototype.<br>***FY 2013 Plans:***<br>Conduct and complete planning and preparation of tools, equipment, platforms, materials required to fabricate, and integrate a complete set of CALS modules for test and evaluation. | - | - | 1.521 |
| ***Title:*** 4) WMD CST - System Engineering and Program Management<br>***Description:*** System engineering and technical control, as well as the business management of the system/program. It encompasses the overall planning, direction, and control of the definition, development, and production of the system, including functions of logistics engineering and integrated logistics support (ILS) management (e.g., maintenance support, facilities, personnel, training, testing, and activation of the system).<br>***FY 2012 Plans:***<br>Provide for system engineering, technical control, and business management support of the next generation biological detection system.<br>***FY 2013 Plans:***<br>Continues to provide for system engineering, technical control, and business management support of the next generation biological detection system. | - | 2.500 | 2.925 |
| ***Title:*** 5) WMD CST - Development Engineering | - | 3.494 | 0.500 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** Studies, analysis, design development, evaluation testing, and redesign for the system component(s) during system development. Includes the design efforts of preparing specifications, engineering drawings, parts lists, wiring diagrams, test planning and scheduling, analysis of test results, data reduction, report preparations and establishment of reliability, maintainability, and quality assurance control requirements.<br><br>***FY 2012 Plans:***<br>Initiate Development of reagents for the next generation biological detection system to be integrated into the Analytical Laboratory System.<br><br>***FY 2013 Plans:***<br>Complete development of reagents for the next generation biological detection system to be integrated into the Analytical Laboratory System. | | | |
| ***Title:*** 6) WMD CST - Development Engineering<br><br>***Description:*** Includes the costs of study, analysis, design development, evaluation testing, and redesign for the system components(s) during system development efforts. Includes the design efforts of preparing specifications, establishment of reliability, maintainability, and quality assurance control requirements. Also includes the engineering efforts in support of preplanned product improvements and development costs for any neutralization process designed to change the physical, chemical, biological character or composition of hazardous waste produced by the system.<br><br>***FY 2012 Plans:***<br>Initiate development of method protocols for sampling with the next generation biological detection system for integration into the Analytical Laboratory System.<br><br>***FY 2013 Plans:***<br>Complete development of method protocols for sampling with the next generation biological detection system for integration into the Analytical Laboratory System. | - | 1.498 | 0.650 |
| ***Title:*** 7) WMD CST - System Test and Evaluation<br><br>***Description:*** General system-related test activities, including costs of specially fabricated hardware to obtain or validate engineering data on the performance of the system. This element also includes costs of the detailed planning, conduct, support, data reduction, and reports from such testing, as well as hardware items that are consumed or planned to be consumed in the conduct of such operations.<br><br>***FY 2012 Plans:*** | - | 1.497 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Conduct next generation biological detection system Component Test and evaluation. | | | |
| ***Title:*** 8) WMD CST - Component Integration and Test (ALS)<br>***Description:*** Integration of component and test to ensure viable integration and connectivity of the component as a part of the general system layout. This includes raw and semi-fabricated material plus purchased parts materials, fabrication, processing, subassembly, final assembly, reworking modification, and installation of parts and equipment, power plants, electronic equipment and instrumentation for the specified component as well as evaluation.<br>***FY 2013 Plans:***<br>Conduct integration of component detection system into the Analytical Laboratory System and validate connectivity of the component as a part of the general system. | - | - | 0.952 |
| ***Title:*** 9) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.120 | - |
| **Accomplishments/Planned Programs Subtotals** | - | 9.109 | 9.952 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JS0004: *WMD - CIVIL SUPPORT TEAMS (WMD CST)* | 39.166 | 15.900 | 24.025 | | 24.025 | 13.237 | 11.657 | 5.069 | 5.069 | Continuing | Continuing |
| • JS0005: *COMMON ANALYTICAL LABORATORY SYSTEM (CALS)* | 0.000 | 0.000 | 0.000 | | 0.000 | 14.957 | 34.991 | 59.411 | 64.946 | 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 Joint Program Executive Office for Chemical Biological Defense (JPEO-CBD) to the extent possible. CALS will accommodate these component requirements within a modular and scalable concept framework.

WMD CST

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

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 Joint Requirements Oversight Council (JROC).

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** WMD CST - HW S - Next Generation Bio Detection - Reagent Development | MIPR | TBD: | - | 3.494 | Feb 2012 | 0.500 | Nov 2012 | - | | 0.500 | Continuing | Continuing | 0.000 |
| HW S - Method Protocol Development | MIPR | TBD: | - | 1.498 | May 2012 | 0.650 | Feb 2013 | - | | 0.650 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | - | 4.992 | | 1.150 | | - | | 1.150 | | | 0.000 |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CALS - ES S - Engineering Support System - CALS | C/FFP | Various: | - | - | | 1.454 | Jan 2013 | - | | 1.454 | Continuing | Continuing | 0.000 |
| ES S - Modeling and Simulation Support | Various | Various: | - | - | | 0.350 | Jan 2013 | - | | 0.350 | Continuing | Continuing | 0.000 |
| ILS S - Retooling and Preparation for System Level Manufacture | C/FPIF | TBD: | - | - | | 1.521 | Jan 2013 | - | | 1.521 | Continuing | Continuing | 0.000 |
| ** WMD CST - ES S - Next Generation Bio Detection - Support | MIPR | Edgewood Chemical Biological Center:Edgewood, MD | - | 1.089 | Feb 2012 | 1.371 | Feb 2013 | - | | 1.371 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | - | 1.089 | | 4.696 | | - | | 4.696 | | | 0.000 |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** WMD CST - OTHT C - Next Generation Bio Detection Component Testing | MIPR | TBD: | - | 1.497 | May 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| OTHT S - Next Generation Bio Detection Component | MIPR | TBD: | - | - | | 0.952 | Feb 2013 | - | | 0.952 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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)* | |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Integration - Analytical Laboratory System | | | | | | | | | | | | | |
| **Subtotal** | | | - | 1.497 | | 0.952 | | - | | 0.952 | | | 0.000 |

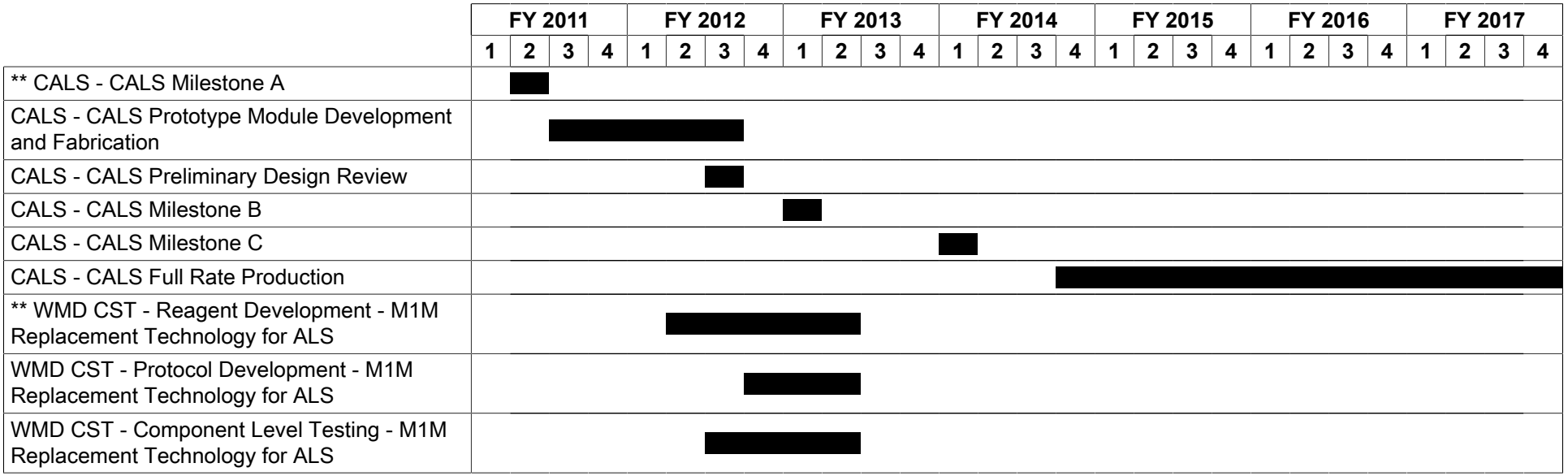
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 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 | - | - | | 1.600 | Feb 2013 | - | | 1.600 | Continuing | Continuing | 0.000 |
| ** WMD CST - PM/MS S - Meso Scale Defense System | MIPR | TBD: | - | 1.411 | Feb 2012 | 1.554 | Feb 2013 | - | | 1.554 | Continuing | Continuing | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 0.120 | | - | | - | | - | Continuing | Continuing | 0.000 |
| **Subtotal** | | | - | 1.531 | | 3.154 | | - | | 3.154 | | | 0.000 |

| | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | - | 9.109 | | 9.952 | | - | | 9.952 | | | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** CALS - CALS Milestone A | 2 | 2011 | 2 | 2011 |
| CALS - CALS Prototype Module Development and Fabrication | 3 | 2011 | 3 | 2012 |
| CALS - CALS Preliminary Design Review | 3 | 2012 | 3 | 2012 |
| CALS - CALS Milestone B | 1 | 2013 | 1 | 2013 |
| CALS - CALS Milestone C | 1 | 2014 | 1 | 2014 |
| CALS - CALS Full Rate Production | 4 | 2014 | 4 | 2017 |
| ** WMD CST - Reagent Development - M1M Replacement Technology for ALS | 2 | 2012 | 2 | 2013 |
| WMD CST - Protocol Development - M1M Replacement Technology for ALS | 4 | 2012 | 2 | 2013 |
| WMD CST - Component Level Testing - M1M Replacement Technology for ALS | 3 | 2012 | 2 | 2013 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CO5: *COLLECTIVE PROTECTION (SDD)* | 18.227 | 11.307 | 10.642 | - | 10.642 | 10.249 | 1.600 | - | - | 0.000 | 52.025 |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

Funding supports Engineering and Manufacturing Development and Low Rate Initial Production (EMD/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.

The system included in this project is the 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) JECP - Engineering and Manufacturing Development (EMD) Contract | 3.854 | 0.250 | 4.347 |
| ***Description:*** 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). | | | |
| ***FY 2011 Accomplishments:***<br>Completed contractor system level DT. Completed the manufacture of prototypes for Government system level DT. Prototypes consist of 9 configurations: 13 tent kits (3 configurations, 5 units of the first configuration at approximately $32K each, 7 units of the second at approximately $33K each; and 1 unit of the third at approximately $75K each), 4 structure kits - improved at approximately $27K each, 6 stand alone (SA) man-portable at approximately $16K each, 10 SA small at approximately $35K each, 6 SA medium at approximately $39K each, 6 SA large at approximately $150K each, 12 single person airlocks at approximately $8K each and 12 multi-person airlocks at approximately $25K each. Estimated total multi-year cost of all prototypes: $2.566M. Prototype cost reduction due to modified scope of Government system level DT. Conducted Critical Design | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Review (CDR) and developed post-CDR report. Conducted post-contractor qualification testing technicial review. Provided support for Government system level DT, at three test sites, of all 9 configurations of the FoS including training, maintenance, troubleshooting and repair. Began the development of logistic products including technical manuals, level of repair analysis, provisioning technical documentation, and training plans and curriculum. Prepared for Technical Manual Validation.<br>***FY 2012 Plans:***<br>Continue providing support for Government system level DT with combined Operational and DT field events, logistics/manpower and personnel integration (MANPRINT) demonstration, and operational assessment (OA). Conduct System Verification Review, Functional Configuration Audit and Production Readiness Review. Continue development of logistic products. Conduct Technical Manual Validation.<br>***FY 2013 Plans:***<br>Continue development of logistic products. Support Milestone C decision review. Build 6 of each configuration of FoS for LRIP and provide support to production verification test and multi-service operational test and evaluation. | | | |
| ***Title:*** 2) JECP - Government Component Level Developmental Testing<br>***Description:*** Conduct Government component level developmental testing (DT) using agent and simulant to determine compliance with System Performance Specification (SPS) protection requirements. Use 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>***FY 2011 Accomplishments:***<br>Completed ASR and component level empirical models to provide to the JECP SPM team. | 0.190 | - | - |
| ***Title:*** 3) JECP - Government System Level Developmental Testing<br>***Description:*** Conduct Government system level Developmental Testing (DT) of the Family of Systems (FoS) to be conducted both in the chamber and in the field (littoral and desert environments). Conduct Operational Assessment (OA). Develop system level empirical models to provide to the JECP SPM.<br>***FY 2011 Accomplishments:***<br>Began Non-CB mode DT of the Family of Systems (FoS) in littoral and desert environments. Began Reliability and Maintainability Analysis (RAM) and static system verification testing on the FoS. Began accelerated materials aging study.<br>***FY 2012 Plans:***<br>Complete Non-CB mode DT of the Family of Systems (FoS) in littoral and desert environments. Complete RAM Analysis, static and dynamic system verification testing on the FoS. Conduct DT system field challenge, 30 day continuous operations verification | 7.274 | 5.667 | 2.297 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| testing, OA, logistics/MANPRINT demonstration and post field static system verification testing. Begin post field Government component level DT consisting of Barrier Materials Swatch Testing, and Air-Purification Component Testing.<br>***FY 2013 Plans:***<br>Complete post field Government component level DT to include barrier material swatch testing and passive air-purification component testing. Initiate production verification testing on low rate initial production FoS. | | | |
| ***Title:*** 4) JECP - Multi-Service Operational Test & Evaluation<br>***Description:*** Conduct Government system level Operational Testing (OT) of the Family of Systems (FoS) to be conducted in the field (littoral and desert environments).<br>***FY 2013 Plans:***<br>Begin Multi-service Operational Test & Evaluation of Low Rate Initial Production units. | - | - | 0.449 |
| ***Title:*** 5) JECP - Systems Engineering IPT<br>***Description:*** Provide technical direction to the Contractor team. Establish and maintain a robust and disciplined Systems Engineering process IAW Department of Defense (DoD) and Joint Program Executive Office for Chemical Biological Defense (JPEO-CBD) policy and guidance.<br>***FY 2011 Accomplishments:***<br>Updated and maintained the RTM to track when requirements have been verified as test results became available. Ensured FoS ready for and participate in CDR. Prepared Post-CDR Assessment. Participated in Configuration Control Boards. Monitored manufacture of Government system level DT prototypes. Provided support for Contractor system level DT and Government agent and simulant component level DT. Assisted in the planning and conduct of Government system level DT.<br>***FY 2012 Plans:***<br>Develop, update and/or review program documentation in preparation for MS C. Provide support for Government system level DT. Ensure FoS ready for and participate in System Verification Review, Functional Configuration Audit and Production Readiness Review. Update and maintain the RTM to track when requirements have been verified as test results become available. Coordinate with JRO to assist in development of the Capability Production Document based on system level testing and trades analysis. Work with the contractor to identify corrective action for any test failures.<br>***FY 2013 Plans:***<br>Update and maintain the RTM to track when requirements have been verified as test results become available. Participate in Configuration Control Board. | 1.252 | 0.840 | 0.500 |
| ***Title:*** 6) JECP - Test and Evaluation IPT | 1.122 | 0.750 | 0.500 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** Lead and oversee all aspects of the JECP Integrated Test (IT) program.<br><br>***FY 2011 Accomplishments:***<br>Developed and reviewed test plans, procedures and reports. Ensured FoS were ready for and participated in CDR. Participated in Configuration Control Boards. Witnessed Contractor system level DT. Prepared for and participated in Government system level DT. Witnessed contractor system level DT and reviewed test procedures and reports. Reviewed Technical Manuals and prepare for validation.<br><br>***FY 2012 Plans:***<br>Participate in Government system level DT and Technical Manual validation. Review and assess results from component and system level DT and provide to Users for incorporation into the Capability Production Document. Ensure FoS ready for and participate in System Verification Review, Functional Configuration Audit and Production Readiness Review. Develop, update and/or review program documentation in preparation for MS C.<br><br>***FY 2013 Plans:***<br>Continue participation in Government lead system level DT and operational assessment. Conduct test failure scoring conferences as necessary. | | | |
| ***Title:*** 7) JECP - Integrated Logistics Support IPT<br><br>***Description:*** 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 2011 Accomplishments:***<br>Began the analysis to identify surge requirements and industries ability to support. Began the Business Case Analysis to determine the best approach for logistic support and sustainment. Drafted Materiel Fielding Plan. Ensured FoS ready for and participate in CDR. Participated in Configuration Control Board as necessary. Provided information to support the Joint Independent Logistics Assessment (JILA). Began the development of Navy Training System Plan. Witnessed Contractor system level DT and reviewed test procedures and reports. Reviewed Technical Manuals and prepare for Validation.<br><br>***FY 2012 Plans:***<br>Develop, update and/or review program documentation in preparation for MS C. Draft material fielding plan. Provide support for Government system level DT, including coordination of Logistics/MANPRINT Demonstration. Review Technical Manuals and witness Validation. Ensure FoS ready for and participate in System Verification Review, Functional Configuration Audit and Production Readiness Review. Provide information to support the JILA. Complete Navy Training System Plan. Continue the | 0.692 | 0.500 | 0.381 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Business Case Analysis to determine the best approach for logistic support and sustainment. Participate in Configuration Control Board as necessary. Provide information to support the JILA.<br>***FY 2013 Plans:***<br>Report out at MS C the results of the BCA and surge requirements analysis. Participate in Configuration Control Board as necessary. Provide information to support the JILA. | | | |
| ***Title:*** 8) JECP - Program Management and Contract Administration<br>***Description:*** 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-Protection 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 2011 Accomplishments:***<br>Focused on Contractor system level DT, CDR and CDR Assessment, Technical manual development, Level of Repair Analysis, and Government system level DT prototypes and testing.<br>***FY 2012 Plans:***<br>Focus on Technical Manual development and Validation, Government system level DT (including Logistics/MANPRINT demonstration) and OA, System Verification Review, Functional Configuration Audit and Production Readiness Review and MS C planning and preparation.<br>***FY 2013 Plans:***<br>Exercise option in contract for Low Rate Initial Production (LRIP). Focus on Production Readiness Review, LRIP, PVT and MOT&E. Begin preparation for FRP Decision. | 1.155 | 1.230 | 0.950 |
| ***Title:*** 9) JECP - Program Management<br>***Description:*** Provide strategic tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support.<br>***FY 2011 Accomplishments:***<br>Provided strategic planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support.<br>***FY 2012 Plans:*** | 2.688 | 1.921 | 1.218 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Provide strategic planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support.<br>***FY 2013 Plans:***<br>Provide strategic planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. | | | |
| ***Title:*** 10) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.149 | - |
| **Accomplishments/Planned Programs Subtotals** | 18.227 | 11.307 | 10.642 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JP1111: *JOINT EXPEDITIONARY COLLECTIVE PROTECTION (JECP)* | 0.000 | 0.000 | 0.000 | | 0.000 | 4.055 | 10.160 | 10.200 | 10.200 | Continuing | Continuing |

**D. Acquisition Strategy**

JECP

Strategy based on evolutionary development in consonance with the Joint Requirements Office (JRO)/User developed capability documents. During the Pre-MS A Concept Refinement Phase, conducted 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 are being subjected to robust engineering developmental testing and Operational Assessment during the Engineering and Manufacturing Development 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.

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JECP - HW S - Prototype Development | C/CPIF | Science Applications International Corporation:San Diego, CA | 12.426 | 0.250 | Feb 2012 | 4.347 | Feb 2013 | - | | 4.347 | 0.000 | 17.023 | 0.000 |
| | | **Subtotal** | 12.426 | 0.250 | | 4.347 | | - | | 4.347 | 0.000 | 17.023 | 0.000 |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JECP - ES S - Systems Engineering IPT | MIPR | Various: | 5.337 | 0.840 | Nov 2011 | 0.500 | Nov 2012 | - | | 0.500 | 0.000 | 6.677 | 0.000 |
| ILS S - Integrated Logistics IPT | MIPR | Various: | 2.679 | 0.500 | Nov 2011 | 0.381 | Nov 2012 | - | | 0.381 | 0.000 | 3.560 | 0.000 |
| | | **Subtotal** | 8.016 | 1.340 | | 0.881 | | - | | 0.881 | 0.000 | 10.237 | 0.000 |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JECP - OTHT SB - Test & Evaluation IPT | MIPR | Various: | 5.105 | 0.750 | Nov 2011 | 0.500 | Nov 2012 | - | | 0.500 | 0.000 | 6.355 | 0.000 |
| DTE S - Prototype Production Qualification Testing | MIPR | Various: | 7.596 | 5.667 | Feb 2012 | - | | - | | - | 0.000 | 13.263 | 0.000 |
| DTE S - Low Rate Initial Production Units Production Verification Testing | MIPR | Various: | - | - | | 2.297 | Feb 2013 | - | | 2.297 | 0.000 | 2.297 | 0.000 |
| OTE S - Low Rate Initial Production Multi-Service Operational Testing | MIPR | Various: | - | - | | 0.449 | Nov 2012 | - | | 0.449 | 0.000 | 0.449 | 0.000 |
| | | **Subtotal** | 12.701 | 6.417 | | 3.246 | | - | | 3.246 | 0.000 | 22.364 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

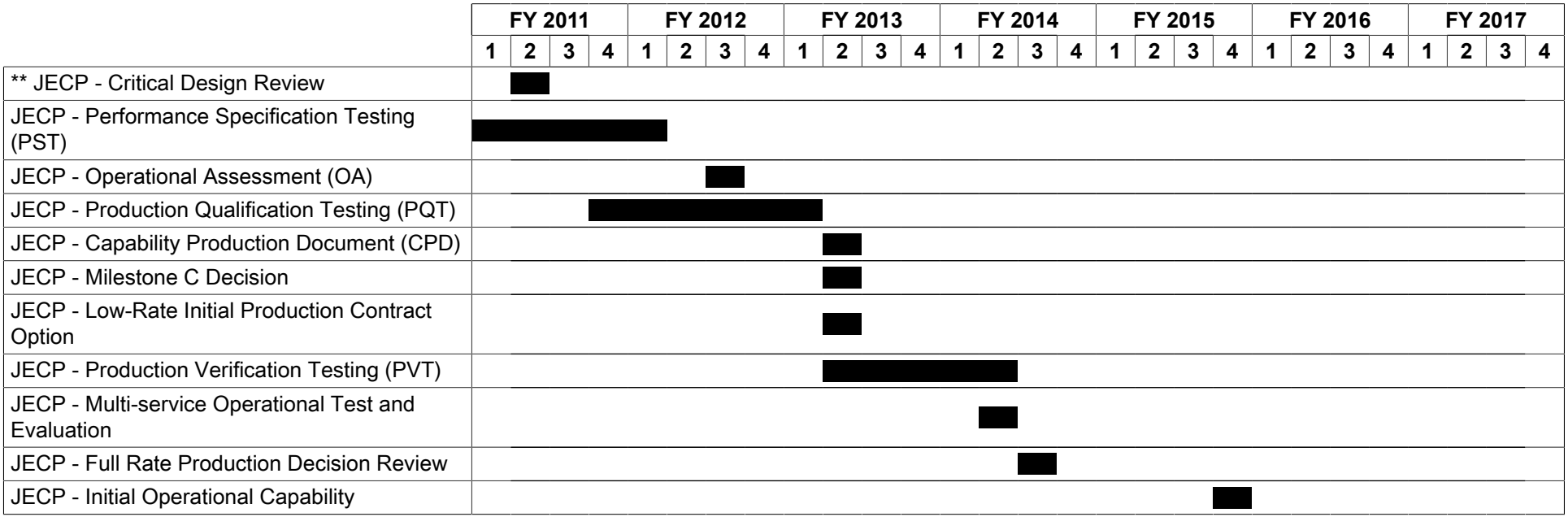
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JECP - PM/MS S - APMO Support | MIPR | NSWC Dahlgren:Dahlgren, VA | 4.969 | 0.950 | Nov 2011 | 0.700 | Nov 2012 | - | | 0.700 | 0.000 | 6.619 | 0.000 |
| PM/MS S - APMO Contractor Support | C/FP | Solutions Development Corporation:Dahlgren, VA | 5.495 | 0.280 | Feb 2012 | 0.250 | Feb 2013 | - | | 0.250 | 0.000 | 6.025 | 0.000 |
| PM/MS S - Program Management Support | MIPR | Various: | 5.555 | 1.921 | Nov 2011 | 1.218 | Nov 2012 | - | | 1.218 | 0.000 | 8.694 | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 0.149 | | - | | - | | - | 0.000 | 0.149 | 0.000 |
| | | **Subtotal** | 16.019 | 3.300 | | 2.168 | | - | | 2.168 | 0.000 | 21.487 | 0.000 |

| | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 49.162 | 11.307 | | 10.642 | | - | | 10.642 | 0.000 | 71.111 | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** JECP - Critical Design Review | 2 | 2011 | 2 | 2011 |
| JECP - Performance Specification Testing (PST) | 1 | 2011 | 1 | 2012 |
| JECP - Operational Assessment (OA) | 3 | 2012 | 3 | 2012 |
| JECP - Production Qualification Testing (PQT) | 4 | 2011 | 1 | 2013 |
| JECP - Capability Production Document (CPD) | 2 | 2013 | 2 | 2013 |
| JECP - Milestone C Decision | 2 | 2013 | 2 | 2013 |
| JECP - Low-Rate Initial Production Contract Option | 2 | 2013 | 2 | 2013 |
| JECP - Production Verification Testing (PVT) | 2 | 2013 | 2 | 2014 |
| JECP - Multi-service Operational Test and Evaluation | 2 | 2014 | 2 | 2014 |
| JECP - Full Rate Production Decision Review | 3 | 2014 | 3 | 2014 |
| JECP - Initial Operational Capability | 4 | 2015 | 4 | 2015 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DE5: *DECONTAMINATION SYSTEMS (SDD)* | 7.594 | - | 9.324 | - | 9.324 | 8.652 | 10.938 | 9.129 | 9.466 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

This project provides Engineering and Manufacturing Development (EMD) for: (1) Contaminated Human Remains Decontamination (CHRP); (2) the Decontamination Family of Systems (DFoS); (3) Joint Platform Interior Decontamination (JPID); and (4) the Joint Service Sensitive Equipment Decontamination (JSSED) programs.

The Contaminated Human Remains Pouch (CHRP) effort will provide the capability to protect personnel handling and processing human remains contaminated with Chemical, Biological, Radiological, or Nuclear (CBRN) contamination. The CHRP will fulfill gaps as described in the Mortuary Affairs (MA) Initial Capabilities Document (ICD) for safe intra-theater handling and transport of contaminated human remains (CHR). The CHRP will provide protection by containing contaminated human remains (CHR) during recovery and transport from the point of fatality to the Mortuary Affairs (MA) Activity. The CHRP will contain fluid and vapor CBRN hazards associated with the CHR to reduce the spread of contamination and reduce the hazard to personnel handling the CHR. Successful development and procurement of the CHRP will provide Warfighters with the capability to safely handle, transport, and temporarily store or inter CHR in a theater of operations.

The Decontamination Family of Systems (DFoS) program facilitates the rapid transition of mature Science and Technology (S&T) research developments to existing Decontamination or Contamination Mitigation ICD Programs of Record and guides S&T community efforts toward meeting the needs of the Warfighter. Leveraging the outcome of the Materiel Development Decision (3QFY11) 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 interiors/exteriors, terrain, and fixed facilities.

The Joint Platform Interior Decontamination (JPID) program will provide decontamination capabilities for interiors of vehicles, ships, fixed site facilities, mobile maintenance facilities, aircraft and sensitive equipment inherent to the platform during air, ground and sea operations in hostile and non-hostile environments that have been exposed to chemical, biological, radiological and nuclear (CBRN) agents/contamination. To accommodate the array of Service mission sets, the potential for varying system and/or technology configurations may be required. The JPID Preferred System Concept (PSC) may consist of multiple solution sets that provide increments of capability or one solution to address the various platforms and threats identified under the program. No funding beyond FY12.

The Joint Service Sensitive Equipment Decontamination System (JSSED) program provides a thorough decontamination capability against chemical and biological warfare agents for high value or critical sensitive equipment that cannot be decontaminated using existing methods without damage. JSSED efforts will be addressed under the JPID program of record from FY11 forward.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) CHRP | - | - | 1.773 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2013 Plans:***<br>Initiate engineering, testing and logistics planning and documentation to support Contaminated Human Remains Pouch (CHRP) test and evaluation to include liquid and vapor live agent swatch and system permeation, durability, material compatibility, environmental effects, and operational testing. | | | |
| ***Title:*** 2) CHRP<br>***FY 2013 Plans:***<br>Award contract(s) to procure 80 CHRP systems (at $2 thousand each) for Developmental Testing (DT) and Multi-service Operational Test and Evaluation (MOT&E). | - | - | 0.160 |
| ***Title:*** 3) DFoS - RSDL<br>***FY 2011 Accomplishments:***<br>Conducted testing of the efficacy of Reactive Skin Decontamination Lotion (RSDL)/oxime for NTA decontamination on skin, including porcine skin and animal studies. | 2.185 | - | - |
| ***Title:*** 4) DFoS<br>***FY 2013 Plans:***<br>Validate the decontamination wipes, the selected chemical decontaminant(s) with a decontaminant delivery system, the decontamination assurance spray with the selected decontaminant(s), and RSDL through evaluations such as full scale use of the systems, interference testing, and compatibility testing. | - | - | 7.391 |
| ***Title:*** 5) JPID<br>***FY 2011 Accomplishments:***<br>Transitioned JPID requirements from the management umbrella of Joint Material Decontamination System (JMDS)/JSSED to a stand-alone program of record (pre-MS A); activities included the initiation of the Integrated Product Teams (IPT), document development, conducting Industry Day and releasing the Request for Proposal (RFP). | 2.157 | - | - |
| ***Title:*** 6) JSSED<br>***FY 2011 Accomplishments:***<br>Conducted engineering, testing and logistics planning and documentation to support transition of program efforts into JPID. | 3.252 | - | - |
| **Accomplishments/Planned Programs Subtotals** | 7.594 | - | 9.324 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JD0050: *DECONTAMINATION FAMILY OF SYSTEMS (DFoS)* | 0.000 | 0.000 | 0.506 | | 0.506 | 2.127 | 4.612 | 17.401 | 24.198 | Continuing | Continuing |
| • JD0055: *JOINT SERVICE PERSONNEL/SKIN DECON SYSTEM (JSPDS)* | 3.350 | 6.466 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 9.816 |
| • JD0063: *CONTAMINATED HUMAN REMAINS POUCH (CHRP)* | 0.000 | 0.000 | 0.000 | | 0.000 | 0.506 | 0.791 | 1.288 | 0.821 | Continuing | Continuing |

**D. Acquisition Strategy**

CHRP

The Contaminated Human Remains Pouch (CHRP) effort will utilize an incremental acquisition strategy to provide the capability to protect personnel handling and processing human remains contaminated with Chemical, Biological, Radiological, or Nuclear (CBRN) contamination. The CHRP acquisition will leverage Commercial-off-the-Shelf (COTS)/Non-developmental Item (NDI) technologies that will lead to a fielded capability to fulfill gaps as described in the Mortuary Affairs (MA) Initial Capabilities Document (ICD) for safe intra-theater handling and transport of contaminated human remains (CHR). Successful development and procurement of the CHRP will provide Warfighters with the capability to safely handle, transport, and temporarily store or inter CHR in a theater of operations. CHRP will employ a competitive prototyping effort to facilitate the identification and evaluation of COTS/NDI capabilities that can meet the CHRP requirements. A RFP will solicit industry for COTS/NDI technologies and may result in multiple contract awards to allow for competition throughout the acquisition process and minimize cost and schedule risk.

DFoS

The Decontamination Family of Systems (DFoS) will utilize an incremental acquisition strategy to transition various developmental technology efforts (COTS, Joint Science Technology Office (JSTO), Defense Threat Reduction Agency (DTRA) efforts, etc.) to meet high priority Warfighter capability gaps. DFoS will support Major Defense Acquisition Programs (MDAPs) and Programs of Record by guiding S&T efforts and transitioning mature technologies to meet program requirements. The DFoS acquisition will leverage differing technologies in each subsystem to fulfill Warfighter capability gaps. The JSEW, GPD, & CIDAS Programs will employ a CP effort to facilitate the identification and evaluation of technologies (at a minimum Technology Readiness Level (TRL) 4) that can meet the Contamination Mitigation ICD requirements. 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 and government labs will be solicited and through competitive prototyping, materiel solutions will be down-selected for continued development and fielding as a new or enhanced joint force capability.

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
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The CHRP effort will leverage Commercial-off-the shelf (COTS)/Non-developmental Item (NDI) technologies that will lead to a fielded capability to fulfill gaps as described in the ICD.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CHRP - CHRP Prototype Development Contract | C/FFP | Various: | - | - | | 0.160 | Feb 2013 | - | | 0.160 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | - | - | | 0.160 | | - | | 0.160 | | | 0.000 |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CHRP - IPT Technical Support | MIPR | Various: | - | - | | 0.150 | Feb 2013 | - | | 0.150 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | - | - | | 0.150 | | - | | 0.150 | | | 0.000 |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CHRP - Document Development and Test Planning | MIPR | Various: | - | - | | 0.150 | Feb 2013 | - | | 0.150 | Continuing | Continuing | 0.000 |
| Developmental Testing | MIPR | Various: | - | - | | 0.624 | Feb 2013 | - | | 0.624 | Continuing | Continuing | 0.000 |
| Operational Testing | MIPR | Various: | - | - | | 0.400 | May 2013 | - | | 0.400 | Continuing | Continuing | 0.000 |
| ** DFoS - DTE C - UNS NTA Decon Assurance Spray | MIPR | TBD: | - | - | | 1.746 | Feb 2013 | - | | 1.746 | Continuing | Continuing | 0.000 |
| DTE C - UNS NTA Reactive Skin Decontamination Lotion (RSDL) | C/CPFF | Battelle:Columbus, OH | 2.300 | - | | 1.200 | Feb 2013 | - | | 1.200 | Continuing | Continuing | 0.000 |
| DTE C - UNS NTA Chemical Decon/Decon Wipes | MIPR | TBD: | - | - | | 2.745 | Feb 2013 | - | | 2.745 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 2.300 | - | | 6.865 | | - | | 6.865 | | | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

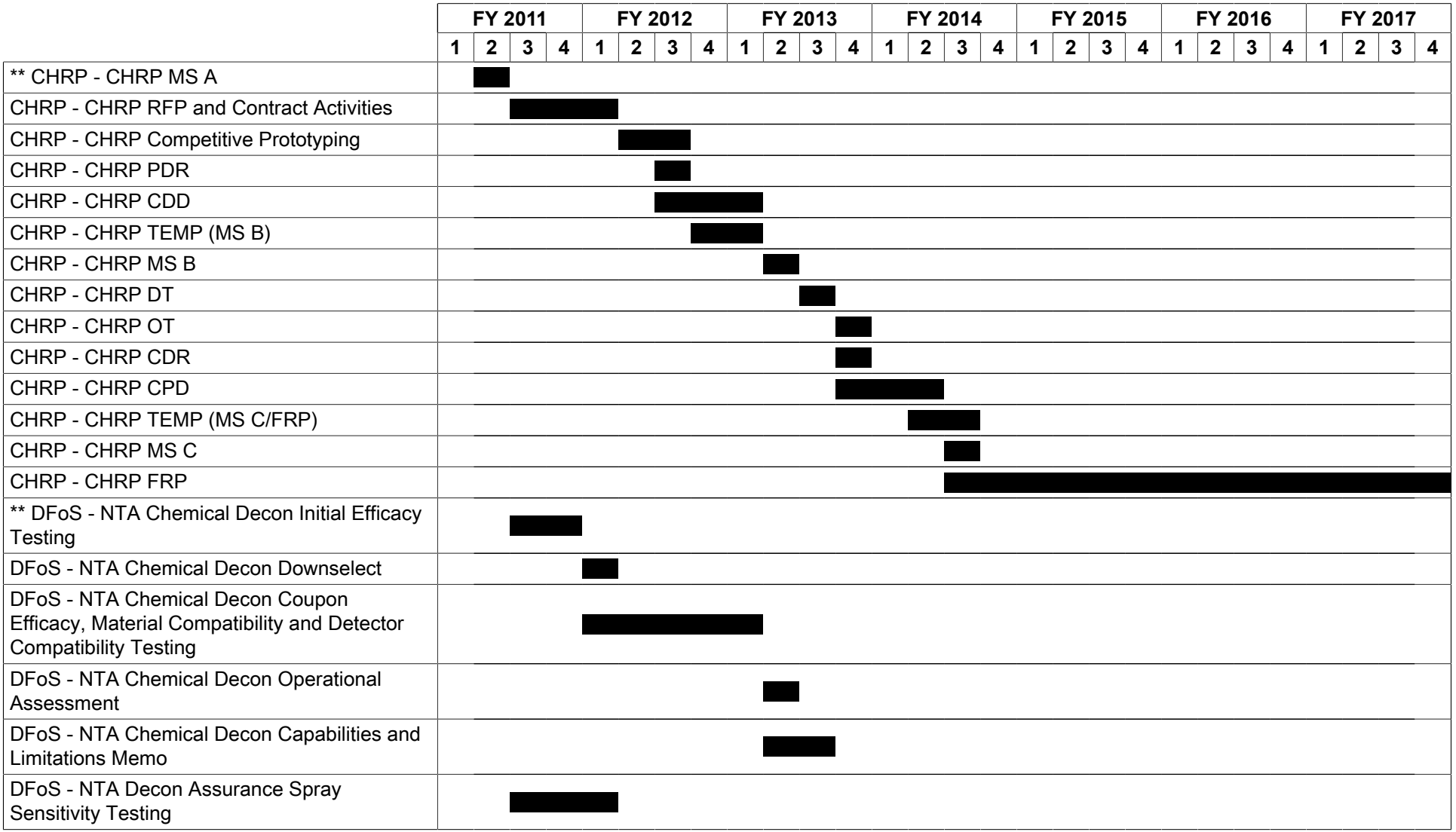
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** CHRP - PM/MS S - Program Management Support, Integrated Product Team and Technical Support | MIPR | Various: | - | - | | 0.449 | Feb 2013 | - | | 0.449 | Continuing | Continuing | 0.000 |
| ** DFoS - PM/MS SB - Program Management Support, Integrated Product Team and Technical Support | MIPR | Various: | 2.158 | - | | 1.700 | Feb 2013 | - | | 1.700 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 2.158 | - | | 2.149 | | - | | 2.149 | | | 0.000 |

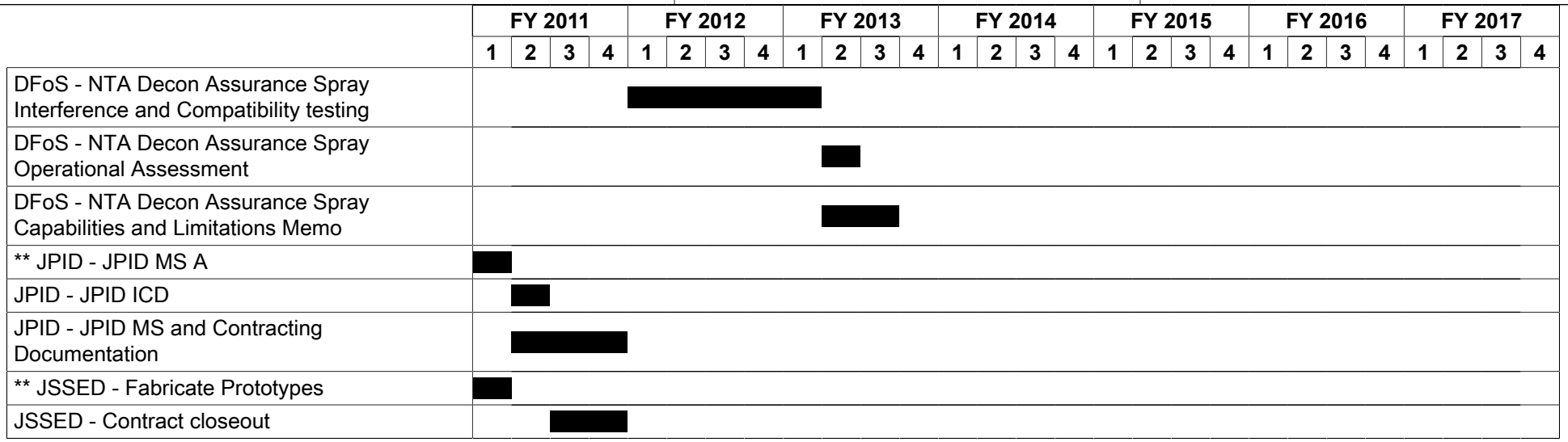
| | Total Prior Years Cost | FY 2012 | | FY 2013 Base | | FY 2013 OCO | | FY 2013 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 4.458 | - | | 9.324 | | - | | 9.324 | | | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** CHRP - CHRP MS A | 2 | 2011 | 2 | 2011 |
| CHRP - CHRP RFP and Contract Activities | 3 | 2011 | 1 | 2012 |
| CHRP - CHRP Competitive Prototyping | 2 | 2012 | 3 | 2012 |
| CHRP - CHRP PDR | 3 | 2012 | 3 | 2012 |
| CHRP - CHRP CDD | 3 | 2012 | 1 | 2013 |
| CHRP - CHRP TEMP (MS B) | 4 | 2012 | 1 | 2013 |
| CHRP - CHRP MS B | 2 | 2013 | 2 | 2013 |
| CHRP - CHRP DT | 3 | 2013 | 3 | 2013 |
| CHRP - CHRP OT | 4 | 2013 | 4 | 2013 |
| CHRP - CHRP CDR | 4 | 2013 | 4 | 2013 |
| CHRP - CHRP CPD | 4 | 2013 | 2 | 2014 |
| CHRP - CHRP TEMP (MS C/FRP) | 2 | 2014 | 3 | 2014 |
| CHRP - CHRP MS C | 3 | 2014 | 3 | 2014 |
| CHRP - CHRP FRP | 3 | 2014 | 4 | 2017 |
| ** DFoS - NTA Chemical Decon Initial Efficacy Testing | 3 | 2011 | 4 | 2011 |
| DFoS - NTA Chemical Decon Downselect | 1 | 2012 | 1 | 2012 |
| DFoS - NTA Chemical Decon Coupon Efficacy, Material Compatibility and Detector Compatibility Testing | 1 | 2012 | 1 | 2013 |
| DFoS - NTA Chemical Decon Operational Assessment | 2 | 2013 | 2 | 2013 |
| DFoS - NTA Chemical Decon Capabilities and Limitations Memo | 2 | 2013 | 3 | 2013 |
| DFoS - NTA Decon Assurance Spray Sensitivity Testing | 3 | 2011 | 1 | 2012 |
| DFoS - NTA Decon Assurance Spray Interference and Compatibility testing | 1 | 2012 | 1 | 2013 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| DFoS - NTA Decon Assurance Spray Operational Assessment | 2 | 2013 | 2 | 2013 |
| DFoS - NTA Decon Assurance Spray Capabilities and Limitations Memo | 2 | 2013 | 3 | 2013 |
| ** JPID - JPID MS A | 1 | 2011 | 1 | 2011 |
| JPID - JPID ICD | 2 | 2011 | 2 | 2011 |
| JPID - JPID MS and Contracting Documentation | 2 | 2011 | 4 | 2011 |
| ** JSSED - Fabricate Prototypes | 1 | 2011 | 1 | 2011 |
| JSSED - Contract closeout | 3 | 2011 | 4 | 2011 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
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| COST ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IP5: *INDIVIDUAL PROTECTION (SDD)* | 20.862 | 11.490 | 13.971 | - | 13.971 | 17.046 | 1.603 | 1.990 | 6.370 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

This project provides Engineering and Manufacturing Development (EMD) and Low Rate Initial Production (EMD/LRIP) for individual protection equipment, with the goal of providing 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.

Included in this program are:

(1) The Joint Service Aircrew Mask (JSAM) is an Acquisition Category (ACAT) III Family of Systems (FoS) respiratory protection system being incrementally developed. The JSAM Apache MPU-6 mask is for use with the Apache Integrated Helmet And Display Sighting System, JSAM MBU-25 (V)/P Fixed Wing (FW) respirator is being developed for use on a limited number of U.S. Air Force Fixed Wing aircraft, and the JSAM MPU-5 Rotary Wing (RW) mask is being developed for use in the majority of Department of Defense RW aircraft. 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. The JSAM will be a lightweight CB protective mask that will be worn as CB protection for most Army, Air Force, Navy and Marine RW and FW aircrew members. The JSAM FW will be the first and only CB protective mask in the DoD inventory that can provide anti-G protection, up to nine times the vertical force (Gz), for aircrew in high-performance aircraft. All JSAM variants will be compatible with most BTN 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 also provide flame and thermal protection, demist/emergency demist, and anti-drowning features.

(2) The Uniform Integrated Protection Ensemble (UIPE). The objective of UIPE is to fully integrate chemical, biological, radiological, nuclear (CBRN) and toxic industrial material (TIM) protection into an ensemble, identical in fit and form to the combat uniform (including mask-helmet integration and protective boots and gloves), thus negating the need for separate protective ensemble components. This integrated protection approach will result in increased Warfighter operational performance in a CBRN environment. The UIPE program will develop, integrate, test, procure and field incremental capability solutions that are modular in function and offer improvements in form and fit over current systems; the program will explore trade-space in areas such as protection level, heat stress, durability, antimicrobial properties, flame resistance, launderability, self-detoxification, and protection time in order to provide capabilities that afford maximum utility to the Warfighter. Where appropriate modeling and simulation tools will be used to lower UIPE program risks, reduce costs, and ensure a high confidence in selected technologies. UIPE is aimed specifically at providing enhanced individual protection capabilities to the Warfighter through reduction of physiological and psychological effects associated with CBRN protective garment thermal burden, weight, and bulk. UIPE requirements are supported by an Initial Capability Document (ICD) and Capability Development Document (CDD), and a MS A. UIPE is in Engineering and Manufacturing Development (EMD) phase and will ultimately provide CB protective equipment with improved operational capability to the U.S. Navy and U.S. Special Operations Command.

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

(3) The Joint Service General Purpose Mask (JSGPM) Advanced Respiratory Protection Initiative (ARPI): This project funds the advanced component development and prototypes of an improved filtration and protection capability against highest priority Toxic Industrial Chemical (TIC) threats, addressing a current and significant capability gap to the operating force. The effort is supported by the Capabilities Production Document for the JSGPM, which outlines the need for a robust TIC/TIM protection capability. It is expected that new capabilities demonstrated through the activities in this project will be leveraged and integrated into future increments of UIPE.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) JSAM | 18.483 | 7.815 | - |
| ***FY 2011 Accomplishments:***<br>JSAM MPU-5 (RW) - Completed Multi-Service Developmental Flight Testing. Procured 400 articles ($3.750K each) for developmental test in FY12-13.<br><br>JSAM MBU-25 (V)/P (FW) - Continued DT for top four priority aircraft platforms (F-22, MC-12W, F-18 and MV-22). | | | |
| ***FY 2012 Plans:***<br>JSAM MPU-5 (RW) - Complete Manufacturing Readiness Assessment. Finalize configuration for MOT&E. Complete definition of performance envelope. Continue logistics and training planning. Conduct developmental tests (e.g., chemical agent, simulant, environmental, and logistics tests) and develop reports.<br><br>JSAM MBU-25 (V)/P (FW) - Complete DT for F-22, MC-12W, F-18 and MV-22 aircraft platforms. Start OT for top four priority aircraft. Conduct logistics demonstration. | | | |
| ***Title:*** 2) JSAM FW | - | - | 3.486 |
| ***FY 2013 Plans:***<br>Complete Operation Test. Conduct PRR and JILA, finalize evaluator test reports and complete documentation for MS C. | | | |
| ***Title:*** 3) JSAM RW | - | - | 6.612 |
| ***FY 2013 Plans:***<br>Conduct airworthiness testing. Prepare assets for operational testing. Develop test plans. Conduct developmental tests (e.g., chemical agent, simulant, environmental, and logistics tests) and develop reports. Prepare milestone documentation. Conduct formal system reviews (i.e., System Verification Review and Production Readiness Review). Conduct training. | | | |
| ***Title:*** 4) JSGPM | 2.379 | - | 2.004 |
| ***FY 2011 Accomplishments:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| JSGPM (ARPI) - Conducted government testing to ensure carbons transitioned to JSGPM filters to improve TIC protection meeting the user requirements. Conducted government testing on novel filtration candidates considered for UIPE.<br><br>JSGPM - Continued testing End of Service Indicator (ESLI) and completed transition to production in FY12.<br>***FY 2013 Plans:***<br>JSGPM (ARPI) - Begin the EMD phase of ZZ-AT media (zirconium hydroxide) based filter transitioning from Tech Base that is applicable to replace or improve fielded protection. Prepare for EMD contract. | | | |
| ***Title:*** 5) UIPE<br>***FY 2012 Plans:***<br>UIPE - Prepare for and conduct MS B decision. Enter Engineering and Manufacturing Development (EMD) phase. Award contracts. Conduct Critical Design Review (CDR) and EMD phase competitive prototyping. Initiate integrated developmental testing and operational testing (DT/OT). Assess down-selected UIPE candidates in field and laboratory test events to evaluate performance with respect to reduction of thermal burden, protection against CB agents, and mission suitability. Prepare for and conduct MS C Low Rate Initial Production (LRIP) decision. Exercise LRIP contract option(s).<br>***FY 2013 Plans:***<br>UIPE - Conduct Production Readiness Review (PRR), Manufacturing Readiness Assessment (MRA) and Technology Readiness Assessment (TRA). Complete Logistics Demonstration. Perform Physical Configuration Audit (PCA). Conduct Operational Test Readiness Review (OTRR) and First Article Test (FAT). Initiate Multi-service Operational Test and Evaluation (MOT&E). Perform System Verification Review (SVR). Prepare for and conduct Full Rate Production (FRP) decision. | - | 3.524 | 1.869 |
| ***Title:*** 6) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.151 | - |
| **Accomplishments/Planned Programs Subtotals** | 20.862 | 11.490 | 13.971 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JI0002: *JS AIRCREW MASK (JSAM)* | 4.543 | 11.853 | 14.878 | | 14.878 | 30.143 | 38.111 | 26.796 | 10.169 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JI0003: *JOINT SERVICE GENERAL PURPOSE MASK (JSGPM/JSCESM)* | 51.265 | 58.523 | 48.466 | | 48.466 | 46.657 | 99.151 | 70.882 | 123.496 | Continuing | Continuing |
| • MA0401: *CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE (UIPE)* | 0.000 | 1.000 | 10.376 | | 10.376 | 13.772 | 12.948 | 17.101 | 17.101 | Continuing | Continuing |

**D. Acquisition Strategy**

JSAM

The overall JSAM acquisition approach is incremental and phased due to the complexity of interfacing with almost 200 aircraft types and models with different mission sets, ALSE, cockpit layouts, priorities, etc., and funding limitations. The JSAM must be compatible with current CB ensembles, provide flame protection, and reduce heat stress imposed by existing aircrew CB protective masks. The JSAM must also be compatible with existing aircrew life support equipment (ALSE) and aircraft systems including weapons Systems (FoS) is a modular system that satisfies the requirements for different aircraft types and mission areas. JSAM will replace all existing Pressure Breathing for Gravity (PBG) and non-PBG CB aircrew respirators for all fixed and rotary wing aircrew. JSAM is a respirator for individual aircrew that provides above-the-shoulder head, eye, respiratory, and percutaneous protection against CB warfare agents, and continuous protection JSAM MBU-25 FW utilizes an incremental acquisition strategy to provide aircrew of all Services with individual head-eye-respiratory protection against Chemical-Biological (CB) warfare agents.

The JSAM MBU-25 FW effort will test and field the top four most critical aircraft platforms through an SDD contract. An RFP will be released to solicit industry for JSAM FW procurement using a full and open competition.

JSAM RW MPU-5 Low Rate Production (LRIP) and Full Rate Production (FRP) assets will be procured using contract options. JSAM RW MPU-5 will provide individual head-eye-respiratory protection against Chemical-Biological (CB) warfare agents to pilots and aircrew of all rotary wing aircraft in the DoD inventory except the Army AH-64A/D Helicopter. JSAM RW MPU-5 Engineering and Manufacturing Development activities are performed via a contract awarded using a full and open competition, best value contracting strategy. The existing contract includes options for LRIP and FRP. A full and open competition, best value contracting strategy will be utilized to support additional Full Rate Production upon completion of the existing contract requirements and execution of options.

JSGPM

JSGPM (ARPI): The Advanced Respiratory Protection Initiative (ARPI) will address improved masks protection, filter protection against TICs/TIMs and improved profile and breathing resistance; and wearability compatibility/integration. This will be accomplished by: 1) Class-Based Analysis, 2) Filtration Advanced Screening Test (FAST), Desorption Study; and Advanced CBRN Filtration efforts. Accomplishments to date include development of the prioritization approach and class based

analysis; development of challenge levels for performance curve through modeling; FAST of ASZM-TDA, BSC, and EUMC against the priority TIC LIST; test of representative chemicals demonstrating the applicability of the class based analysis, and Scientific literature review of filter desorption.

UIPE

Strategy based on incremental development in accordance with prescribed Chemical Biological Radiological Nuclear Defense Joint Requirements Office (CBRND-JRO) approved capabilities documents. The objective of the Uniform Integrated Protection Ensemble (UIPE) is to fully integrate chemical, biological, radiological, nuclear (CBRN) and toxic industrial material (TIM) protection into an ensemble, identical in fit and form to the combat uniform (including mask-helmet integration, protective boots and gloves), thus negating the need for separate protective ensemble components. This integrated protection approach will result in increased Warfighter operational performance in a CBRN environment.

UIPE is aimed specifically at providing enhanced individual protection capabilities to the Warfighter through reduction of physiological and psychological effects associated with CBRN protective garment thermal burden, weight, and bulk. UIPE will pursue a Modified Commercial-Off-The-Shelf/Non-Developmental Item (COTS/NDI) Acquisition Strategy; full and open competition will be used. Following Milestone (MS) B approval, contracts will be awarded and integrated Developmental Test/Operational Test (DT/OT) will be initiated on selected candidate system(s) during the Engineering and Manufacturing Development (EMD) phase. At the end of EMD, those candidates meeting UIPE requirements and that offer best value to the Government will move forward into Low Rate Initial Production (LRIP) and Multi-Service Operational Test and Evaluation (MOT&E). Following MOT&E, effective and suitable systems will be considered for Full-Rate Production (FRP). UIPE requirements are supported by an Initial Capability Document (ICD) and Capability Development Document (CDD). UIPE will ultimately provide CB protective equipment with improved operational capability to the U.S. Navy and U.S. Special Operations Command.

Future increments of UIPE shall be defined via separate capabilities documents. Each successive increment 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JSAM - HW S - Contractor Development MPU-5 | C/CPAF | AVOX:Lancaster, NY | 25.445 | 0.055 | Feb 2012 | - | | - | | - | Continuing | Continuing | 7.209 |
| ** JSAM RW - HW S - JSAM RW | MIPR | Various: | - | - | | 0.530 | Feb 2013 | - | | 0.530 | Continuing | Continuing | 0.000 |
| ** JSGPM - HW C - ZZAT Filter | MIPR | Various: | - | - | | 0.600 | Feb 2013 | - | | 0.600 | Continuing | Continuing | 0.000 |
| ** UIPE - HW S - Prototype Garment Development | C/FFP | TBD: | - | 0.200 | Feb 2012 | 0.018 | Feb 2013 | - | | 0.018 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 25.445 | 0.255 | | 1.148 | | - | | 1.148 | | | 7.209 |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JSAM - ES S - JSAM RW | MIPR | Various: | 1.623 | 0.890 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** JSAM FW - ES S - JSAM FW | MIPR | Various: | - | - | | 0.760 | Feb 2013 | - | | 0.760 | Continuing | Continuing | 0.000 |
| ** JSAM RW - ES S - JSAM RW | MIPR | Various: | - | - | | 1.790 | Feb 2013 | - | | 1.790 | Continuing | Continuing | 0.000 |
| ** JSGPM - TD/D SB - JSGPM Filter | MIPR | ECBC:APG, MD | 0.666 | - | | 0.179 | Feb 2013 | - | | 0.179 | Continuing | Continuing | 0.000 |
| ES C - JSGPM Filter | MIPR | NRL:Washington, DC | 0.500 | - | | 0.100 | Feb 2013 | - | | 0.100 | Continuing | Continuing | 0.000 |
| ** UIPE - ES S - Prototype Garment - Manufacturing Readiness Assessment | C/FFP | TBD: | - | 0.095 | Feb 2012 | 0.055 | Nov 2012 | - | | 0.055 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 2.789 | 0.985 | | 2.884 | | - | | 2.884 | | | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
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**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JSAM - OTHT SB - Govt Dev Test | MIPR | Various: | 20.403 | 2.944 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.092 |
| OTE S - Govt Operational Test MBU-25/26 | MIPR | Various: | 19.230 | 1.536 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.404 |
| OTHT SB - Govt Operational Test MPU-5 | MIPR | Various: | 6.354 | 1.203 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.185 |
| ** JSAM FW - OTE S - JSAM FW | MIPR | Various: | - | - | | 1.985 | Feb 2013 | - | | 1.985 | Continuing | Continuing | 0.000 |
| ** JSAM RW - OTE S - JSAM RW | MIPR | Various: | - | - | | 3.313 | Feb 2013 | - | | 3.313 | Continuing | Continuing | 0.000 |
| ** JSGPM - DTE SB - JSGPM Filter Testing | MIPR | Various: | 4.710 | - | | 0.625 | Feb 2013 | - | | 0.625 | Continuing | Continuing | 0.000 |
| ** UIPE - DTE S - Prototype Garment - Integrated DT/OT | MIPR | Various: | - | 1.121 | Feb 2012 | 0.653 | Feb 2013 | - | | 0.653 | Continuing | Continuing | 0.000 |
| OTHT S - Test and Evaluation IPT Support | MIPR | Various: | - | 0.788 | Nov 2011 | 0.370 | Nov 2012 | - | | 0.370 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 50.697 | 7.592 | | 6.946 | | - | | 6.946 | | | 0.681 |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JSAM - PM/MS SB - Program Management | MIPR | Various: | 21.480 | 1.187 | Feb 2012 | - | | - | | - | Continuing | Continuing | 5.421 |
| ** JSAM FW - PM/MS S - JSAM FW | MIPR | Various: | - | - | | 0.741 | Feb 2013 | - | | 0.741 | Continuing | Continuing | 0.000 |
| ** JSAM RW - PM/MS S - JSAM RW | MIPR | Various: | - | - | | 0.979 | Feb 2013 | - | | 0.979 | Continuing | Continuing | 0.000 |
| ** JSGPM - PM/MS C - Program Management Conduct Market Survey Analysis | MIPR | Various: | 0.800 | - | | 0.400 | Feb 2013 | - | | 0.400 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

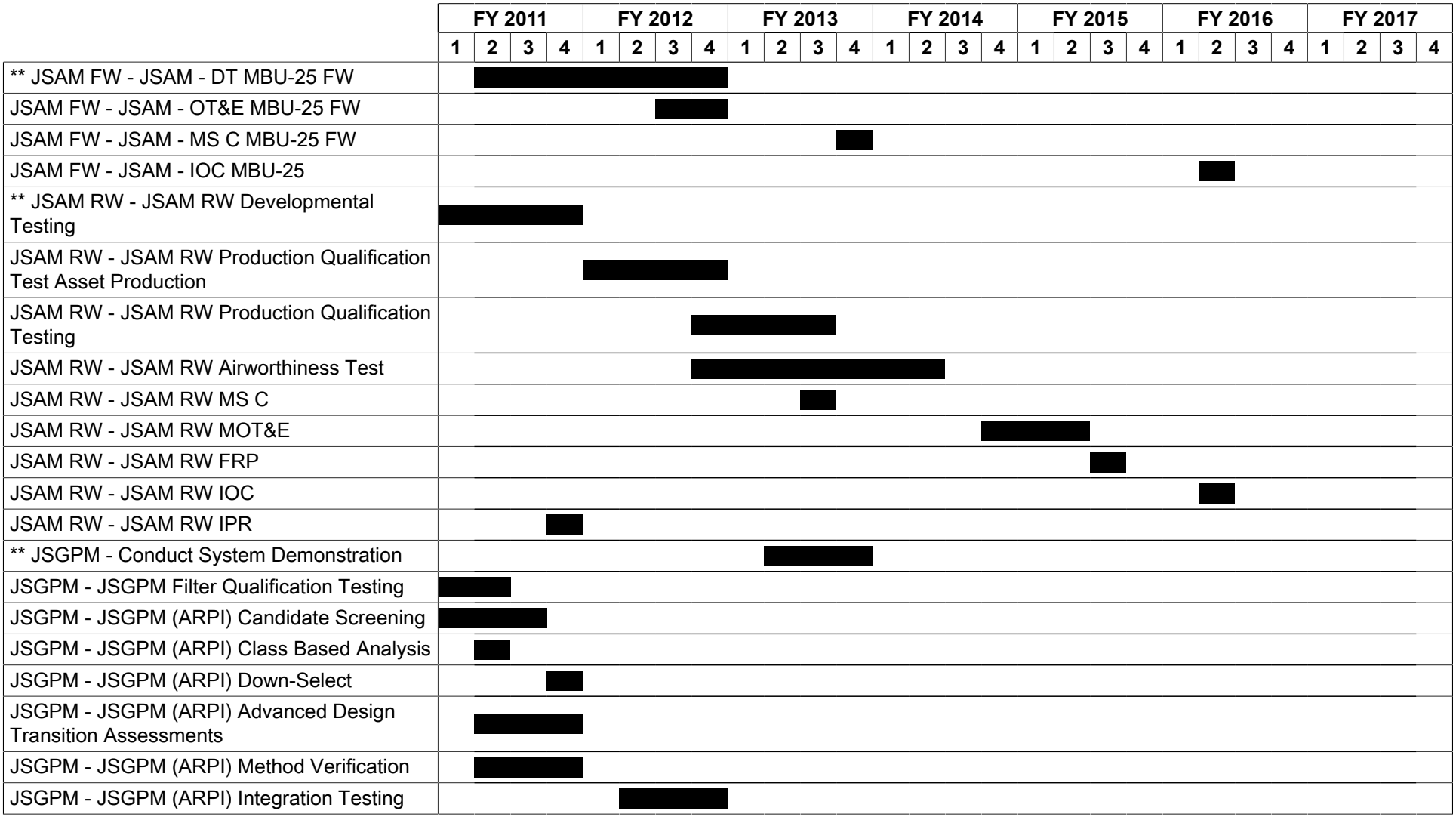
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PM/MS C - ARPI | MIPR | ECBC:Edgewood, MD | - | - | | 0.100 | Feb 2013 | - | | 0.100 | Continuing | Continuing | 0.000 |
| ** UIPE - PM/MS C - Program Management, Technical and IPT Support. | C/FFP | Various: | - | 1.320 | Feb 2012 | 0.773 | Feb 2013 | - | | 0.773 | Continuing | Continuing | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 0.151 | | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 22.280 | 2.658 | | 2.993 | | - | | 2.993 | | | 5.421 |

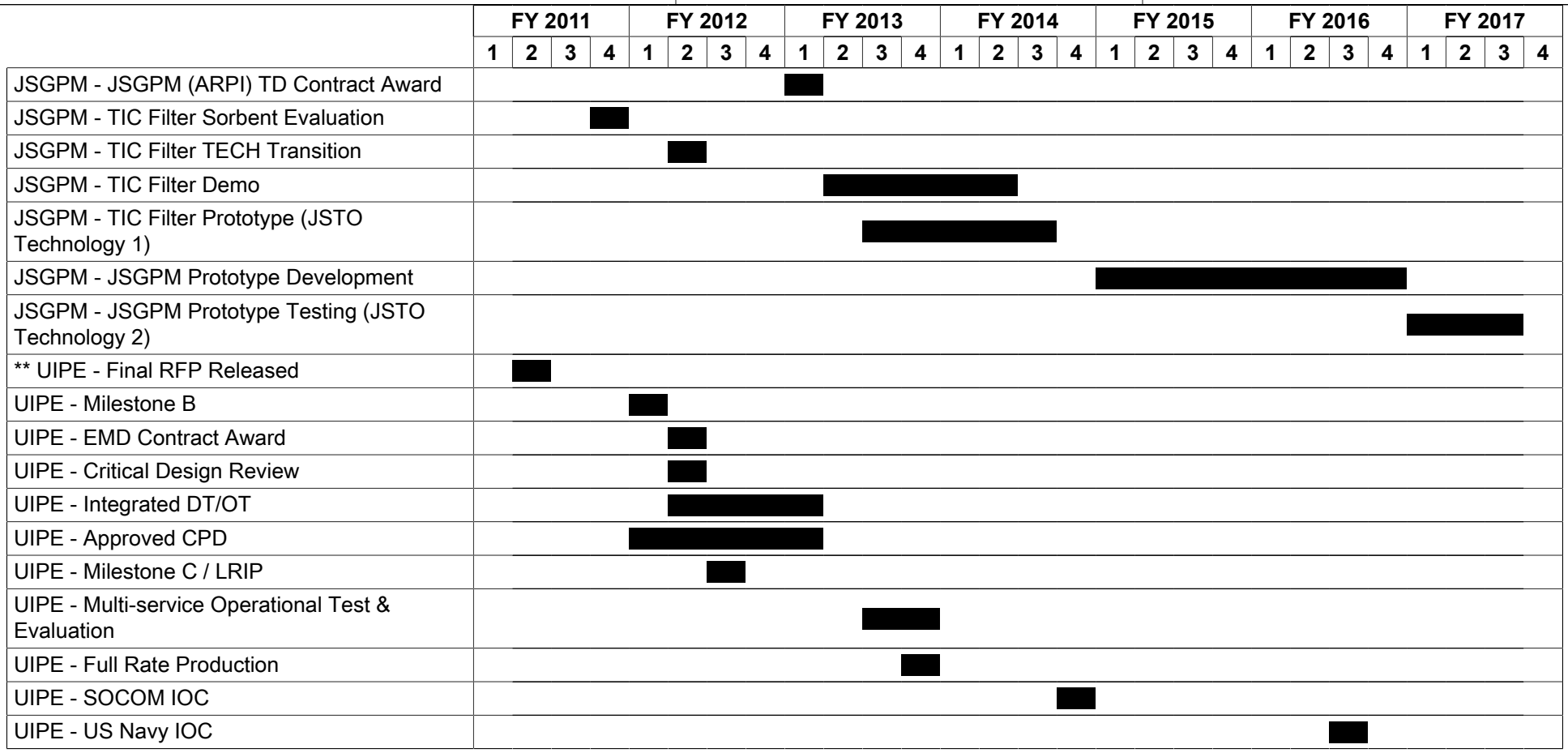
| | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 101.211 | 11.490 | | 13.971 | | - | | 13.971 | | | 13.311 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** JSAM FW - JSAM - DT MBU-25 FW | 2 | 2011 | 4 | 2012 |
| JSAM FW - JSAM - OT&E MBU-25 FW | 3 | 2012 | 4 | 2012 |
| JSAM FW - JSAM - MS C MBU-25 FW | 4 | 2013 | 4 | 2013 |
| JSAM FW - JSAM - IOC MBU-25 | 2 | 2016 | 2 | 2016 |
| ** JSAM RW - JSAM RW Developmental Testing | 1 | 2011 | 4 | 2011 |
| JSAM RW - JSAM RW Production Qualification Test Asset Production | 1 | 2012 | 4 | 2012 |
| JSAM RW - JSAM RW Production Qualification Testing | 4 | 2012 | 3 | 2013 |
| JSAM RW - JSAM RW Airworthiness Test | 4 | 2012 | 2 | 2014 |
| JSAM RW - JSAM RW MS C | 3 | 2013 | 3 | 2013 |
| JSAM RW - JSAM RW MOT&E | 4 | 2014 | 2 | 2015 |
| JSAM RW - JSAM RW FRP | 3 | 2015 | 3 | 2015 |
| JSAM RW - JSAM RW IOC | 2 | 2016 | 2 | 2016 |
| JSAM RW - JSAM RW IPR | 4 | 2011 | 4 | 2011 |
| ** JSGPM - Conduct System Demonstration | 2 | 2013 | 4 | 2013 |
| JSGPM - JSGPM Filter Qualification Testing | 1 | 2011 | 2 | 2011 |
| JSGPM - JSGPM (ARPI) Candidate Screening | 1 | 2011 | 3 | 2011 |
| JSGPM - JSGPM (ARPI) Class Based Analysis | 2 | 2011 | 2 | 2011 |
| JSGPM - JSGPM (ARPI) Down-Select | 4 | 2011 | 4 | 2011 |
| JSGPM - JSGPM (ARPI) Advanced Design Transition Assessments | 2 | 2011 | 4 | 2011 |
| JSGPM - JSGPM (ARPI) Method Verification | 2 | 2011 | 4 | 2011 |
| JSGPM - JSGPM (ARPI) Integration Testing | 2 | 2012 | 4 | 2012 |
| JSGPM - JSGPM (ARPI) TD Contract Award | 1 | 2013 | 1 | 2013 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
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| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| JSGPM - TIC Filter Sorbent Evaluation | 4 | 2011 | 4 | 2011 |
| JSGPM - TIC Filter TECH Transition | 2 | 2012 | 2 | 2012 |
| JSGPM - TIC Filter Demo | 2 | 2013 | 2 | 2014 |
| JSGPM - TIC Filter Prototype (JSTO Technology 1) | 3 | 2013 | 3 | 2014 |
| JSGPM - JSGPM Prototype Development | 1 | 2015 | 4 | 2016 |
| JSGPM - JSGPM Prototype Testing (JSTO Technology 2) | 1 | 2017 | 3 | 2017 |
| ** UIPE - Final RFP Released | 2 | 2011 | 2 | 2011 |
| UIPE - Milestone B | 1 | 2012 | 1 | 2012 |
| UIPE - EMD Contract Award | 2 | 2012 | 2 | 2012 |
| UIPE - Critical Design Review | 2 | 2012 | 2 | 2012 |
| UIPE - Integrated DT/OT | 2 | 2012 | 1 | 2013 |
| UIPE - Approved CPD | 1 | 2012 | 1 | 2013 |
| UIPE - Milestone C / LRIP | 3 | 2012 | 3 | 2012 |
| UIPE - Multi-service Operational Test & Evaluation | 3 | 2013 | 4 | 2013 |
| UIPE - Full Rate Production | 4 | 2013 | 4 | 2013 |
| UIPE - SOCOM IOC | 4 | 2014 | 4 | 2014 |
| UIPE - US Navy IOC | 3 | 2016 | 3 | 2016 |

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| COST ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IS5: *INFORMATION SYSTEMS (SDD)* | 15.689 | 2.423 | 2.045 | - | 2.045 | 11.794 | 9.884 | 24.826 | 23.267 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

This project supports System Development and Demonstration and Low Rate Initial Production (SDD/LRIP).

Efforts included in this project are: (1) Joint Effects Model (JEM); (2) the Joint Warning and Reporting Network (JWARN); and (3) the Joint Program Executive Office for Chemical Biological Defense (JPEO-CBD) Software Support Activity (SSA).

The JEM is Department of Defense's (DoD) 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; high altitude releases, urban NBC environments; building interiors, and human performance degradation. 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 interfaces and communicates with the other programs such as JWARN, weather systems, intelligence systems, and various databases.

The Joint Warning and Reporting Network (JWARN) will provide the Joint Forces with a comprehensive Integrated Early Warning, 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 CBRN warning technology which will collect, analyze, identify, locate, report, and disseminate warnings. JWARN will be compatible and integrated with Joint Service C4ISR Systems. JWARN will transition from platform specific Common Operating Environment (COE) standards to a Web-based Service Oriented Architecture (SOA). JWARN will also 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 command and control (C2) systems. 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 and 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 JWARN capability described above will be developed utilizing an incremental approach based on Service requirements and host system architecture.

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

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) JEM Independent Verification, Validation, and Accreditation<br><br>***FY 2011 Accomplishments:***<br>Continued independent verification, validation, and accreditation of JEM software and related models. | 0.278 | - | - |
| ***Title:*** 2) JEM Program Management<br><br>***FY 2011 Accomplishments:***<br>Provided strategic, tactical planning, program/financial management, costing, contracting, scheduling and acquisition oversight support of fielded product all Services. Prepared and executed a follow-on Full Deployment Decision (FDD) for selected Command and Control systems.<br><br>***FY 2013 Plans:***<br>Perform program/financial management, costing, contracting, scheduling and acquisition oversight support of fielded product all Services. Complete execution of the follow-on Full Deployment Decision (FDD) for selected Command and Control systems. | 0.233 | - | 0.152 |
| ***Title:*** 3) JEM Accession of Technology Improvements<br><br>***FY 2011 Accomplishments:***<br>Integrated transitioned Tech Base technology and capabilities into JEM software. Analyzed existing and future software architectures. Continued migrating JEM software to evolving host platforms (Service C2 systems). Incorporated Urban Dispersion Modeling enhancements, Missile Intercept, Backtracking to Source, enhanced STRATCOM Support, and Human Effects. Continued to review and evaluate existing JEM internal architecture for improved performance and potential operational cost savings. | 0.567 | - | - |
| ***Title:*** 4) JEM Developmental Test and Evaluation<br><br>***FY 2011 Accomplishments:***<br>Continued to perform Governmental DT on updates to the JEM and evolving baselines in support of future User and Operational Assessments in preparation for milestone events. Verified and validated transitioned S&T code and developed models. Conducted test in support of follow-on accreditation and operational test. Initiated interoperability, network and system security certifications of multiple service C4I/host systems and three computer operating systems (Windows XP, Vista and UNIX). | 0.439 | - | - |
| ***Title:*** 5) JEM | 0.454 | - | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Description:*** JEM Program Development<br><br>***FY 2011 Accomplishments:***<br>Continued software upgrades on JEM baseline to support the evolving C4I host system updates. | | | |
| ***Title:*** 6) JWARN<br>***Description:*** JWARN Program Development<br><br>***FY 2011 Accomplishments:***<br>Performed software upgrades and updates on JWARN baseline in parallel with evolving Command, Control, Communications, Computers, and Intelligence (C4I) host system upgrades. Continued development of software code in support of modernization efforts to keep pace with host C2 systems. | 7.494 | - | - |
| ***Title:*** 7) JWARN<br>***Description:*** JWARN Operational demonstrations and tests.<br><br>***FY 2011 Accomplishments:***<br>Prepared, conducted and supported operational demonstrations and tests for service specific FOT&E events. Generated test results and reports to support. | 0.284 | - | - |
| ***Title:*** 8) JWARN<br>***Description:*** JWARN Program Management<br><br>***FY 2011 Accomplishments:***<br>Perform program/financial management, costing, contracting, scheduling and acquisition oversight support of fielded JWARN product all Services. | 2.596 | - | - |
| ***Title:*** 9) SSA Policies, Standards and Guidelines<br>***FY 2011 Accomplishments:***<br>Continued monitoring compliance with Federal Information Security Management Act (FISMA) and DoD Acquisition policies required to sustain certification on Service specific IT platforms. Updated acquisition documentation for CBRN IT systems. Reviewed and updated Enterprise Verification, Validation, and Accreditation (VV&A) guidelines and processes, including M&S strategic support and accreditation support.<br>***FY 2012 Plans:*** | 0.216 | 0.244 | 0.198 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue updates to acquisition documentation for CBRN IT systems based on changes in policy, procedures, and guidelines. Continue surveillance of Federal Information Security Management Act (FISMA) and DoD Acquisition policies necessary to maintain certification on deployed service platforms. Provide M&S strategic and accreditation support.<br>***FY 2013 Plans:***<br>Update acquisition documentation for CBRN IT systems based on changes in policy, procedures, and guidelines. Continue surveillance of Federal Information Security Management Act (FISMA) and DoD Acquisition policies necessary to maintain certification on deployed service platforms. Provide M&S strategic and accreditation support. | | | |
| ***Title:*** 10) SSA Integrated Architecture<br>***FY 2011 Accomplishments:***<br>Continued documentation of CB Information Systems data flows, data requirements, services and applications as well as IT infrastructure and technical standards for host systems. Updated and maintained the Integrated Architecture for JPEO-CBD Enterprise in accordance with DoD/AF and industry standards. Provided Net-Centric Assessment for programs. Updated Common CBRN Interface standards, including a CCSI and develop new interfaces as required.<br>***FY 2012 Plans:***<br>Continue required modifications to the Integrated Architecture for JPEO-CBD Enterprise on host platforms. Continue efforts to document CB Information Systems infrastructure and technical standards. Continue to provide Net-Centric Assessment for programs. Review and update the Common CBRN Interface standards on operational systems, including a CCSI. Develop new interfaces as required.<br>***FY 2013 Plans:***<br>Continue required modifications to the Integrated Architecture for JPEO-CBD Enterprise on host platforms and document the infrastructure and technical standards. Conduct Net-Centric Assessments for programs. Review and update the Common CBRN Interface standards on operational systems, including a CCSI. | 0.513 | 0.308 | 0.239 |
| ***Title:*** 11) SSA Enterprise Support and Services<br>***FY 2011 Accomplishments:***<br>Provided support processes and services for Architectures, Data, Information Assurance, Help Desk, Modeling and Simulation, Science and Technology, and Standards and Policy. Compiled performance metrics for services rendered.<br>***FY 2012 Plans:*** | 0.278 | 0.163 | 0.156 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue to provide support processes and services for Architectures, Data, Information Assurance, Modeling and Simulation, Science and Technology, and Standards and Policy. Modify support processes and services necessary to maintain relevancy in accordance with DoD standards, policies, and guidelines.<br>***FY 2013 Plans:***<br>Support processes and services for Architectures, Data, Information Assurance, Modeling and Simulation, Science and Technology, and Standards and Policy. | | | |
| ***Title:*** 12) SSA Chemical, Biological, Radiological, Nuclear (CBRN) Data Model<br>***FY 2011 Accomplishments:***<br>Collaborated and exchanged information for use in CBRN Data models. Developed CBRN data dissemination across multiple users utilizing Universal Core (UCore) concepts and technologies previously demonstrated in the UCORE Pilot. Refined CBRN data model to be used as an enterprise wide model for the CBRN Center of Excellence (COE).<br>***FY 2012 Plans:***<br>Continue to provide CBRN Data Model development for Community of Interest.<br>***FY 2013 Plans:***<br>Refine CBRN Data Model to maintain relevancy for Community of Interest. | 1.334 | 0.153 | 0.174 |
| ***Title:*** 13) SSA Information Assurance<br>***FY 2011 Accomplishments:***<br>Conducted reviews and maintain Authorization to Operate on host systems. Maintained situational awareness and initiated actions to improve or restore IA posture. Completed documentation required to provide Information Assurance certification and acceptance services for developing JPEO-CBD programs.<br>***FY 2012 Plans:***<br>Continue situational awareness and initiate actions to improve or restore IA posture to keep systems certified in accordance with DoD standards for JPEO-CBD information system programs.<br>***FY 2013 Plans:***<br>Maintain situational awareness and initiate actions to improve or restore IA posture to keep systems certified in accordance with DoD standards for JPEO-CBD information system programs. | 0.718 | 0.601 | 0.449 |
| ***Title:*** 14) SSA Policy and Standards Repository<br>***FY 2011 Accomplishments:*** | 0.140 | 0.359 | 0.349 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Reviewed data for relevancy and updated the repository for applicable Enterprise policies, standards, and guidelines.<br>***FY 2012 Plans:***<br>Update the repository for applicable Enterprise policies, standards, and guidelines.<br>***FY 2013 Plans:***<br>Maintain the repository for applicable Enterprise policies, standards, and guidelines. | | | |
| ***Title:*** 15) SSA Technology Transition Support<br>***FY 2011 Accomplishments:***<br>Provided Technology Transition support services (common components and services) for JPM IS and CBD programs.<br>***FY 2012 Plans:***<br>Continue to provide Technology Transition support services (common components and services)for JPM IS and CBD programs.<br>***FY 2013 Plans:***<br>Provide Technology Transition support services (common components and services)for JPM IS and CBD programs. | 0.145 | 0.563 | 0.328 |
| ***Title:*** 16) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.032 | - |
| **Accomplishments/Planned Programs Subtotals** | 15.689 | 2.423 | 2.045 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • IS7: *INFORMATION SYSTEMS (OP SYS DEV)* | 1.789 | 6.911 | 10.091 | | 10.091 | 6.618 | 4.090 | 5.615 | 9.915 | Continuing | Continuing |
| • G47101: *JOINT WARNING & REPORTING NETWORK (JWARN)* | 6.783 | 3.880 | 2.646 | | 2.646 | 1.112 | 0.766 | 0.456 | 4.589 | Continuing | Continuing |
| • JC0208: *JOINT EFFECTS MODEL (JEM)* | 3.421 | 0.000 | 0.000 | | 0.000 | 0.000 | 1.343 | 1.553 | 1.553 | Continuing | Continuing |

**D. Acquisition Strategy**

JEM

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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)* |

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. JEM 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 Joint Program Executive Office for Chemical Biological Defense (JPEO-CBD) architectures and technologies, as well as, with Service Command and Control (C2) systems. JEM will develop three distinct increments of software. JEM is a web-services based application and has been granted an Interoperability Certificate by the Joint Interoperability Test Command (JITC). The program plans to award competitive contracts using fixed price or cost-plus as appropriate.

JWARN

JWARN will develop and provide Integrated Early Warning capabilities to specified (Common Operating Environment (COE-based)) operational-level Service Command and Control (C2) systems at the Global Command and Control System (GCCS) level, extend the integration effort into the Service tactical (non COE-based) C2 systems, provide connectivity to legacy and newly developed sensors, and complete the development of JWARN.

JWARN will extend these baseline capabilities to emerging, net-centric, Service C2 systems and Service CBRN sensors and detectors as they are developed and fielded. JWARN will also ensure CBRN warning and reporting capabilities remain synchronized with the changing demands of the Warfighter while keeping pace with evolving C2 systems and their architectures, and will further evolve by integrating next generation sensors, detectors and emerging Medical and Biological Surveillance requirements into the CBRN Enterprise.

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. (BA5 - System Development and Demonstration).

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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 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
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**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** SSA - HW S - Product Development | MIPR | SPAWAR Systems Center:San Diego, CA | 6.418 | 1.350 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 6.418 | 1.350 | | - | | - | | - | | | 0.000 |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** SSA - ES S - Support Costs | MIPR | SPAWAR Systems Center:San Diego, CA | 7.182 | 0.517 | Feb 2012 | 0.486 | Feb 2013 | - | | 0.486 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 7.182 | 0.517 | | 0.486 | | - | | 0.486 | | | 0.000 |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** SSA - DTE S - Test and Evaluation | MIPR | SPAWAR Systems Center:San Diego, CA | 3.650 | 0.321 | Feb 2012 | 1.223 | Feb 2013 | - | | 1.223 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 3.650 | 0.321 | | 1.223 | | - | | 1.223 | | | 0.000 |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JEM - PM/MS S - Program Office - Planning and Programming | MIPR | SPAWAR Systems Command:San Diego, CA | 5.983 | - | | 0.152 | Feb 2013 | - | | 0.152 | Continuing | Continuing | 0.000 |
| ** SSA - PM/MS S - Management Services | MIPR | SPAWAR Systems Center:San Diego, CA | 3.527 | 0.203 | Feb 2012 | 0.184 | Feb 2013 | - | | 0.184 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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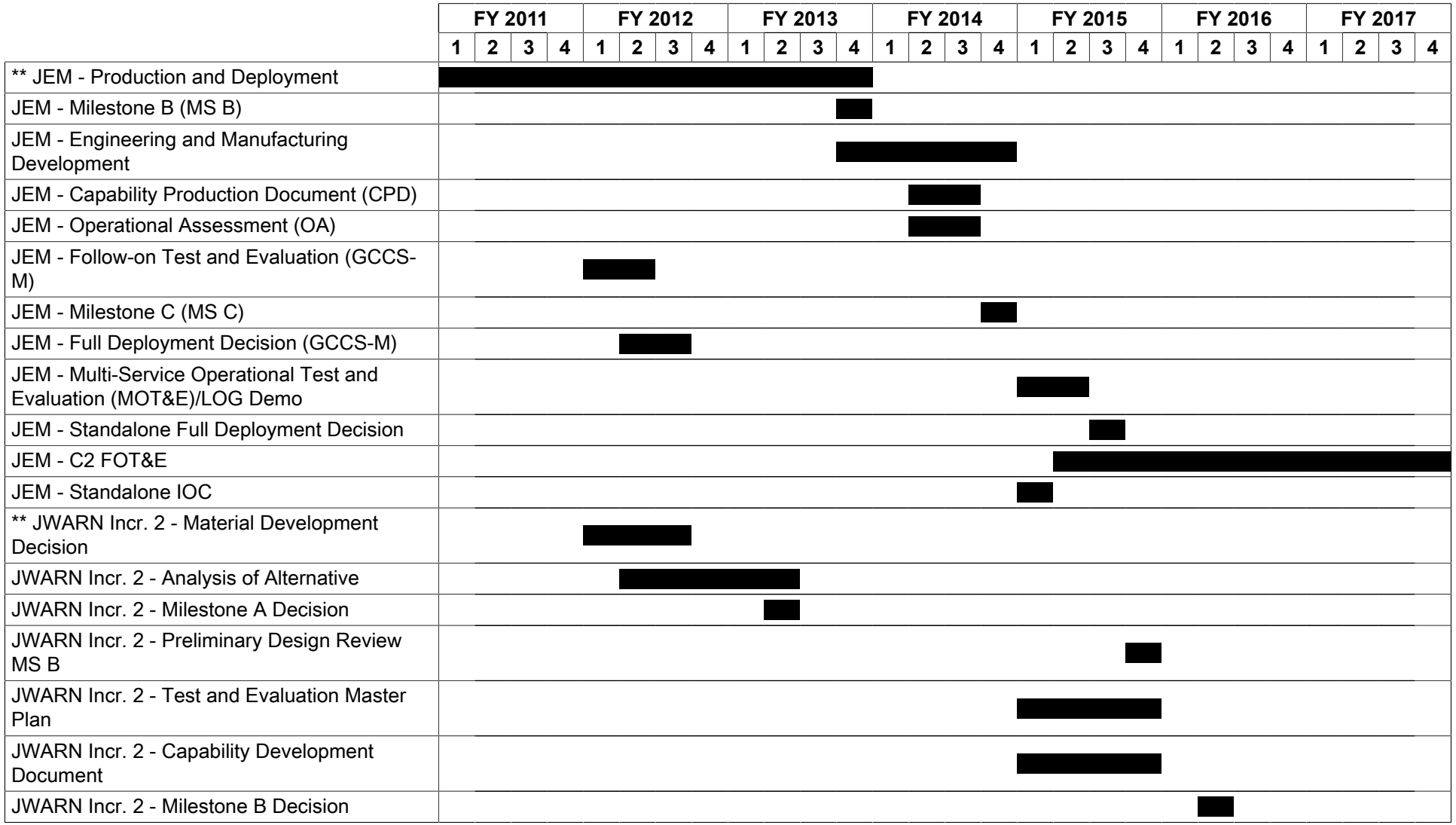
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 0.032 | | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 9.510 | 0.235 | | 0.336 | | - | | 0.336 | | | 0.000 |

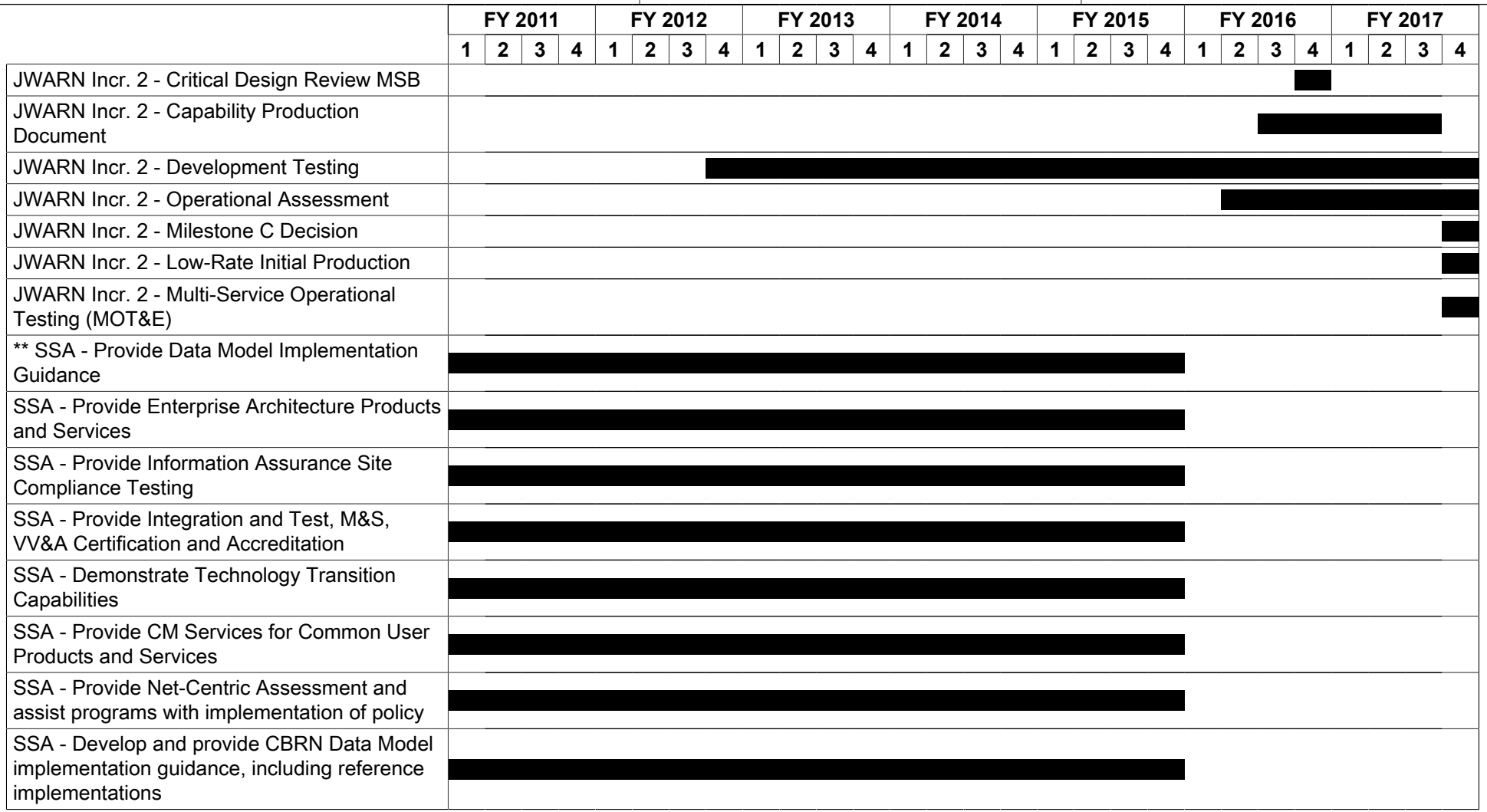
| | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 26.760 | 2.423 | | 2.045 | | - | | 2.045 | | | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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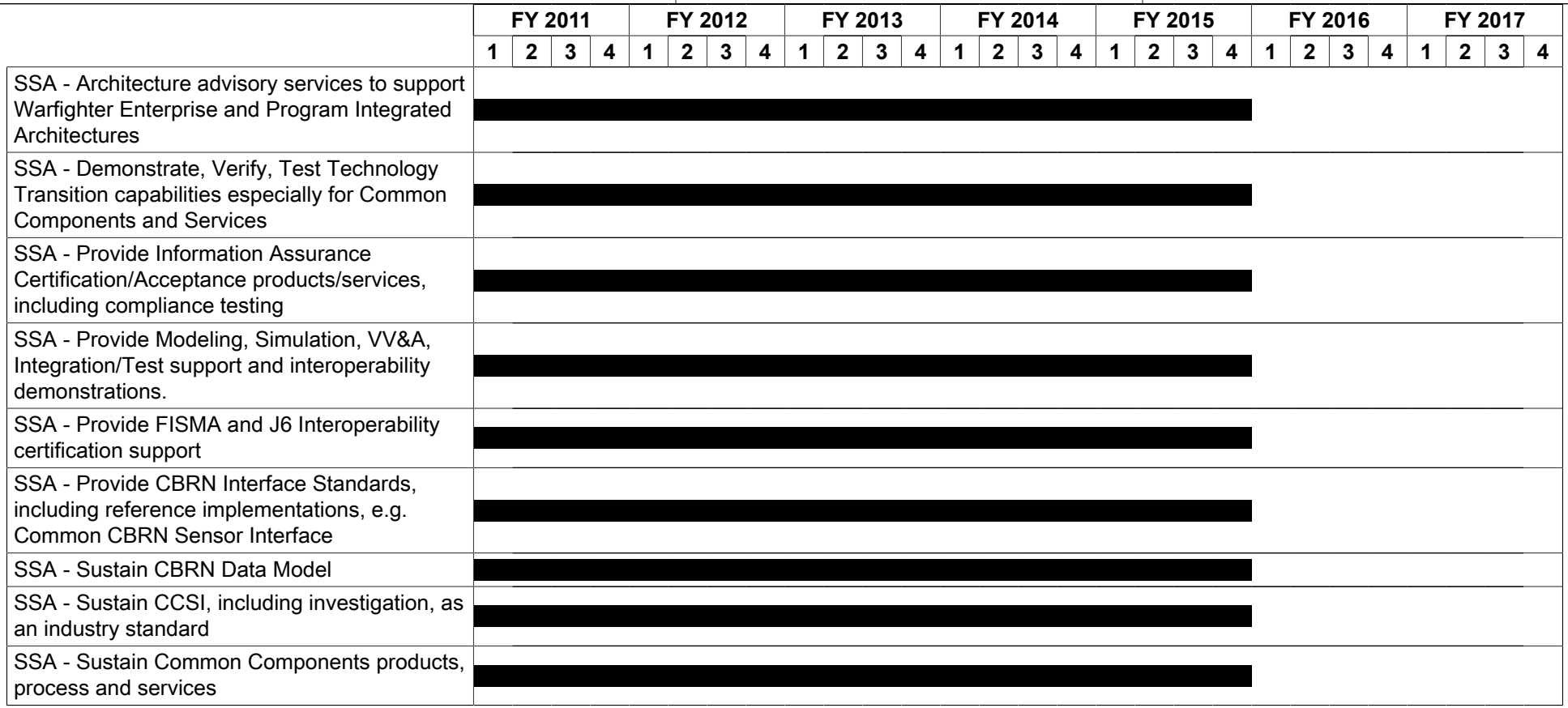

| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** JEM - Production and Deployment | 1 | 2011 | 4 | 2013 |
| JEM - Milestone B (MS B) | 4 | 2013 | 4 | 2013 |
| JEM - Engineering and Manufacturing Development | 4 | 2013 | 4 | 2014 |
| JEM - Capability Production Document (CPD) | 2 | 2014 | 3 | 2014 |
| JEM - Operational Assessment (OA) | 2 | 2014 | 3 | 2014 |
| JEM - Follow-on Test and Evaluation (GCCS-M) | 1 | 2012 | 2 | 2012 |
| JEM - Milestone C (MS C) | 4 | 2014 | 4 | 2014 |
| JEM - Full Deployment Decision (GCCS-M) | 2 | 2012 | 3 | 2012 |
| JEM - Multi-Service Operational Test and Evaluation (MOT&E)/LOG Demo | 1 | 2015 | 2 | 2015 |
| JEM - Standalone Full Deployment Decision | 3 | 2015 | 3 | 2015 |
| JEM - C2 FOT&E | 2 | 2015 | 4 | 2017 |
| JEM - Standalone IOC | 1 | 2015 | 1 | 2015 |
| ** JWARN Incr. 2 - Material Development Decision | 1 | 2012 | 3 | 2012 |
| JWARN Incr. 2 - Analysis of Alternative | 2 | 2012 | 2 | 2013 |
| JWARN Incr. 2 - Milestone A Decision | 2 | 2013 | 2 | 2013 |
| JWARN Incr. 2 - Preliminary Design Review MS B | 4 | 2015 | 4 | 2015 |
| JWARN Incr. 2 - Test and Evaluation Master Plan | 1 | 2015 | 4 | 2015 |
| JWARN Incr. 2 - Capability Development Document | 1 | 2015 | 4 | 2015 |
| JWARN Incr. 2 - Milestone B Decision | 2 | 2016 | 2 | 2016 |
| JWARN Incr. 2 - Critical Design Review MSB | 4 | 2016 | 4 | 2016 |
| JWARN Incr. 2 - Capability Production Document | 3 | 2016 | 3 | 2017 |
| JWARN Incr. 2 - Development Testing | 4 | 2012 | 4 | 2017 |

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| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| JWARN Incr. 2 - Operational Assessment | 2 | 2016 | 4 | 2017 |
| JWARN Incr. 2 - Milestone C Decision | 4 | 2017 | 4 | 2017 |
| JWARN Incr. 2 - Low-Rate Initial Production | 4 | 2017 | 4 | 2017 |
| JWARN Incr. 2 - Multi-Service Operational Testing (MOT&E) | 4 | 2017 | 4 | 2017 |
| ** SSA - Provide Data Model Implementation Guidance | 1 | 2011 | 4 | 2015 |
| SSA - Provide Enterprise Architecture Products and Services | 1 | 2011 | 4 | 2015 |
| SSA - Provide Information Assurance Site Compliance Testing | 1 | 2011 | 4 | 2015 |
| SSA - Provide Integration and Test, M&S, VV&A Certification and Accreditation | 1 | 2011 | 4 | 2015 |
| SSA - Demonstrate Technology Transition Capabilities | 1 | 2011 | 4 | 2015 |
| SSA - Provide CM Services for Common User Products and Services | 1 | 2011 | 4 | 2015 |
| SSA - Provide Net-Centric Assessment and assist programs with implementation of policy | 1 | 2011 | 4 | 2015 |
| SSA - Develop and provide CBRN Data Model implementation guidance, including reference implementations | 1 | 2011 | 4 | 2015 |
| SSA - Architecture advisory services to support Warfighter Enterprise and Program Integrated Architectures | 1 | 2011 | 4 | 2015 |
| SSA - Demonstrate, Verify, Test Technology Transition capabilities especially for Common Components and Services | 1 | 2011 | 4 | 2015 |
| SSA - Provide Information Assurance Certification/Acceptance products/services, including compliance testing | 1 | 2011 | 4 | 2015 |
| SSA - Provide Modeling, Simulation, VV&A, Integration/Test support and interoperability demonstrations. | 1 | 2011 | 4 | 2015 |
| SSA - Provide FISMA and J6 Interoperability certification support | 1 | 2011 | 4 | 2015 |
| SSA - Provide CBRN Interface Standards, including reference implementations, e.g. Common CBRN Sensor Interface | 1 | 2011 | 4 | 2015 |
| SSA - Sustain CBRN Data Model | 1 | 2011 | 4 | 2015 |
| SSA - Sustain CCSI, including investigation, as an industry standard | 1 | 2011 | 4 | 2015 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| SSA - Sustain Common Components products, process and services | 1 | 2011 | 4 | 2015 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
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| COST ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* | 75.657 | 216.715 | 214.056 | - | 214.056 | 246.295 | 187.101 | 213.001 | 238.653 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

This project (MB5) provides Engineering and Manufacturing Development (EMD) for 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 Medical Countermeasures Initiative (MCMI), efforts in support of biosurveillance, and individual medical drugs and vaccines, such as Recombinant Botulinum A/B and Plague vaccines, and the efforts to store and conduct required testing on Investigational New Drug (IND) vaccines used to protect lab workers in the Special Immunization Program (SIP).

This project funds the development of reagents, assays, and diagnostic equipment for biological warfare agents (BWA) and expands chemical and biological detection capabilities. It's primary mission is enhancing CBRN information sharing across the Department of Defense's (DoD) medical surveillance, public health, and chemical/ biological defense communities to enhance chemical and biological medical health situational awareness and coordinate integrated CBRN system solutions.

Effective with the FY13 program, the MCMI program is now known as the ADM program. ADM provides core and drug development services to include the establishment, commissioning, validation, and attainment of Current Good Manufacturing Practice (cGMP)/Current Good Laboratory Practice (cGLP) for a Medical Countermeasure (MCM) Advanced Development and Manufacturing (ADM) capability for the Department of Defense (DoD). Future funding will be used to maintain the facility in a state of readiness to support MCM product development, FDA licensure and manufacture of MCMs. The ADM is one component of the Medical Countermeasures Initiative (MCMI), the others are a Test and Evaluation (T&E) facility to be established at Ft. Detrick, MD and an S&T component. The efforts described address only the ADM capability.

The ADM effort is being executed in two phases. Phase I is for the establishment, commissioning, and validation of the MCM capability. This project funds the establishment of a facility(ies) to be located in the United States and its territories. Two ADM suites, at Biosurety Level (BSL) 3 will be established during the base contract period, with options to incrementally increase capacity. In Phase II the contractor team will support and maintain that capability in a state of readiness to support MCM development (under the animal rule as applicable) and manufacturing and assist in training personnel in its use. This includes transition and integration of new technologies, from pre-Investigational New Drug Application phase with readiness to support simultaneous operations, through FDA licensure.

Two major medical programs critical to accomplishing the Biosurveillance mission are supported under this project in order to streamline collaboration and integration efforts, maintain continuity and efficiency, and to minimize duplication of efforts. Specifically, these efforts include but are not limited to the Critical Reagents Program (CRP), and Next Generation Diagnostic System (NGDS), These efforts address the President's priority of developing a robust portfolio of cross-cutting resources and materiel solutions that support the National Security Strategy, National Military Strategy to Combat Weapons of Mass Destruction, the National Strategy for Countering Biological Threats, and the needs of the Warfighter.

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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 Next Generation Diagnostic System addresses the mission needs identified in the CBRN Field Analytics ICD (2010). The mission of the Next Generation Diagnostic System is to provide chemical, biological, and radiological analytical diagnostic systems. NGDS Increment 1 materiel solutions will significantly improve analytical and diagnostic capability across the continuum of biological warfare threats and operations (peacetime, wartime, and deployed). NGDS Increment 1 medical diagnostic capabilities will provide health care providers with more timely and accurate information to inform individual patient treatment. Increment 1 clinical analytical and interconnectivity capabilities will provide commanders with situational awareness of biological warfare hazards to support Force Protection and Force Health Protection decision making.

The (1) Hemorrhagic Fever Virus (HFV) Therapeutic Medical Countermeasures (MCM), which will provide broad spectrum (multi-agent), platform-based therapeutics against Ebola and Marburg viruses; (2) Emerging Infectious Disease (EID) MCM Increment 1, Many conditions result in the inability to provide effective vaccines to service members and civilians. Effective vaccines do not exist for all known strains of influenza virus. The emergence of a new pandemic strain with no existing effective vaccine or therapeutic is highly likely. EID-Flu will provide a broad spectrum EID MCM to protect service members from naturally occurring, biologically or genetically engineered Influenza viruses. EID Flu, a rapidly adaptable, broad spectrum therapeutic.

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. Products under development in this budget item include Recombinant Botulinum A/B and Plague vaccines. 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. JVAP anticipates that the FDA will approve these products using the Animal Rule, which allows for the demonstration of efficacy in relevant animal model(s). JVAP also has the mission to maintain IND vaccines in Good Manufacturing Practice (GMP) storage and to conduct the periodic potency and sterility testing of these materials to support submissions to the FDA. These IND vaccines will be used to provide additional levels of protection to laboratory workers in the Special Immunizations Program (SIP) conducting research on these diseases.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) SBIR | - | 2.867 | - |
| ***FY 2012 Plans:*** | | | |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Small Business Innovative Research. | | | |
| ***Title:*** 2) MCMi<br>***FY 2012 Plans:***<br>Retrofit facility(ies) in the United States (US) or US territories. Begin to establish two modular manufacturing suites to biosurety level three (3) standards. The facility shall have contract manufacturing organization (CMO); contract research organization (CRO); test and evaluation (T&E) and fill/finish components. | - | 40.013 | - |
| ***Title:*** 3) MCMi<br>***FY 2012 Plans:***<br>The engineering contractor (engineering and architectural design and studies) will complete and deliver for Government review and acceptance an integrated master plan (IMP) and a detailed manufacturing capability plan. | - | 13.801 | - |
| ***Title:*** 4) MCMi<br>***FY 2012 Plans:***<br>Procure, install, and test ADM equipment to include single use bioreactors. | - | 40.000 | - |
| ***Title:*** 5) MCMI<br>***FY 2012 Plans:***<br>Provide for ADM facility utilities to include electricity, steam, water, water for injection (WFI) and heating, ventilation and air conditioning. | - | 4.463 | - |
| ***Title:*** 6) MCMi<br>***FY 2012 Plans:***<br>Provide initial staffing of the ADM facility by contractor personnel. Staff will have core competencies to maintain the facility in a state of readiness. | - | 2.048 | - |
| ***Title:*** 7) ADM - Equipment and Installation.<br>***FY 2013 Plans:***<br>Continue the procurement and installation of equipment. | - | - | 23.702 |
| ***Title:*** 8) ADM - Staffing<br>***FY 2013 Plans:*** | - | - | 2.478 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue ADM staffing with Contractor personnel. Contractor Personnel will have core competencies to maintain the facility in a state of readiness. | | | |
| ***Title:*** 9) ADM - Facility Utilities<br>***FY 2013 Plans:***<br>Provide for Facilities support (utilities, waste disposal). | - | - | 5.048 |
| ***Title:*** 10) ADM - Equipment Test and Commissioning<br>***FY 2013 Plans:***<br>Conduct equipment test and commissioning. Prepare for independent validation and attainment of Food and Drug (FDA) Current Good Manufacturing Practice (cGMP) and Current Good Laboratory Practice (cGLP) certification. Validation processes include Design Qualification, Installation Qualification, Operational Qualification, Performance Qualification. Contractor complete and deliver for Government Review and Acceptance a Facility Operation Feasibility Plan. | - | - | 10.210 |
| ***Title:*** 11) CRP<br>***FY 2011 Accomplishments:***<br>Continue development/expansion of biological select agents reference materials to known and emerging threats.<br>***FY 2012 Plans:***<br>Continue development/expansion of biological select agents reference materials to known and emerging threats.<br>***FY 2013 Plans:***<br>Continue development/expansion of biological select agents reference materials to known and emerging threats. | 2.119 | 1.960 | 1.530 |
| ***Title:*** 12) CRP<br>***FY 2011 Accomplishments:***<br>Continue development of immunoassays and nucleic acid based genomic assays to support fielded and developmental systems.<br>***FY 2012 Plans:***<br>Continue development of immunoassays and nucleic acid based genomic assays to support fielded and developmental systems.<br>***FY 2013 Plans:***<br>Continue development of immunoassays and nucleic acid based genomic assays to support fielded and developmental systems. | 1.000 | 1.170 | 0.925 |
| ***Title:*** 13) CRP<br>***FY 2011 Accomplishments:*** | 0.640 | 0.670 | 0.540 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue quality assurance (QA)/quality control (QC) testing to encompass the transition and fielding of biological detection assays.<br>***FY 2012 Plans:***<br>Continue QA/QC testing to encompass the transition and fielding of biological detection assays.<br>***FY 2013 Plans:***<br>Continue QA/QC testing to encompass the transition and fielding of biological detection assays. | | | |
| ***Title:*** 14) CRP<br>***FY 2011 Accomplishments:***<br>Continue to maintain ISO certification.<br>***FY 2012 Plans:***<br>Continue to maintain ISO certification.<br>***FY 2013 Plans:***<br>Continue to maintain ISO certification. | 0.889 | 0.870 | 0.695 |
| ***Title:*** 15) CRP<br>***FY 2012 Plans:***<br>Biosurveillance - Continue development and integration of medical surveillance enhancement tools that facilitate surveillance and sensor/detector/diagnostic information exchange.<br>***FY 2013 Plans:***<br>Biosurveillance - Continue development and integration of medical surveillance enhancement tools that facilitate surveillance and sensor/detector/diagnostic information exchange. | - | 1.315 | 0.528 |
| ***Title:*** 16) CRP<br>***FY 2012 Plans:***<br>Biosurveillance - Continue surveillance assessments that identify public health threats and capabilities in countries where US forces are present and deploy threat assessment tools.<br>***FY 2013 Plans:***<br>Biosurveillance - Continue surveillance assessments that identify public health threats and capabilities in countries where US forces are present and deploy threat assessment tools. | - | 2.987 | 1.179 |
| ***Title:*** 17) NGDS Increment 1 | - | 3.885 | 2.456 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2012 Plans:***<br>Conduct operational assessment of commercial prototype candidate. Initiate Government pre-clinical trial preparations. Conduct assay optimization.<br>***FY 2013 Plans:***<br>Initiate BWA analytical risk assessments and tests, and assay shelflife assessments. Complete pre-clinical trial preparations | | | |
| ***Title:*** 18) NGDS Increment 1<br>***FY 2012 Plans:***<br>Initiate and conduct Operational Test Agencies (OTA) support activities for Increment 1.<br>***FY 2013 Plans:***<br>Complete OTA support activities for Increment 1. | - | 1.042 | 0.840 |
| ***Title:*** 19) NGDS Increment 1<br>***FY 2013 Plans:***<br>Initiate clinical trials for 510(k) submission to FDA for cleared assay on Increment 1 modified COTS platforms. Initiate connectivity assessment on selected COTS platforms. | - | - | 6.531 |
| ***Title:*** 20) EID FLU<br>***Description:*** Emerging Infectious Diseases (EID), Increment 1, Influenza (Flu) - Milestone A approval was received during February 2011 to move into Technology Development (TD) phase for a broad spectrum Medical Countermeasure (MCM) against Influenza, to include H1N1. Milestone B approval in 1QFY13, program will move into Engineering and Manufacturing Development (EM&D) phase.<br>***FY 2013 Plans:***<br>EID FLU Phase 3 multi-center human clinical trials in support of FDA approval for an Influenza therapeutic. Trials will demonstrate safety and efficacy of a novel, broad-spectrum Influenza MCM. | - | - | 32.912 |
| ***Title:*** 21) HFV<br>***Description:*** Hemorrhagic Fever Virus (HFV) Therapeutic Medical Countermeasures (MCM), which will provide broad spectrum (multi-agent), platform-based therapeutics against Ebola and Marburg viruses. TMT efforts to be conducted for the medical countermeasures during this period include Phase 1 human clinical safety trials, non-clinical studies to demonstrate safety and efficacy, and animal model development / refinement. DoD anticipates the FDA will require use of the Animal Rule for the HFV | - | 14.241 | 16.402 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| therapeutic medical countermeasures, which allows for the demonstration of efficacy in relevant animal model(s) when human testing is not ethically feasible.<br><br>***FY 2012 Plans:***<br>Complete Phase 1 Human Safety Clinical Trial, Milestone B and advance to Engineering and Manufacturing Development Phase. Initiate Phase 2 Human Safety Trial (Multiple Ascending Dose). Initiate Pivotal Animal Efficacy Studies.<br><br>***FY 2013 Plans:***<br>Continue Phase 2 Human Safety Clinical Trial and Pivotal Animal Efficacy Studies. | | | |
| ***Title:*** 22) VAC BOT - Recombinant Botulinum Vaccine<br><br>***FY 2011 Accomplishments:***<br>Continued manufacturing large scale process validation for serotypes A and B.<br><br>***FY 2012 Plans:***<br>Complete manufacturing large scale process validation for serotypes A and B.<br>Initiate manufacturing of consistency lots for serotypes A and B.<br><br>***FY 2013 Plans:***<br>Complete manufacturing of consistency lots for serotypes A and B. | 31.322 | 24.881 | 9.305 |
| ***Title:*** 23) VAC BOT - Recombinant Botulinum Vaccine<br><br>***FY 2011 Accomplishments:***<br>Continued non-clinical testing. Completed Phase 2 passive transfer studies. Continued requirement for safeguarding biological select agents and toxins.<br><br>***FY 2012 Plans:***<br>Continue non-clinical testing. Initiate reproductive toxicity testing and pivotal efficacy testing. Continue requirement for safeguarding biological select agents and toxins.<br><br>***FY 2013 Plans:***<br>Continue reproductive toxicity testing and pivotal efficacy testing. Continue requirements for safeguarding biological select agents and toxins, and Milestone C. | 5.323 | 4.302 | 17.904 |
| ***Title:*** 24) VAC BOT - Recombinant Botulinum Vaccine<br><br>***FY 2011 Accomplishments:*** | 2.139 | 1.573 | 32.500 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continued Phase 2 clinical trial to evaluate safety and duration of immune response.<br>***FY 2012 Plans:***<br>Complete Phase 2 clinical trial and initiate Phase 3 clinical trial planning to evaluate expanded safety in thousands of volunteers.<br>***FY 2013 Plans:***<br>Continue Phase 3 clinical trial and Milestone C. | | | |
| ***Title:*** 25) VAC PLG<br>***FY 2011 Accomplishments:***<br>Continued non-clinical studies, to include additional FDA required passive transfer studies. Initiated non-human primate break through efficacy study. Continued requirement for safeguarding biological select agents and toxins.<br>***FY 2012 Plans:***<br>Continue non-clinical studies, to include additional FDA required passive transfer studies. Continue requirement for safeguarding biological select agents and toxins. Initiate reproductive toxicity testing.<br>***FY 2013 Plans:***<br>Continue non clinical studies, to include additional FDA required passive transfer studies. Continue requirement for safeguarding biological select agents and toxins. Initiate pivotal animal efficacy studies. Complete reproductive toxicity testing. | 6.942 | 9.414 | 9.196 |
| ***Title:*** 26) VAC PLG<br>***FY 2011 Accomplishments:***<br>Continued Phase 2b clinical trial to select final vaccination schedule.<br>***FY 2012 Plans:***<br>Continue Phase 2b clinical trial.<br>***FY 2013 Plans:***<br>Continue Phase 2b clinical trial. Initiate Phase 3 clinical trial to evaluate expanded safety and efficacy in thousands of volunteers. | 5.725 | 17.578 | 29.969 |
| ***Title:*** 27) VAC PLG<br>***FY 2011 Accomplishments:***<br>Continued large scale manufacturing process validation and assay validation. Initiated cleaning validation.<br>***FY 2012 Plans:*** | 15.260 | 18.630 | 1.362 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Complete large scale manufacturing process validation, assay validation, and cleaning validation. Initiate consistency lot production.<br>***FY 2013 Plans:***<br>Complete consistency lot production and testing. | | | |
| ***Title:*** 28) VAC PLG<br>***FY 2011 Accomplishments:***<br>Provided strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contacting, scheduling, acquisition oversight and technical support.<br>***FY 2012 Plans:***<br>Provide strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contacting, scheduling, acquisition oversight and technical support.<br>***FY 2013 Plans:***<br>Provide strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contacting, scheduling, acquisition oversight, technical support and Milestone C. | 4.298 | 6.730 | 5.449 |
| ***Title:*** 29) VAC SIP<br>***FY 2012 Plans:***<br>Conduct storage, distribution, potency testing, and biosurety compliance activities in support of the Special Immunization Program.<br>***FY 2013 Plans:***<br>Conduct storage, distribution, potency testing, and biosurety compliance activities in support of the Special Immunization Program. | - | 2.275 | 2.395 |
| **Accomplishments/Planned Programs Subtotals** | 75.657 | 216.715 | 214.056 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)* | 0.000 | 5.448 | 0.498 | | 0.498 | 0.499 | 3.266 | 0.496 | 9.355 | Continuing | Continuing |
| • JM8788: *NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)* | 0.000 | 2.965 | 26.934 | | 26.934 | 14.154 | 0.000 | 0.000 | 0.000 | 0.000 | 44.053 |
| • JX0005: *DOD BIOLOGICAL VACCINE PROCUREMENT* | 4.777 | 0.180 | 0.185 | | 0.185 | 4.482 | 19.949 | 21.514 | 26.101 | Continuing | Continuing |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JX0210: *CRITICAL REAGENTS PROGRAM (CRP)* | 0.000 | 0.998 | 1.012 | | 1.012 | 1.011 | 1.011 | 1.005 | 1.005 | Continuing | Continuing |

**D. Acquisition Strategy**

MCMI

The Medical Counter Measures Initiative (MCMI) began in response to White House Memorandum of 29 December 2009. The MCMI has three components: Science and Technology (S&T), Advanced Development and Manufacturing (ADM) and Test and Evaluation. The efforts described herein are for the establishment, commissioning, facility validation and maintenance of the agile and flexible Advanced Development and Manufacturing (ADM) capability. The ADM will be a dedicated DoD enduring capability that provides DoD MCM development with a set of core services (Contract Manufacturing Organization (CMO), Contract/Clinical Research Organization (CRO), Test and Evaluation (T&E), Fill and Finish (F&F)) to increase efficiency and apply lessons learned to future MCM developments. The ADM Capability will use a FAR based ten (10) year [two (2) year base with four (4) two (2) year options] Cost Plus Fixed fee (CPFF) contract - Full and Open competition with best value to the government. A Request for Proposal (RFP) was released in August 2011, and contract award is planned for 2QFY12. The establishment of the CMO component of the ADM will occur within the base period while the other core service components (CRO, T&E, F&F) will be available shortly after the contract award. The CMO will utilize modular and disposable/single use equipment to allow for flexibility in manufacturing various MCM products within the same facility. The contractor will complete facility commissioning, support independent validation, and attain Current Good Manufacturing Practice (cGMP) and Current Good Laboratory Practice (cGLP) status within 24 months following contract award and provide expertise necessary to maintain the facility in readiness to support the development and manufacture of MCMs, and conduct training. The DoD will continue to issue future separate contracts for specific MCM products - i.e. the MCM "pipeline".

ADM

The Medical Counter Measures Initiative (MCMI) began in response to White House Memorandum of 29 December 2009. The MCMI has three components: Science and Technology (S&T), Advanced Development and Manufacturing (ADM) and Test and Evaluation. The efforts described herein are for the establishment, commissioning, facility validation and maintenance of the agile and flexible Advanced Development and Manufacturing (ADM) capability. The ADM will be a dedicated DoD enduring capability that provides DoD MCM development with a set of core services (Contract Manufacturing Organization (CMO), Contract/Clinical Research Organization (CRO), Test and Evaluation (T&E), Fill and Finish (F&F)) to increase efficiency and apply lessons learned to future MCM developments. The ADM Capability will use a FAR based ten (10) year [two (2) year base with four (4) two (2) year options] Cost Plus Fixed fee (CPFF) contract - Full and Open competition with best value to the government. A Request for Proposal (RFP) was released in August 2011, and contract award is planned for 2QFY12. The establishment of the CMO component of the ADM will occur within the base period while the other core service components (CRO, T&E, F&F) will be available shortly after the contract award. The CMO will utilize modular and disposable/single use equipment to allow for flexibility in manufacturing various MCM products within the same facility. The contractor will complete facility commissioning, support independent validation, and attain Current Good Manufacturing Practice (cGMP) and Current Good Laboratory

Practice (cGLP) status within 24 months following contract award and provide expertise necessary to maintain the facility in readiness to support the development and manufacture of MCMs, and conduct training. The DoD will continue to issue future separate contracts for specific MCM products - i.e. the MCM "pipeline".

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.

NGDS

The Next Generation Diagnostic System (NGDS) will develop and field an enhanced CBRN analytical and diagnostic system to the Joint force through an evolutionary acquisition strategy. NGDS Increment 1 will follow a modified Commercial Off The Shelf (COTS) acquisition strategy to field BWA diagnostic analytical devices to the Combat Health Support System. Additional DoD-unique capabilities will be added to the initial commercial capabilities FY14-17. Increment 1 MS A is planned 2nd Qtr FY12. FY12 BA4 funds will be used to conduct operational assessments on the commercial prototypes immediately following MS A. It is anticipated that NGDS Increment 1 will proceed from MS A to MS C in accordance with the modified COTS acquisition strategy and based on the demonstrated military utility from FY12-14 Competitive Prototyping and independent medical testing by AMEDD, and achieving submittal of a 510(k) application for FDA clearance of one BWA assay.

EID FLU

The program goal for increment 1is the delivery of FDA-approved therapeutic against Orthomyxoviridae viruses - the cause of seasonal, epidemic, and pandemic influenza. The objective is the delivery of an FDA-approved Post Exposure Prophylactic (PEP) and/or therapeutic against Orthomyxoviridae viruses - the cause of seasonal, epidemic, and pandemic influenza, for use by to the Warfighter. The acquisition strategy uses a parallel evaluation of drug candidates to achieve competitive prototyping in the Technology Development Phase. A technically mature candidate to meet Warfighter needs is being sought to reduce risk and accelerate delivery of MCM. The Technology Readiness Level of candidate will determine the point of entry into the FDA clinical trial process. Activities during this phase will be tailored to the technical level of the candidate and will include conducting pre-clinical animal safety studies and completion of human safety and efficacy trials required for FDA approval. The performer(s) will submit a New Drug Application(s) for the Influenza therapeutic during the EMD Phase. During the Production and Deployment Phase, full rate manufacturing and stockpile production will be pursued. If the FDA mandates post-marketing surveillance studies, they will be conducted during Production and Deployment.

HFV

The acquisition strategy uses a parallel evaluation of drug candidates against the lethal Ebola and Marburg viruses to achieve competitive prototyping in the Technology Development Phase. Activities during this phase include conducting a pre-clinical animal safety studies, submission of Investigation New Drug

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Applications, and completion of Phase 1 human safety trials. Following a successful Milestone B and entry into Engineering and Manufacturing Development, the program will conduct Phase 2 human clinical safety, definitive animal efficacy, and toxicology studies, required for FDA approval. The performer(s) will submit a New Drug Application(s) for the Ebola and Marburg therapeutics during the EMD Phase. During the Production and Deployment Phase, full rate manufacturing and stockpile production will be pursued. If the FDA mandates post-marketing surveillance studies, they will be conducted during Production and Deployment. This Department of Defense program is the Public Health Emergency Countermeasures lead for the development of this therapeutic, and is leveraging expertise across the Federal and International sectors to ensure programmatic success.

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.

This Department of Defense program is the Public Health Emergency Countermeasures lead for the development of this vaccine.

VAC PLG

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).

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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.

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.

This Department of Defense program is the Public Health Emergency Countermeasures lead for the development of this vaccine.

VAC SIP

The Special Immunization Program (SIP) is not an acquisition program, per se. The SIP effort is to store IND vaccines used to potentially provide additional protection to laboratory workers performing research on the infectious agents for Tularemia, Eastern Equine Encephalitis (EEE), Western Equine Encephalitis (WEE), Venezuelan Equine Encephalitis (VEE), and Q-Fever. Efforts include Good Manufacturing Practices (GMP) storage and periodic potency testing to support the FDA regulated Investigational New Drug (IND) reporting requirements. This Department of Defense program supports the Federal interagency with this effort, as well as academic and industry partners.

**E. Performance Metrics**

N/A

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**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** MCMI - HW S - Initiate ADM capability | C/CPFF | TBD: | - | 40.013 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| HW SB - Procure, Install and Test Equipment | C/CPFF | TBD: | - | 40.000 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| HW SB - Facility Utilities | C/CPFF | TBD: | - | 4.463 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** ADM - HW S - Establish and Commission, Procure Equipment, Engineering, Establish BSL-3 | C/CPFF | TBD: | - | - | | 23.702 | Feb 2013 | - | | 23.702 | Continuing | Continuing | 0.000 |
| ** CRP - HW C - CRP - Scale-up of Select Biological Threat Agent Reference Materials | MIPR | USAMRIID/DPG: | 10.204 | 2.000 | Feb 2012 | 1.315 | May 2013 | - | | 1.315 | Continuing | Continuing | 0.000 |
| HW C - CRP - Development of Select Biological Threat Agent Reference Materials and Assays | MIPR | RDECOM/NMRC: | 2.461 | 0.760 | Feb 2012 | 0.578 | May 2013 | - | | 0.578 | Continuing | Continuing | 0.000 |
| HW C - BSV - Surveillance concept assessments Support | SS/FFP | TBD: | 3.000 | 2.963 | Feb 2012 | 0.969 | Feb 2013 | - | | 0.969 | Continuing | Continuing | 0.000 |
| HW C - BSV - Tool enhancement/sensor information exchange | MIPR | TBD: | 0.785 | 0.258 | Feb 2012 | - | Feb 2013 | - | | - | Continuing | Continuing | 0.000 |
| ** NGDS - SW C - Initiate development of one BWA FDA assay for Increment 1 | C/CPIF | TBD: | - | - | | 6.006 | Feb 2013 | - | | 6.006 | Continuing | Continuing | 0.000 |
| ** EID FLU - SW SB - TMT EID FLU | C/CPFF | TBD: | - | - | | 28.117 | May 2013 | - | | 28.117 | Continuing | Continuing | 0.000 |
| ** HFV - HW S - Pivotal Animal Efficacy Studies | C/CPIF | TBD: | - | - | | 14.012 | May 2013 | - | | 14.012 | Continuing | Continuing | 0.000 |
| ** VAC BOT - HW S - Manufacturing, Validation and Consistency Lot Production | C/CPAF | DynPort Vaccine Company:Frederick, MD | 58.247 | 11.069 | Feb 2012 | 28.558 | Feb 2013 | - | | 28.558 | Continuing | Continuing | 0.000 |

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**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** VAC PLG - HW S - Manufacturing, Validation, and Consistency Lot Production | C/CPAF | DynPort Vaccine Company:Frederick, MD | 67.341 | 27.150 | Feb 2012 | 5.080 | Feb 2013 | - | | 5.080 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 142.038 | 128.676 | | 108.337 | | - | | 108.337 | | | 0.000 |

**Remarks**

RDECOM - Research, Development & Engineering Command
NMRC - Naval Medical Research Center
USAMRIID - US Army Medical Research Institute of Infectious Diseases
DPG - Dugway Proving Ground
NAVSEA - Naval Sea System Command

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** MCMI - ES SB - Integrated Master Plan / Detailed Manufacturing Capability Plan | C/CPFF | TBD: | - | 13.801 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ES SB - ADM facility staffing | C/CPFF | TBD: | - | 2.048 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** ADM - ES C - Medical Utilities | C/CPFF | TBD: | - | - | | 5.048 | Feb 2013 | - | | 5.048 | Continuing | Continuing | 0.000 |
| ES C - Medical Personnel (Contractor Staffing) | C/CPFF | TBD: | - | - | | 2.478 | Feb 2013 | - | | 2.478 | Continuing | Continuing | 0.000 |
| ES C - Medical Commissioning | C/CPFF | TBD: | - | - | | 10.210 | Feb 2013 | - | | 10.210 | Continuing | Continuing | 0.000 |
| ** CRP - ES C - CRP - Select Biological Threat Agent Reference Material Support | MIPR | USAMRIID/RDECOM: | 2.358 | 0.633 | Feb 2012 | 0.520 | May 2012 | - | | 0.520 | Continuing | Continuing | 0.000 |
| ES C - CRP - Select Biological Threat Agent Reference Material Regulatory/Quality Assurance (QA) Support | MIPR | DPG:UT | 1.201 | 0.135 | Feb 2012 | 0.130 | May 2012 | - | | 0.130 | Continuing | Continuing | 0.000 |

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**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** VAC BOT - TD/D C - Regulatory Integration (Environmental and FDA Documentation) and Delivery System | C/CPAF | DynPort Vaccine Company:Frederick, MD | 7.642 | 1.676 | Feb 2012 | 3.686 | Feb 2013 | - | | 3.686 | Continuing | Continuing | 0.000 |
| ** VAC PLG - TD/D C - Regulatory Integration (Environmental and FDA Documentation) and Delivery System | C/CPAF | DynPort Vaccine Company:Frederick, MD | 12.341 | 1.215 | Feb 2012 | 1.517 | Feb 2013 | - | | 1.517 | Continuing | Continuing | 0.000 |
| ** VAC SIP - VAC SIP - Storage, and Distribution of Vaccines | MIPR | USAMRIID:Fort Detrick, MD | - | 2.070 | Feb 2012 | 2.130 | Feb 2013 | - | | 2.130 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 23.542 | 21.578 | | 25.719 | | - | | 25.719 | | | 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
DPG - Dugway Proving Ground

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** NGDS - OTHT SB - Test and evaluation oversight | MIPR | ATEC/OPTEVFOR/ AFOTEC/DOTE: | - | 0.450 | Feb 2012 | 0.450 | Feb 2013 | - | | 0.450 | Continuing | Continuing | 0.000 |
| DTE C - Prototype fly-off | MIPR | Dugway Proving Ground:Dugway, UT | - | 2.634 | Feb 2012 | 2.000 | Feb 2013 | - | | 2.000 | Continuing | Continuing | 0.000 |
| OTHT C - Prototype fly-off support | PO | TBD: | - | 0.593 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** VAC BOT - DTE C - Testing, Evaluation, and Clinical Trials | C/CPAF | DynPort Vaccine Company:Frederick, MD | 46.671 | 11.934 | Feb 2012 | 21.377 | Feb 2013 | - | | 21.377 | Continuing | Continuing | 0.000 |
| ** VAC PLG - DTE C - PLG - Clinical Trials | C/CPAF | DynPort Vaccine Company:Frederick, MD | 67.128 | 18.080 | Feb 2012 | 32.000 | Feb 2013 | - | | 32.000 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 113.799 | 33.691 | | 55.827 | | - | | 55.827 | | | 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 2.867 | | - | | - | | - | Continuing | Continuing | 0.000 |
| ** CRP - PM/MS C - Product Management Support | Allot | CBMS:Fort Detrick, MD | 1.872 | 0.433 | Feb 2012 | 0.460 | Feb 2013 | - | | 0.460 | Continuing | Continuing | 0.000 |
| PM/MS C - Product Management Support | SS/FFP | Goldbelt Raven LLC:Frederick, MD | 5.346 | 1.540 | May 2012 | 1.265 | May 2013 | - | | 1.265 | Continuing | Continuing | 0.000 |
| PM/MS C - Chem Bio Medical Systems Office | Allot | CBMS:Fort Detrick, MD | 1.632 | 0.250 | Aug 2012 | 0.160 | Aug 2013 | - | | 0.160 | Continuing | Continuing | 0.000 |
| ** NGDS - PM/MS C - NGDS - Product Management Support | C/FFP | Goldbelt Raven LLC:Frederick, MD | - | 0.750 | May 2012 | 0.750 | Nov 2012 | - | | 0.750 | Continuing | Continuing | 0.000 |
| PM/MS C - NGDS - Product Management Support | Allot | JPEO:APG, MD | - | 0.250 | Feb 2012 | 0.371 | Nov 2012 | - | | 0.371 | Continuing | Continuing | 0.000 |
| PM/MS C - NGDS - Joint Program Executive Office | Allot | CBMS:Fort Detrick, MD | - | 0.250 | Feb 2012 | 0.250 | Nov 2012 | - | | 0.250 | Continuing | Continuing | 0.000 |

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**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** EID FLU - PM/MS SB - TMT Operational Cost | Various | TBD: | - | - | | 3.088 | Feb 2013 | - | | 3.088 | Continuing | Continuing | 0.000 |
| PM/MS SB - Management Support | Allot | JPEOCBD:Edgewood, MD | - | - | | 1.707 | Feb 2013 | - | | 1.707 | Continuing | Continuing | 0.000 |
| ** HFV - PM/MS SB - Management Support | Allot | JPEOCBD:Edgewood, MD | - | 4.011 | Feb 2012 | 0.851 | Feb 2013 | - | | 0.851 | Continuing | Continuing | 0.000 |
| JPM-TMT OPERATIONAL COST | Various | JPM TMT:Fort Belvoir, VA | - | 6.400 | Feb 2012 | 1.539 | Feb 2013 | - | | 1.539 | Continuing | Continuing | 0.000 |
| PM/MS SB - A&AS | C/FFP | KALMAN CO INC:VIRGINIA BEACH, VA | - | 3.830 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** VAC BOT - PM/MS S - Program Management/ Program Manager Support | Allot | JPEO:APG, MD | 4.000 | 1.668 | Feb 2012 | 2.388 | Feb 2013 | - | | 2.388 | Continuing | Continuing | 0.000 |
| PM/MS S - Joint Vaccine Acquisition Program Management | Allot | CBMS:Fort Detrick, MD | 9.448 | 2.871 | Feb 2012 | 2.500 | Feb 2013 | - | | 2.500 | Continuing | Continuing | 0.000 |
| PM/MS S - Contractor Systems Engineering/Program Management Support | SS/FFP | Goldbelt Raven LLC:Frederick, MD | 5.636 | 1.538 | Feb 2012 | 1.200 | Feb 2013 | - | | 1.200 | Continuing | Continuing | 0.000 |
| ** VAC PLG - PM/MS S - Joint Vaccine Acquisition Program Management Office | Allot | CBMS:Fort Detrick, MD | 7.331 | 1.692 | Feb 2012 | 1.362 | Feb 2013 | - | | 1.362 | Continuing | Continuing | 0.000 |
| PM/MS S - Program Management Support | Allot | JPEO:APG, MD | 11.573 | 4.215 | Feb 2012 | 6.017 | Feb 2013 | - | | 6.017 | Continuing | Continuing | 0.000 |
| ** VAC SIP - PM/MS SB - Management Support | Allot | CBMS:Fort Detrick, MD | - | 0.205 | Feb 2012 | 0.265 | Feb 2013 | - | | 0.265 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 46.838 | 32.770 | | 24.173 | | - | | 24.173 | | | 0.000 |

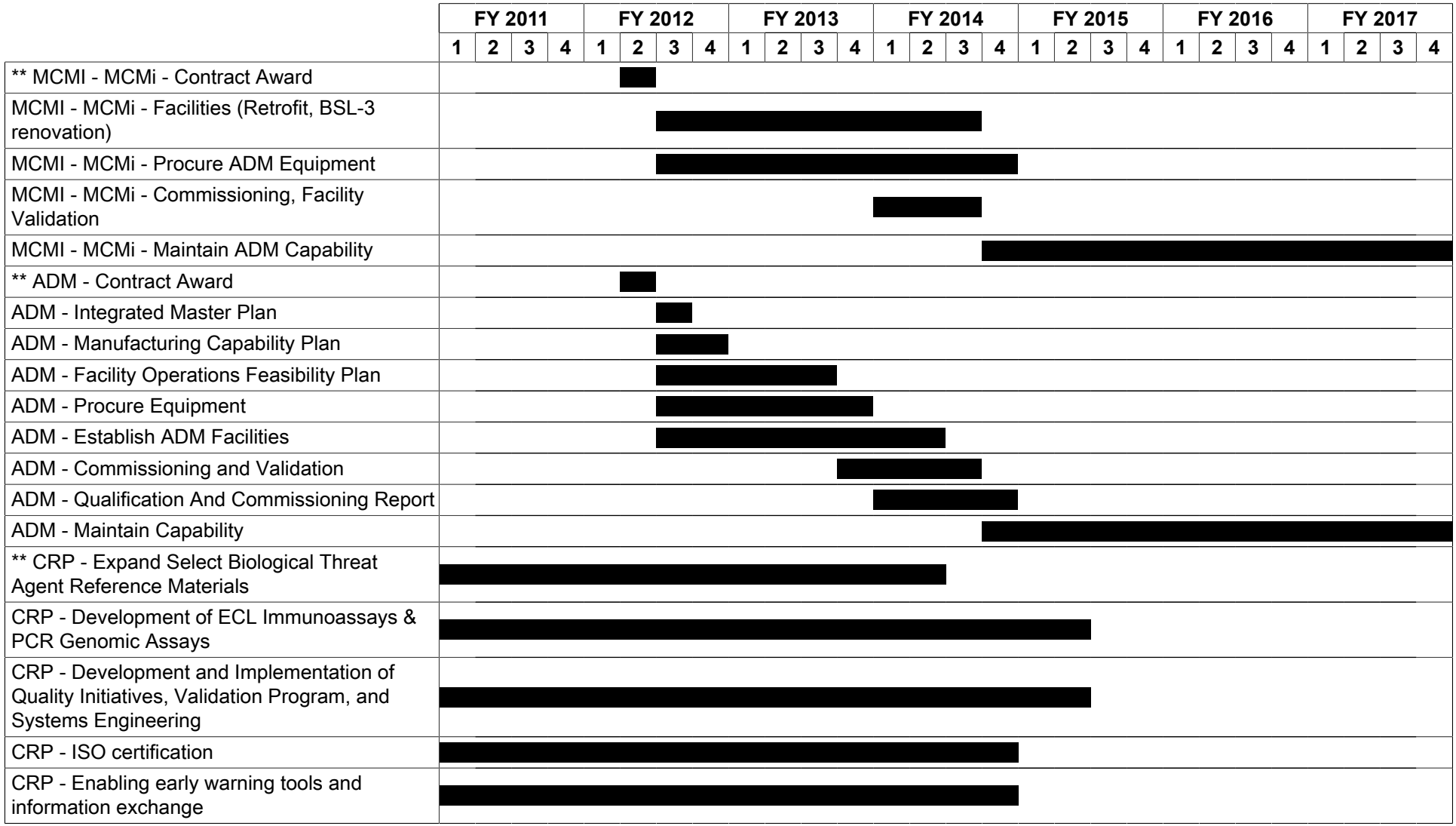
| | Total Prior Years Cost | FY 2012 | | FY 2013 Base | | FY 2013 OCO | | FY 2013 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 326.217 | 216.715 | | 214.056 | | - | | 214.056 | | | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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)* | |

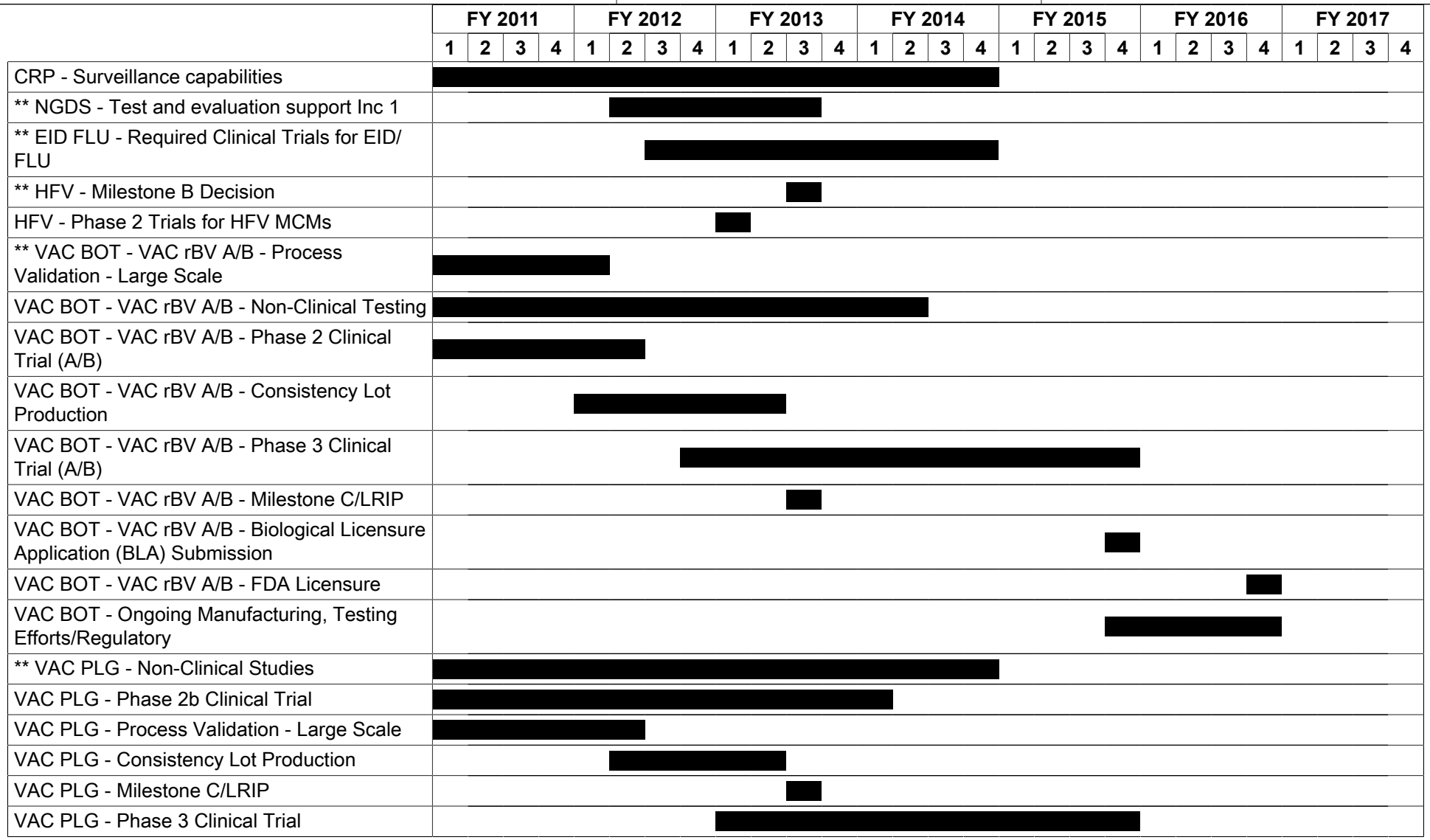
| | Total Prior Years Cost | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|

**Remarks**

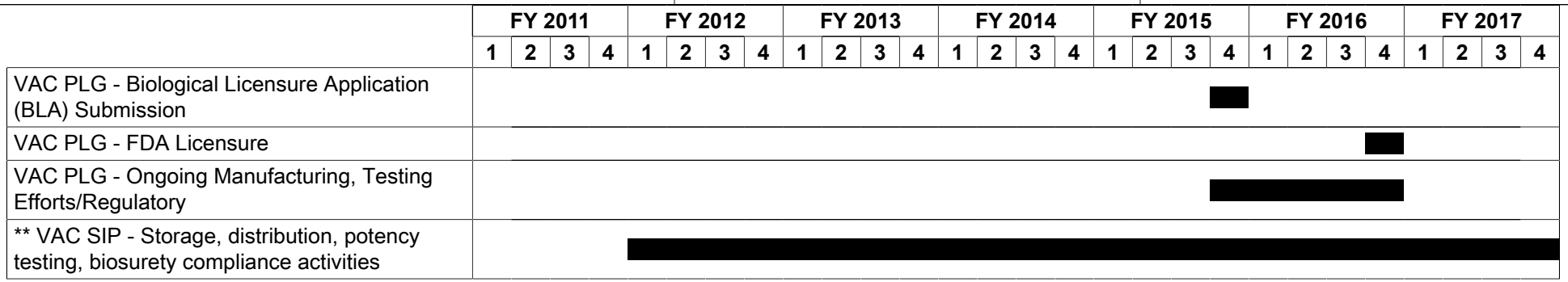
| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MB5: *MEDICAL BIOLOGICAL DEFENSE (SDD)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** MCMI - MCMi - Contract Award | 2 | 2012 | 2 | 2012 |
| MCMI - MCMi - Facilities (Retrofit, BSL-3 renovation) | 3 | 2012 | 3 | 2014 |
| MCMI - MCMi - Procure ADM Equipment | 3 | 2012 | 4 | 2014 |
| MCMI - MCMi - Commissioning, Facility Validation | 1 | 2014 | 3 | 2014 |
| MCMI - MCMi - Maintain ADM Capability | 4 | 2014 | 4 | 2017 |
| ** ADM - Contract Award | 2 | 2012 | 2 | 2012 |
| ADM - Integrated Master Plan | 3 | 2012 | 3 | 2012 |
| ADM - Manufacturing Capability Plan | 3 | 2012 | 4 | 2012 |
| ADM - Facility Operations Feasibility Plan | 3 | 2012 | 3 | 2013 |
| ADM - Procure Equipment | 3 | 2012 | 4 | 2013 |
| ADM - Establish ADM Facilities | 3 | 2012 | 2 | 2014 |
| ADM - Commissioning and Validation | 4 | 2013 | 3 | 2014 |
| ADM - Qualification And Commissioning Report | 1 | 2014 | 4 | 2014 |
| ADM - Maintain Capability | 4 | 2014 | 4 | 2017 |
| ** CRP - Expand Select Biological Threat Agent Reference Materials | 1 | 2011 | 2 | 2014 |
| CRP - Development of ECL Immunoassays & PCR Genomic Assays | 1 | 2011 | 2 | 2015 |
| CRP - Development and Implementation of Quality Initiatives, Validation Program, and Systems Engineering | 1 | 2011 | 2 | 2015 |
| CRP - ISO certification | 1 | 2011 | 4 | 2014 |
| CRP - Enabling early warning tools and information exchange | 1 | 2011 | 4 | 2014 |
| CRP - Surveillance capabilities | 1 | 2011 | 4 | 2014 |
| ** NGDS - Test and evaluation support Inc 1 | 2 | 2012 | 3 | 2013 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
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| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** EID FLU - Required Clinical Trials for EID/FLU | 3 | 2012 | 4 | 2014 |
| ** HFV - Milestone B Decision | 3 | 2013 | 3 | 2013 |
| HFV - Phase 2 Trials for HFV MCMs | 1 | 2013 | 1 | 2013 |
| ** VAC BOT - VAC rBV A/B - Process Validation - Large Scale | 1 | 2011 | 1 | 2012 |
| VAC BOT - VAC rBV A/B - Non-Clinical Testing | 1 | 2011 | 2 | 2014 |
| VAC BOT - VAC rBV A/B - Phase 2 Clinical Trial (A/B) | 1 | 2011 | 2 | 2012 |
| VAC BOT - VAC rBV A/B - Consistency Lot Production | 1 | 2012 | 2 | 2013 |
| VAC BOT - VAC rBV A/B - Phase 3 Clinical Trial (A/B) | 4 | 2012 | 4 | 2015 |
| VAC BOT - VAC rBV A/B - Milestone C/LRIP | 3 | 2013 | 3 | 2013 |
| VAC BOT - VAC rBV A/B - Biological Licensure Application (BLA) Submission | 4 | 2015 | 4 | 2015 |
| VAC BOT - VAC rBV A/B - FDA Licensure | 4 | 2016 | 4 | 2016 |
| VAC BOT - Ongoing Manufacturing, Testing Efforts/Regulatory | 4 | 2015 | 4 | 2016 |
| ** VAC PLG - Non-Clinical Studies | 1 | 2011 | 4 | 2014 |
| VAC PLG - Phase 2b Clinical Trial | 1 | 2011 | 1 | 2014 |
| VAC PLG - Process Validation - Large Scale | 1 | 2011 | 2 | 2012 |
| VAC PLG - Consistency Lot Production | 2 | 2012 | 2 | 2013 |
| VAC PLG - Milestone C/LRIP | 3 | 2013 | 3 | 2013 |
| VAC PLG - Phase 3 Clinical Trial | 1 | 2013 | 4 | 2015 |
| VAC PLG - Biological Licensure Application (BLA) Submission | 4 | 2015 | 4 | 2015 |
| VAC PLG - FDA Licensure | 4 | 2016 | 4 | 2016 |
| VAC PLG - Ongoing Manufacturing, Testing Efforts/Regulatory | 4 | 2015 | 4 | 2016 |
| ** VAC SIP - Storage, distribution, potency testing, biosurety compliance activities | 1 | 2012 | 4 | 2017 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* | 3.801 | 2.407 | 9.642 | - | 9.642 | 41.257 | 45.477 | 50.862 | 58.935 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

This Project provides for 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, pre-treatment, and therapeutic drugs and diagnostic medical devices for the protection, treatment, detection, and medical management of chemical warfare agent exposures. 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 consists of the drug midazolam in an autoinjector, to be used as a treatment for nerve agent-induced seizures and will be a replacement for the currently-fielded Convulsant Antidote for Nerve Agent (CANA) autoinjector, which uses diazepam; and (2) Bioscavenger, a new capability, to be used as a prophylaxis against nerve agents.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) AAS<br>***FY 2011 Accomplishments:***<br>Continued process development and current Good Manufacturing Practices (cGMP) requirements.<br>***FY 2012 Plans:***<br>Complete process development and current Good Manufacturing Practices (cGMP) requirements. | 2.782 | 2.026 | - |
| ***Title:*** 2) AAS<br>***FY 2011 Accomplishments:***<br>Completed Good Laboratory Practices (GLP) animal efficacy studies. | 0.391 | - | - |
| ***Title:*** 3) AAS<br>***FY 2011 Accomplishments:***<br>Continued preparation of New Drug Application (NDA).<br>***FY 2012 Plans:***<br>Complete preparation of New Drug Application (NDA) and submit to FDA. | 0.628 | 0.311 | - |
| ***Title:*** 4) BSCAV | - | 0.039 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2012 Plans:***<br>Initiate manufacturing and process development at small scale to support bioequivalence bridging studies and alternate indication studies (Non-Traditional Agents (NTAs). | | | |
| ***Title:*** 5) BSCAV<br>***FY 2013 Plans:***<br>Complete studies for alternative manufacturing technologies (NTA). | - | - | 1.545 |
| ***Title:*** 6) BSCAV<br>***FY 2013 Plans:***<br>Complete studies for Post Exposure Prophylaxis (PEP) indication (NTA). | - | - | 2.285 |
| ***Title:*** 7) BSCAV<br>***FY 2013 Plans:***<br>Complete small-scale manufacturing process qualification. | - | - | 2.050 |
| ***Title:*** 8) BSCAV<br>***FY 2013 Plans:***<br>Initiate Pharmacokinetic (PK) and efficacy bioequivalence bridging studies (NTA). | - | - | 1.826 |
| ***Title:*** 9) BSCAV<br>***FY 2013 Plans:***<br>Complete current Good Manufacturing Practices (cGMP) manufacturing process validation to support delivery of a capability for a limited user group. | - | - | 1.936 |
| ***Title:*** 10) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.031 | - |
| **Accomplishments/Planned Programs Subtotals** | 3.801 | 2.407 | 9.642 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
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**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JM6677: *ADVANCED ANTICONVULSANT SYSTEM (AAS)* | 0.000 | 0.000 | 4.466 | | 4.466 | 8.951 | 0.000 | 0.000 | 0.000 | 0.000 | 13.417 |

**D. Acquisition Strategy**

AAS

The Medical Identification and Treatment Systems (MITS) Joint Product Management Office is managing the development of Advanced Anticonvulsant System, which consists of midazolam in an autoinjector. Midazolam, injected intramuscularly, will treat traditional nerve agent and non-traditional agent-induced seizures and prevent subsequent neurological damage. 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.

A contractor 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. 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 will be purchased. Subsequent purchases will be made by the Defense Logistics Agency. Any post-marketing surveillance requested by the FDA will be the responsibility of the contractor. The DoD is collaborating closely with the Department of Health and Human Services (HHS) with the development of midazolam for both civilian and DoD applications.

BSCAV

Bioscavenger acquisition strategy uses a serial evaluation of candidates to achieve competitive prototyping in the Technology Development Phase. Initially, the Medical Identification and Treatment Systems (MITS) Joint Product Management Office (JPMO) exercised management oversight and a commercial partner as the system integrator during the Technology Development Phase to examine a human plasma-derived butyrylcholinesterase. Activities included small scale manufacturing, conduct of pre-clinical animal safety studies, submission of an Investigational New Drug (IND) application, and completion of a Phase 1 human clinical safety study. Subsequently, the MITS JPMO evaluated a goat-derived recombinant butyrylcholinesterase candidate and multiple small molecule candidates. The small molecule candidates were not pursued beyond initial toxicology/safety testing in animals. For goat-derived Bioscavenger, activities included small scale manufacturing, conduct of pre-clinical animal safety studies, submission of an IND application, completion of a Phase 1 human clinical safety study and conduct of preliminary animal efficacy studies. The goat-derived Bioscavenger candidate was discontinued after the product failed to demonstrate sufficient product performance in the preliminary animal efficacy studies. During FY11, the program completed a system engineering trade off analysis resulting in a reduction of the initial operating capability/full operational capability (IOC/FOC) quantities and consequently an estimated cost avoidance of $1.14B over the product life.

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
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The path forward will include a formal Request For Proposal (RFP) to select the best value for the government for a prophylaxis to support an initial limited user group. Concurrently the MITS JPMO will conduct an analysis of alternative manufacturing technologies and investigate additional product indications. Subsequently, an expanded force solution prophylaxis will be pursued, once appropriate technologies have matured. Following a successful Milestone B and entry into Engineering and Manufacturing Development (EMD), the MITS JPMO will continue to exercise management oversight with system integration support of a commercial partner to ensure that manufacturing of the product is in accordance with Food and Drug Administration (FDA) regulations and guidelines. The RFP for product manufacturing will include options for transition to the Medical Countermeasures Initiative (MCMI) Advanced Development Manufacturing (ADM) capability. Prior to FDA licensure, a commercial partner will perform a Phase 2 human clinical safety study, definitive animal efficacy studies, and toxicology studies. The system integrator will also develop and manufacture a product formulation and delivery system and will submit a New Drug Application and seek FDA approval. The EMD phase will culminate in FDA licensure of the Bioscavenger. During the Production and Deployment phase, the MITS JPMO, in conjunction with a commercial partner, will pursue full rate production and conduct any FDA-mandated post-marketing surveillance studies.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
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**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** AAS - HW S - AAS - cGMP Manufacturing Requirements | C/CPIF | Meridian Medical Technologies:Columbia, MD | 7.692 | 1.545 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** BSCAV - HW S - BSCAV - Small-scale Manufacturing | C/CPIF | TBD: | - | 0.039 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| HW C - BSCAV - Small-scale manufacturing | C/CPIF | TBD: | - | - | | 1.550 | Nov 2012 | - | | 1.550 | Continuing | Continuing | 0.000 |
| HW C - BSCAV - Alternate Manufacturing | C/CPIF | TBD: | - | - | | 1.195 | Feb 2013 | - | | 1.195 | Continuing | Continuing | 0.000 |
| HW S - BSCAV - cGMP Manufacturing | C/CPIF | TBD: | - | - | | 1.586 | May 2013 | - | | 1.586 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 7.692 | 1.584 | | 4.331 | | - | | 4.331 | | | 0.000 |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** AAS - ES S - AAS - Regulatory Integration and NDA Support Efforts | C/CPIF | Meridian Medical Technologies:Columbia, MD | 2.213 | 0.311 | Aug 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** BSCAV - ES S - BSACV - Regulatory Support | MIPR | TBD: | - | - | | 0.100 | Feb 2013 | - | | 0.100 | Continuing | Continuing | 0.000 |
| ES S - BSCAV - Regulatory Support | MIPR | USAMMDA:Fort Detrick, MD | - | - | | 0.200 | May 2013 | - | | 0.200 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 2.213 | 0.311 | | 0.300 | | - | | 0.300 | | | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** BSCAV - OTHT S - BSCAV - Bioequivalence Bridging Study | C/CPIF | TBD: | - | - | | 1.300 | May 2013 | - | | 1.300 | Continuing | Continuing | 0.000 |
| OTHT S - BSCAV - PEP Studies | C/CPIF | TBD: | - | - | | 1.975 | Feb 2013 | - | | 1.975 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | - | - | | 3.275 | | - | | 3.275 | | | 0.000 |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** AAS - PM/MS S - AAS - Chem Bio Medical Systems | Allot | CBMS:Fort Detrick, MD | 1.620 | 0.481 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| ** BSCAV - PM/MS S - BSCAV - CBMS Management Support | Allot | CBMS:Fort Detrick, MD | - | - | | 0.360 | Aug 2013 | - | | 0.360 | Continuing | Continuing | 0.000 |
| PM/MS S - BSCAV - Product Management Support | SS/FFP | Goldbelt Raven LLC:Frederick, MD | - | - | | 0.626 | Feb 2013 | - | | 0.626 | Continuing | Continuing | 0.000 |
| PM/MS S - BSCAV - JPEO Project Management Support | Allot | JPEO-CBD:APG, MD | - | - | | 0.600 | Nov 2012 | - | | 0.600 | Continuing | Continuing | 0.000 |
| PM/MS C - BSCAV - JPEO Program Management Support | Allot | JPEO-CBD:APG, MD | - | - | | 0.150 | Feb 2013 | - | | 0.150 | Continuing | Continuing | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 0.031 | | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 1.620 | 0.512 | | 1.736 | | - | | 1.736 | | | 0.000 |

| | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 11.525 | 2.407 | | 9.642 | | - | | 9.642 | | | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
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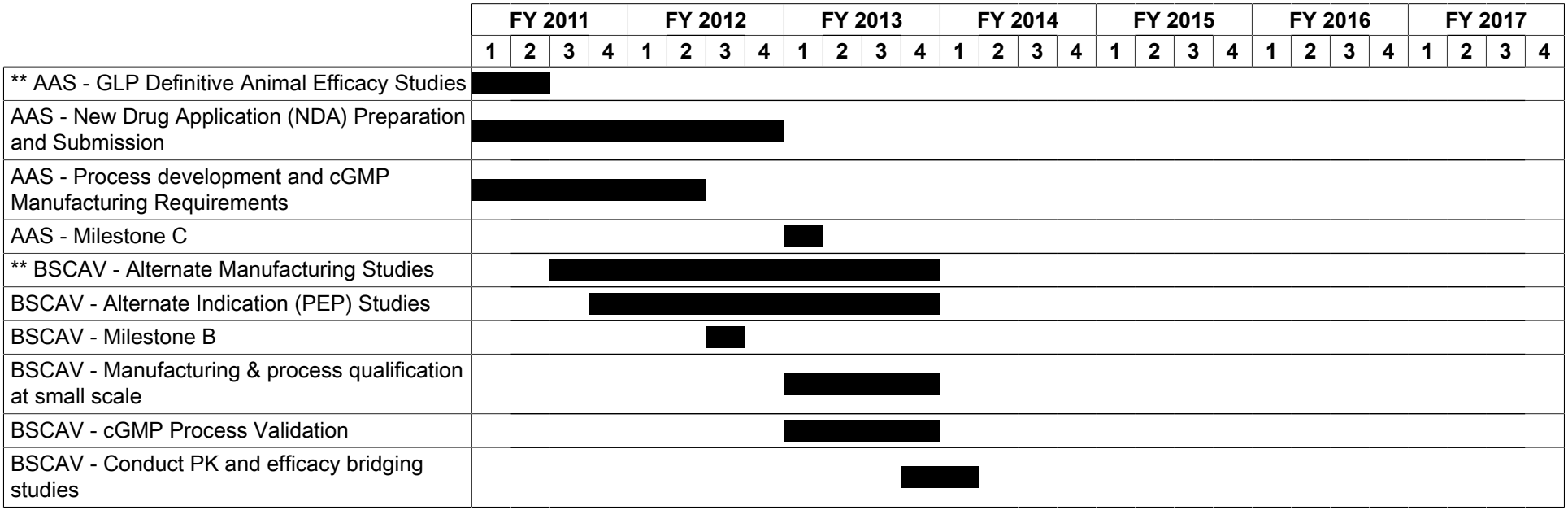
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 5: *Development & Demonstration (SDD)* | R-1 ITEM NOMENCLATURE<br>PE 0604384BP: *CHEMICAL/BIOLOGICAL DEFENSE (SDD)* | PROJECT<br>MC5: *MEDICAL CHEMICAL DEFENSE (SDD)* | |

| | Total Prior Years Cost | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** AAS - GLP Definitive Animal Efficacy Studies | 1 | 2011 | 2 | 2011 |
| AAS - New Drug Application (NDA) Preparation and Submission | 1 | 2011 | 4 | 2012 |
| AAS - Process development and cGMP Manufacturing Requirements | 1 | 2011 | 2 | 2012 |
| AAS - Milestone C | 1 | 2013 | 1 | 2013 |
| ** BSCAV - Alternate Manufacturing Studies | 3 | 2011 | 4 | 2013 |
| BSCAV - Alternate Indication (PEP) Studies | 4 | 2011 | 4 | 2013 |
| BSCAV - Milestone B | 3 | 2012 | 3 | 2012 |
| BSCAV - Manufacturing & process qualification at small scale | 1 | 2013 | 4 | 2013 |
| BSCAV - cGMP Process Validation | 1 | 2013 | 4 | 2013 |
| BSCAV - Conduct PK and efficacy bridging studies | 4 | 2013 | 1 | 2014 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MR5: *MEDICAL RADIOLOGICAL DEFENSE (SDD)* | - | - | 2.027 | - | 2.027 | 16.610 | 18.103 | 6.101 | 7.115 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

Operational forces have an immediate need to survive, safely operate, and sustain operations in a radiological/nuclear (R/N) threat environment across a continuum of global, contingency, special operations/low intensity conflict, homeland defense, and other high-risk missions. There are no FDA-approved prophylactics, treatments, or biodosimetry capabilities against radiation exposure. Treatment of R/N casualties depends on effective use of multiple medical capabilities in an integrated manner. Thus, this program supports the development of medical radiological countermeasures (MRADC) using a family-of-systems approach to provide a full spectrum capability to protect against the radiation threat which includes prophylactic, treatment, and biodosimetry capabilities. Individual countermeasure solutions will be developed using a single step to a full capability (FDA approval) strategy. Multiple contractors will serve as individual product integrators throughout development and will be responsible for conducting activities associated with drug development in a manner consistent with eventual approval by the FDA. Each contractor will sponsor the drug to the FDA and hold all approvals and/or licenses. The Technology Development phase includes pre-clinical studies, completion of manufacturing scale up, Phase 1 human clinical safety studies and initiation of manufacturing scale up activities, potentially utilizing the Medical Countermeasures Initiative (MCMI) Advanced Development Manufacturing (ADM) capability. 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 (IOC) and Full Operational Capability (FOC) will be purchased. Subsequent purchases will be made by the Defense Logistics Agency (DLA). Any post-marketing surveillance studies requested by the FDA will be conducted.

Medical Radiological Countermeasures (MRADC) efforts include development of multiple countermeasures required to protect U.S. Forces against a myriad of injuries caused by exposure to radiation and to restore casualties to pre-exposure health. 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 throughout the full spectrum of healthcare operations.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) MRADC TX | - | - | 0.825 |
| ***FY 2013 Plans:***<br>Initiate definitive animal efficacy studies. | | | |
| ***Title:*** 2) MRADC TX | - | - | 1.202 |
| ***FY 2013 Plans:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Initiate manufacturing scale-up activities. | | | |
| Accomplishments/Planned Programs Subtotals | - | - | 2.027 |

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

N/A

**D. Acquisition Strategy**

MRADC

Medical Identification and Treatment Systems (MITS) Joint Product Management Office is the life-cycle manager of Medical Radiation Countermeasures (MRADC) for the Department of Defense (DoD). The DoD is working very closely with the Department of Health and Human Services (HHS), which also has a radiation countermeasure program. In support of the Integrated National Biodefense Portfolio, a Memorandum of Understanding (MOU) was established between HHS and DoD to prevent duplication of efforts and create synergies in the development of MRADC. In support of the MOU, the establishment of an interagency working group provides oversight and guidance to both agency programs and allows leveraging of knowledge and successes to advance the DoD MRADC program. Under the MOU, MITS executes Interagency Agreements with the Biomedical Advanced Research and Development Authority (BARDA), HHS' advanced developer, to promote the science of MRADC.

This project funds the advanced development of candidate therapeutic medical countermeasures to mitigate the consequences of exposure to ionizing radiation from nuclear or radiological attacks. There are currently no FDA-approved products to treat Acute Radiation Syndrome (ARS). Exposure to ionizing radiation causes ARS which includes damage to blood-forming cells (hematopoietic system), gastrointestinal system, and central nervous system. 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 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 development of multiple countermeasures required to protect U.S. Forces against a myriad of injuries caused by exposure to radiation and to restore casualties to pre-exposure health. 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 throughout the full spectrum of healthcare operations.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** MRADC - HW C - MRADC - Manufacturing Scale-Up | C/CPIF | TBD: | - | - | | 0.912 | Feb 2013 | - | | 0.912 | Continuing | Continuing | 0.000 |
| | | Subtotal | - | - | | 0.912 | | - | | 0.912 | | | 0.000 |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** MRADC - DTE C - MRADC - Animal Efficacy Studies | C/CPIF | TBD: | - | - | | 0.713 | May 2013 | - | | 0.713 | Continuing | Continuing | 0.000 |
| | | Subtotal | - | - | | 0.713 | | - | | 0.713 | | | 0.000 |

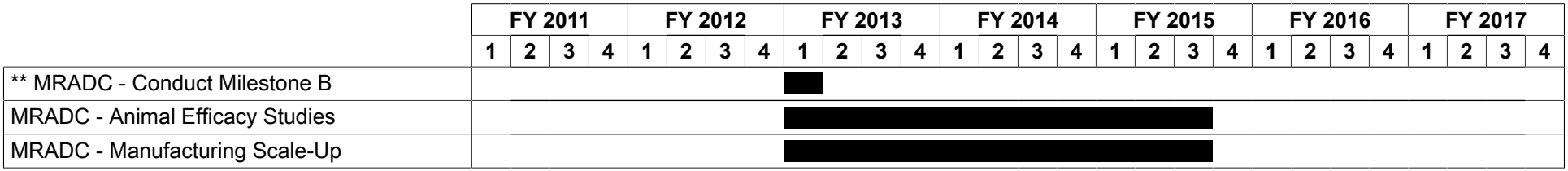
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** MRADC - PM/MS C - MRADC - Management Support | Allot | CBMS:Fort Detrick, MD | - | - | | 0.402 | Nov 2012 | - | | 0.402 | Continuing | Continuing | 0.000 |
| | | Subtotal | - | - | | 0.402 | | - | | 0.402 | | | 0.000 |

| | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Cost Totals | - | - | | 2.027 | | - | | 2.027 | | | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** MRADC - Conduct Milestone B | 1 | 2013 | 1 | 2013 |
| MRADC - Animal Efficacy Studies | 1 | 2013 | 3 | 2015 |
| MRADC - Manufacturing Scale-Up | 1 | 2013 | 3 | 2015 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TE5: *TEST & EVALUATION (SDD)* | 30.653 | 11.043 | 6.394 | - | 6.394 | 20.202 | 12.033 | 14.200 | 14.200 | 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 Test (Sense); (4) Individual Protection, Collective Protection and Decontamination (Shield and Sustain).

(1) Chemical Laboratory (Sense): The product for this area is the Dynamic Test Chamber (DTC) for chemical point sensors, and Non-Traditional Agent Defense Test System (NTADTS). The Dynamic Test Chamber provides a new capability for testing chemical point detection systems against chemical warfare agents in various environmental conditions. The NTADTS provides a new capability at Edgewood Chemical Biological Center to conduct highly toxic material testing using new emerging threats. The NTADTS supports testing of Decontamination, Collective Protection, Individual Protection, and Contamination Avoidance products. The CBD programs supported are: the Joint Chemical Agent Detector (JCAD) and Improved Point Detection System (IPDS), Next Generation Chemical Point Detection (NGCPD) System; Joint Protective Aircrew Ensemble (JPACE); Joint Services Aircrew Mask (JSAM) - Fixed Wing (FW), Rotary Wing (RW), and Joint Strike Fighter (JSF) variants; Joint Service Chemical Environment Survivability Mask (JSCESM); Joint Chemical Ensemble (JCE); Uniform Individual Protective Ensemble (UIPE); Joint Service Lightweight Integrated Suit Technology (JSLIST); and Joint Chemical/Biological Coverall for Combat Vehicle Crewmen (JC3).

(2) Sense Laboratory (Biological): The product for this area is the Whole System Live Agent Test (WSLAT) "Full System" Chamber. The WSLAT "Full System" Chamber supports testing of all biological point detection systems in production configuration in biological live agent environments. The chemical biological defense (CBD) programs supported are: the Joint Biological Point Detection System (JBPDS)/JBPDS Block II; and the Joint Biological Standoff Detection System (JBSDS) Increment 2.

(3) Field Simulant (Sense): The product for this area is a fully instrumented simulant Test Grid. The Test Grid effort provides a fully instrumented 20 km by 40 km field chemical and biological simulant test capability that integrates cloud tracking equipment; meteorological equipment; and test data network. The CBD programs supported are: the Joint NBC Reconnaissance System (JNBCRS); the Joint Biological Standoff Detection System (JBSDS); the Joint Biological Point Detection System (JBPDS); the Joint Expeditionary Collective Protection (JECP) System; Joint Biological Tactical Detection System (JBTDS); and Next Generation Chemical Point Detectors (NGCPD).

(4) Individual Protection, Collective Protection and Decontamination (Shield and Sustain): IPEMS provides an articulated robotic mannequin that simulates Warfighters activities and includes under ensemble agent sensing capability for evaluating IPE against chemical warfare agents. IPEMS consists of an articulated robotic mannequin, exposure chamber, control room, and real time under-ensemble sensor system. The CBD programs supported are: Joint Protective Aircrew Ensemble

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

(JPACE); Joint Service General Purpose Mask (JSGPM); Joint Service Aircrew Mask (JSAM) - Fixed Wing (FW), Rotary Wing (RW), and Joint Strike Fighter (JSF) variants; Joint Service Chemical Environment Survivability Mask (JSCESM); Joint Chemical Ensemble (JCE); Uniform Individual Protective Ensemble (UIPE); Joint Service Lightweight Integrated Suit Technology (JSLIST); and Joint Chemical/Biological Coverall for Combat Vehicle Crewmen (JC3).

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) PD TESS - Dynamic Test Chamber (DTC)<br>***FY 2011 Accomplishments:***<br>Initiated and completed testing of humidity, pressure, temperature, and dissemination components. Initiated and completed verification testing.<br>***FY 2013 Plans:***<br>Upgrade and validation of the DTC. | 0.983 | - | 0.100 |
| ***Title:*** 2) PD TESS - Non-Traditional Agent Defense Test System (NTADTS)<br>***FY 2012 Plans:***<br>Initiate fabrication and installation of the NTA Defense Test System.<br>***FY 2013 Plans:***<br>Initiate validation. | - | 2.070 | 5.762 |
| ***Title:*** 3) PD TESS - WSLAT<br>***FY 2011 Accomplishments:***<br>Continued to build and fabricate WSLAT chamber.<br>***FY 2012 Plans:***<br>Initiate and complete installation. Verify and validate chamber. | 4.504 | 2.600 | - |
| ***Title:*** 4) PD TESS - Test Grid<br>***FY 2011 Accomplishments:***<br>Develop a biological referee capability.<br>***FY 2012 Plans:***<br>Conduct and study dissemination, point and standoff referee systems. Perform characterization test and insert bio referee equipment in the Test Grid network. | 14.113 | 2.260 | - |
| ***Title:*** 5) PD TESS - Individual Protection Ensemble Mannequin System (IPEMS)<br>***FY 2011 Accomplishments:*** | 11.053 | 3.965 | 0.532 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continued IPEMS fabrication and installation. Initiated IPEMS verification testing.<br>***FY 2012 Plans:***<br>Continue IPEMS fabrication, installation, and verification and validation testing.<br>***FY 2013 Plans:***<br>Complete IPEMS validation testing. | | | |
| ***Title:*** 6) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.148 | - |
| **Accomplishments/Planned Programs Subtotals** | 30.653 | 11.043 | 6.394 |

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

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TE7: *TEST & EVALUATION (OP SYS DEV)* | 4.732 | 3.597 | 4.156 | | 4.156 | 3.690 | 3.642 | 2.846 | 2.846 | 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 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** PD TESS - HW S - DTC Fabrication/Installation | C/CPFF | John Hopkins Univ - Applied Physics Lab:Laurel, MD | 3.974 | - | | 0.100 | May 2013 | - | | 0.100 | Continuing | Continuing | 0.000 |
| HW S - WSLAT Chamber Fabrication/Installation | C/CPFF | Teledyne Brown Engineering:Huntsville, AL | 11.433 | 1.952 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| HW S - Test Grid Instrumentation Data Network | C/CPFF | ITT Information Systems:Alexandria, VA | 13.244 | 1.060 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| SW SB - IPEMS Mannequin System Fabricate/Install/ Validate/Verify | C/CPFF | MRIGlobal:Kansas City, MO | 44.569 | 2.513 | Feb 2012 | 0.532 | Feb 2013 | - | | 0.532 | Continuing | Continuing | 0.000 |
| HWS - NTA Defense Test System Design/Fabrication/ Installation | MIPR | Various: | - | 0.970 | Feb 2012 | 1.355 | Feb 2013 | - | | 1.355 | Continuing | Continuing | 0.000 |
| HW S - NTA Defense Test System Design, Fabrication, Install | C/CPFF | MRIGlobal:Kansas City, MO | - | - | | 3.453 | Feb 2013 | - | | 3.453 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 73.220 | 6.495 | | 5.440 | | - | | 5.440 | | | 0.000 |

**Management Services ($ in Millions)**

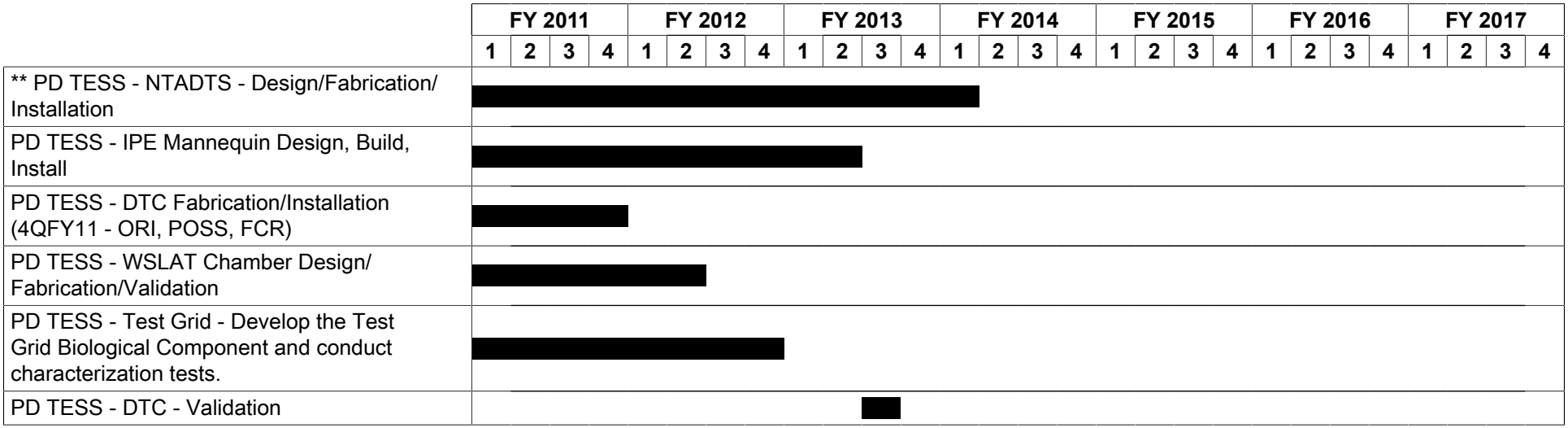
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** PD TESS - PM/MS S - Program Management/ Systems Engineering Support | MIPR | JPM NBC CA:APG, MD | 3.184 | 4.400 | Nov 2011 | 0.954 | Nov 2012 | - | | 0.954 | Continuing | Continuing | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/ STTR | PO | HQ:AMC, Alexandria | - | 0.148 | | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 3.184 | 4.548 | | 0.954 | | - | | 0.954 | | | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2012 | | FY 2013 Base | | FY 2013 OCO | | FY 2013 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 76.404 | 11.043 | | 6.394 | | - | | 6.394 | | | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** PD TESS - NTADTS - Design/Fabrication/Installation | 1 | 2011 | 1 | 2014 |
| PD TESS - IPE Mannequin Design, Build, Install | 1 | 2011 | 2 | 2013 |
| PD TESS - DTC Fabrication/Installation (4QFY11 - ORI, POSS, FCR) | 1 | 2011 | 4 | 2011 |
| PD TESS - WSLAT Chamber Design/Fabrication/Validation | 1 | 2011 | 2 | 2012 |
| PD TESS - Test Grid - Develop the Test Grid Biological Component and conduct characterization tests. | 1 | 2011 | 4 | 2012 |
| PD TESS - DTC - Validation | 3 | 2013 | 3 | 2013 |

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Chemical and Biological Defense Program | DATE: February 2012 |
|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Program Element | 118.931 | 92.806 | 92.849 | - | 92.849 | 94.721 | 95.626 | 86.940 | 87.270 | Continuing | Continuing |
| DT6: *JOINT DOCTRINE AND TRAINING SUPPORT (RDT&E MGT SUPPORT)* | 6.285 | 5.132 | 4.314 | - | 4.314 | 4.459 | 4.562 | 4.659 | 4.659 | Continuing | Continuing |
| DW6: *MAJOR RANGE AND TEST FACILITY BASE (MRTFB)* | 59.247 | 55.224 | 57.648 | - | 57.648 | 57.852 | 57.651 | 47.903 | 47.940 | Continuing | Continuing |
| LS6: *LABORATORY SUPPORT* | 13.862 | 0.702 | 2.025 | - | 2.025 | 2.026 | 2.027 | 2.028 | 2.028 | Continuing | Continuing |
| MS6: *RDT&E MGT SUPPORT* | 33.907 | 29.438 | 26.965 | - | 26.965 | 28.421 | 29.379 | 30.300 | 30.593 | Continuing | Continuing |
| O49: *JOINT CONCEPT DEVELOPMENT AND EXPERIMENTATION PROGRAM* | 5.630 | 2.310 | 1.897 | - | 1.897 | 1.963 | 2.007 | 2.050 | 2.050 | 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 West Desert Test Center (WDTC) (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 (TTPs) 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. WDTC is designated as the primary element of the MRTFB to primarily conduct CB Defense test and evaluation. The DW6 Project provides operating funds to WDTC in accordance with the National Defense Authorization Act of 2003 (Public Law 107-314 - section 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.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Chemical and Biological Defense Program | DATE: February 2012 |
|---|---|
| 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)* |

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 Deputy Assistant to the Secretary of Defense for Chemical Biological Defense and Chemical Demilitarization Programs (DATSD(CBD/CD)); funds 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 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 under the JTIWG program. The JTIWG program funds T&E Early Involvement, test threat planning, Fielded Equipment Assessments, T&E studies, and T&E Standards planning and development to support testing the CBD systems for all services to include radiological, nuclear, medical T&E efforts.

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 2013 Chemical and Biological Defense Program | DATE: February 2012 |
|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 120.995 | 92.806 | 104.018 | - | 104.018 |
| Current President's Budget | 118.931 | 92.806 | 92.849 | - | 92.849 |
| Total Adjustments | -2.064 | - | -11.169 | - | -11.169 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | -1.449 | - | | | |
| • Other Adjustments | -0.615 | - | -11.169 | - | -11.169 |

**Change Summary Explanation**

Funding: FY13

-$11,169M Other Adjustments (DT6 -$699K; DW6 -$2,211K; LS6 -$6,749K; MS6 -$1,202K; O49 -$308K).

Schedule: N/A

Technical: N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DT6: *JOINT DOCTRINE AND TRAINING SUPPORT (RDT&E MGT SUPPORT)* | 6.285 | 5.132 | 4.314 | - | 4.314 | 4.459 | 4.562 | 4.659 | 4.659 | 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 war games; 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) JRO DT | 6.285 | 5.064 | 4.314 |
| ***FY 2011 Accomplishments:***<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. | | | |
| ***FY 2012 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. | | | |
| ***FY 2013 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. | | | |
| ***Title:*** 2) SBIR | - | 0.068 | - |
| ***FY 2012 Plans:***<br>Small Business Innovative Research. | | | |
| **Accomplishments/Planned Programs Subtotals** | 6.285 | 5.132 | 4.314 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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)* |

**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 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DW6: *MAJOR RANGE AND TEST FACILITY BASE (MRTFB)* | 59.247 | 55.224 | 57.648 | - | 57.648 | 57.852 | 57.651 | 47.903 | 47.940 | 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 West Desert Test Center (WDTC), a Major Range and Test Facility Base (MRTFB) located at Dugway Proving Ground (DPG). Funding reflects compliance with National Defense Authorization Act (NDAA) for FY 2003 (Public Law 107-314 - December 2002), Sec 232, requiring MRTFB to be fully funded so that DoD test customers are charged for direct costs only.

WDTC, 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.

WDTC 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. WDTC 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 WDTC include, but are not limited to: Uniform Integrated Protective Ensemble (UIPE); Joint Expeditionary Collective Protection (JECP); Decon Family of Systems (DFOS); CBRN Dismounted Recon System (DR-SKO); Joint Chemical Agent Detector (JCAD); Joint Chem-Bio-Rad Agent Water Monitor (JCBRAWM); Joint Biological Point Detection System (JBPDS); Contaminated Human Remains Pouch (CHRP); Common Analytical Laboratory System (CALS); Next Generation Diagnostic System (NGDS); Joint Service Aircrew Mask (JSAM); Joint Service General Purpose Mask (JSGPM); Joint Biological Tactical Detection System (JBTDS); Next Generation Chemical Point Detection (NGCPD). The MRTFB also houses the Critical Reagents Program (CRP) Antigen Repository in support of testing diagnostic identification systems and developing vaccines. In addition, it is able to provide instrumentation in support of medical countermeasures efforts.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) WDTC, MRTFB | 42.763 | 37.434 | 34.213 |
| ***FY 2011 Accomplishments:***<br>Maintained Dugway Proving Ground (DPG), a Major Range and Test Facility Base (MRTFB), sustaining the technical test capability of the West Desert Test Center (WDTC) and operations to include institutional civilian labor costs for Army Program Budget Guidance (PBG) authorizations and support Department of Defense (DoD) and Department of Homeland Security needs. These civilian personnel ensured the safe and efficient operations of the MRTFB and include safety, security, resource | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| management, surety operations, range control, environmental oversight, workload management, and training. This represented the civilian labor required to support operations, which 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.<br>***FY 2012 Plans:***<br>Maintains Dugway Proving Ground (DPG), a Major Range and Test Facility Base (MRTFB), sustaining the technical test capability of the West Desert Test Center (WDTC) and operations to include institutional civilian labor costs for Army Program Budget Guidance (PBG) authorizations and support Department of Defense (DoD) and Department of Homeland Security needs. These civilian personnel ensure the safe and efficient operations of the MRTFB and include safety, security, resource management, surety operations, range control, environmental oversight, workload management, and training. This represents the civilian labor required to support operations, which 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.<br>***FY 2013 Plans:***<br>Maintains Dugway Proving Ground (DPG), a Major Range and Test Facility Base (MRTFB), sustaining the technical test capability of the West Desert Test Center (WDTC) and operations to include institutional civilian labor costs for Army Program Budget Guidance (PBG) authorizations and support Department of Defense (DoD) and Department of Homeland Security needs. These civilian personnel ensure the safe and efficient operations of the MRTFB and include safety, resource management, surety operations, range control, environmental oversight, workload management, and training. This represents the civilian labor required to support operations, which 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. | | | |
| ***Title:*** 2) WDTC, MRTFB<br>***FY 2011 Accomplishments:***<br>Provided for ongoing sustainment of existing instrumentation and equipment at WDTC, located 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.<br>***FY 2012 Plans:***<br>Provides for ongoing sustainment of existing instrumentation and equipment at WDTC, located 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.<br>***FY 2013 Plans:*** | 9.470 | 8.581 | 8.580 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Provides for ongoing sustainment of existing instrumentation and equipment at WDTC, located 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. | | | |
| ***Title:*** 3) WDTC, MRTFB<br>***FY 2011 Accomplishments:***<br>Provided WDTC with a dedicated and specially trained, 24-hour, support staff who operated and maintained all critical control systems, such as highly complex Heating, Ventilation, and Air-Conditioning (HVAC) system, and decontamination systems within WDTC's Materiel Test Facility, Combined Chemical Test Facility, and the Life Science Test Facility complex.<br>***FY 2012 Plans:***<br>Provides WDTC 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 WDTC's Materiel Test Facility, Combined Chemical Test Facility, and the Life Science Test Facility complex.<br>***FY 2013 Plans:***<br>Provides WDTC 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 WDTC's Materiel Test Facility, Combined Chemical Test Facility, and the Life Science Test Facility complex. | 2.035 | 1.932 | 2.184 |
| ***Title:*** 4) WDTC, MRTFB<br>***FY 2011 Accomplishments:***<br>Supported the WDTC defense mission by funding 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>***FY 2012 Plans:***<br>Supports the WDTC defense mission by funding 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>***FY 2013 Plans:***<br>Supports the WDTC defense mission by funding 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. | 4.979 | 4.577 | 4.687 |
| ***Title:*** 5) NTA TEST<br>***FY 2012 Plans:***<br>Provides initial phase of upgrade of current test capabilities to establish initial NTA Developmental and Operational Test capability at West Desert Test Center (WDTC), located at Dugway Proving Ground (DPG), including tests to correlate agents to simulants | - | 1.971 | 7.984 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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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>DW6: *MAJOR RANGE AND TEST FACILITY BASE (MRTFB)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| performance, leveraging Science & Technology (S&T) capability at Edgewood Chemical and Biological Center (ECBC) for initial set of NTAs. Includes initiating instrumentation and methodology modifications for field Operational Testing with NTA simulants and for chamber Developmental Testing with initial NTAs: developing design and integration approaches for individual test fixtures and equipment for containment levels and surety operations; modify field test capability and referee systems to measure NTA simulants.<br>***FY 2013 Plans:***<br>Provides for the continued upgrade of current test capabilities to establish initial NTA Developmental and Operational Test capability at WDTC, located at DPG, including tests to correlate agents to simulants performance, leveraging S&T capability at ECBC for initial set of NTAs. Includes continuing instrumentation and methodology modifications for field Operational Testing with NTA simulants and for chamber Developmental Testing with initial NTAs: continuing design and integration approaches for individual test fixtures and equipment for containment levels and surety operations; and continuing to modify field test capability and referee systems to measure NTA simulants. | | | |
| ***Title:*** 6) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.729 | - |
| **Accomplishments/Planned Programs Subtotals** | 59.247 | 55.224 | 57.648 |

**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 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LS6: *LABORATORY SUPPORT* | 13.862 | 0.702 | 2.025 | - | 2.025 | 2.026 | 2.027 | 2.028 | 2.028 | 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, mechanical/electrical, and structural systems. Also provides for the initial equipment outfitting of new facilities. 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) LABINF - ECBC Gas Filters<br>***FY 2011 Accomplishments:***<br>Continue to sustain modernized existing gas filters to include developing new filter designs with the capability of protecting against emerging threat agents. Includes purchase, procurement, installing, monitoring, testing, certification, and disposal. | 1.314 | - | - |
| ***Title:*** 2) LABINF - Control Systems<br>***FY 2011 Accomplishments:***<br>Modernize mechanical and pneumatic control systems to full digital controls. | 0.896 | - | - |
| ***Title:*** 3) LABINF - Emergency Systems<br>***FY 2011 Accomplishments:***<br>Modernize emergency systems to increase reliability and safety. | 0.920 | - | - |
| ***Title:*** 4) LABINF - ECBC Mechanical/Electrical Systems<br>***FY 2011 Accomplishments:***<br>Sustain and upgrade to key mechanical and electrical systems in surety buildings to ensure worker safety, environmental compliance, and continuity of operations. | 1.254 | - | - |
| ***Title:*** 5) LABINF - ECBC Surety Facility Sustainment<br>***FY 2011 Accomplishments:*** | 0.900 | - | 1.025 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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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>LS6: *LABORATORY SUPPORT* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Perform general facility sustainment in key surety facilities. Includes general safety, structural, exterior, interior, and utility sustainment.<br>***FY 2013 Plans:***<br>Perform general facility sustainment in key surety facilities. Includes general safety, structural, exterior, interior, and utility sustainment. | | | |
| ***Title:*** 6) LABINF - Initial Outfitting, Transition, and Equipment<br>***FY 2011 Accomplishments:***<br>Provided key chemical and biological defense effort upgrades, initial outfitting, and equipment for the USAMRIID and USAMRICD infrastructure.<br>***FY 2012 Plans:***<br>Provides laboratory infrastructure project upgrades for key systems to the current state-of-the-art capabilities. Key enabling activities to support the medical chemical and biological defense research and development infrastructure at USAMRIID and USAMRICD include: support for veterinary medicine; regulatory affairs and quality assurance compliance activities; chemical and biological surety costs; occupational health issues; maintenance of the vivarium; and maintenance of the neat (chemical) agent facility for medical countermeasure development.<br>***FY 2013 Plans:***<br>Provides laboratory infrastructure project upgrades for key systems to the current state-of-the-art capabilities. Key enabling activities to support the medical chemical and biological defense research and development infrastructure at USAMRIID and USAMRICD include: support for veterinary medicine; regulatory affairs and quality assurance compliance activities; chemical and biological surety costs; occupational health issues; maintenance of the vivarium; and maintenance of the neat (chemical) agent facility for medical countermeasure development. | 5.000 | 0.693 | 1.000 |
| ***Title:*** 7) LABINF - DoD Laboratory Infrastructure<br>***FY 2011 Accomplishments:***<br>Provided support for facilities sustainment, restoration and modernization requirements directly related to the maintenance and enhancement of the DoD laboratory infrastructure capabilities. Capabilities supported included efforts related to CBDP research, development, test, and evaluation. | 1.191 | - | - |
| ***Title:*** 8) LABINF - Proteomics Capability Enhancement (ECBC)<br>***FY 2011 Accomplishments:*** | 2.387 | - | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
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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>LS6: *LABORATORY SUPPORT* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Provided for an enhanced capability within ECBC laboratory infrastructure to centralize and consolidate proteomics efforts. Provides for a responsive resource that can be directed to rapidly focus on novel and emerging threats. Includes equipment enhancements for quantitation/validation, screening, and pathways elucidations. | | | |
| ***Title:*** 9) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.009 | - |
| **Accomplishments/Planned Programs Subtotals** | 13.862 | 0.702 | 2.025 |

**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 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MS6: *RDT&E MGT SUPPORT* | 33.907 | 29.438 | 26.965 | - | 26.965 | 28.421 | 29.379 | 30.300 | 30.593 | 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 JTIWG program funds T&E Early Involvement, test threat planning, Fielded Equipment Assessments, T&E studies, and T&E Standards planning and development to support testing the CBD systems for all services to include radiological, nuclear, medical T&E efforts.

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. The CBDP T&E Executive oversees T&E processes to include fielded equipment assessments to ensure end to end support to the war fighter. The CBDP T&E Executive oversees T&E processes to include fielded equipment assessments to insure end-to-end support to the warfighter.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) JRO MGT | 9.201 | 10.023 | 9.421 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2011 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 Priorities List (JPL); CBRN Defense Joint Future Operational Capabilities; Program Objective Memorandum; and the CBD Annual Report to Congress.<br>***FY 2012 Plans:***<br>Continue to represent the Services and Combatant Commanders in the development, coordination, and integration of CBRN defense operational capabilities across all DoD mission areas. Continue to 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>***FY 2013 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. | | | |
| ***Title:*** 2) JTIWG | 4.775 | 5.662 | 5.589 |
| ***FY 2011 Accomplishments:***<br>Joint Test Infrastructure Working Group (JTIWG) - Continued 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. Continued 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. Continued early involvement of the Operational Test Agencies (OTAs) and other T&E organizations in T&E infrastructure planning. Continued development of threat test support documentation to support developmental and operational tests in which an operational threat must be realistically presented, including Joint Biological Standoff Detection System (JBSDS); Joint Biological Tactical Detection System (JBTDS); Joint Biological Point Detector System (JBPDS), Joint Biological Agent Identification and Diagnostic System (JBAIDS); Joint Warning and Reporting Network (JWARN); Joint Chemical Agent Detector (JCAD), Improved Point Detection System (IPDS); Next Generation Chemical Point Detection(NGCPD) and all detectors; Uniform Individual Protection Ensemble(UIPE); Joint Platform Interior Decontamination(JPID); Dismounted Reconnaissance Sets, Kits, and Outfits (DR- | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|

SKO), Monitor and Survey Sets, Kits, Outfits (MS-SKO); Joint Expeditionary Collective Protection (JECP); Decontamination Family of Systems (DFoS); Next Generation Diagnostic Systems (NGDS). Continued 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. Continued to provide guidance to improve the Test and Evaluation Master Plan (TEMP) for acquisition programs, threat support documentation development, and development of T&E Capabilities Needs Statements 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). Provided 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 development and defense of POM and Budget submissions. Provide subject matter expertise to assist community to implement T&E aspects of National and DoD guidance and policy: Chemical Biological Radiological Contamination Survivability (CBRCS), Homeland Security Presidential Directive(HSPD), and DOD 5000. This project also supported T&E Early Involvement, test threat planning, Fielded Equipment Assessments, T&E Studies, and T&E Standards planning and development to support testing CBDP systems for all Services.

***FY 2012 Plans:***

JTIWG - Continue T&E Executive mission support to ensure credible testing, T&E Early Involvement, Fielded Equipment Assessments, T&E Studies, evaluation and decision support for CBDP systems; support the DOT&E for OSD T&E Oversight; and support the Assistant to the Secretary of Defense (NCB) in infrastructure planning, input to the Program Objective Memorandum (POM) process, and establishing T&E Standards to support the White House Subcommittee on Standards and other interagency groups. Continue direct support to the Joint Program Executive Office for Chemical Biological Radiological Nuclear Defense (JPEO-CBRND) and the JRO IPTs and ICTs providing technical assistance to structure acquisition programs, plan for Analysis of Alternatives (AoAs) and develop test scopes. Continue early involvement of the OTAs and other T&E organizations in T&E infrastructure planning, development, and validation. Continue development of threat test support documentation to support developmental and operational tests in which an operational threat must be realistically presented. Programs supported include NTA detector; Joint Biological Tactical Detection System (JBTDS); Joint Biological Point Detector System (JBPDS); Joint Chemical Agent Detector (JCAD), Improved Point Detection System (IPDS); Next Generation Chemical Point Detection(NGCPD) and all detectors; Uniform Individual Protection Ensemble(UIPE); Dismounted Reconnaissance Sets, Kits, and Outfits (DR-SKO); Joint Expeditionary Collective Protection (JECP); Decontamination Family of Systems (DFoS); Next Generation Diagnostic Systems (NGDS). Decon Family of Systems; JSGPM; JECP; NBCRV Sensor Suite Integration (SSI); JSAM; CALS; and WMD CSTs, Special Purpose Units - CB Equipment. Continue support to JPEO-CBD and JSTO-CB regarding specific test methodology and test technology needs, technology transition planning, approval of T&E Strategies, and participation in scientific review panels. Continue to provide guidance to improve the TEMP for acquisition programs, threat support documentation, and validation of T&E Capabilities and associated standards. Continue to support OTAs in coordination of Lead OTA assignment,

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| integration of test planning, issue resolution, and facilitation of OSD approval of test documents. Continue to lead the International T&E methodology development and standardization efforts to support the Australia, Canadian, UK, and US MOU. Provide T&E infrastructure input to the POM process and support JRO, PA&IO, and SA(CBD & CDP) in development and defense of POM and Budget submissions.<br>***FY 2013 Plans:***<br>Joint Test Infrastructure Working Group (JTIWG) - Continue Test and Evaluation (T&E) Executive mission support to ensure credible testing, Fielded Equipment Assessments, T&E Studies, evaluation and decision support for Chemical Biological Defense Program (CBDP) systems; support the Director for Operational Test and Evaluation (DOT&E) for OSD T&E Oversight; and support the Assistant to the Secretary of Defense (NCB) in infrastructure planning and establishing T&E Standards to support the White House Subcommittee on Standards and other interagency groups. Continue direct support to the Joint Program Executive Office for Chemical Biological Radiological Nuclear Defense (JPEO-CBRND) and the Joint Requirements Office (JRO) Integrated Process Teams (IPTs) and Integrated Concept Teams (ICTs) providing technical assistance to structure acquisition programs, plan for Analysis of Alternatives (AoAs) and develop test scopes. Continue early involvement of the Operational Test Agencies (OTAs) and other T&E organizations in T&E infrastructure planning, development, and validation. Continue development of threat test support documentation to support developmental and operational tests in which an operational threat must be realistically presented. Programs supported include NTA detector, DR SKO, Decon Family of Systems, JECP, JBPDS, JSGPM, NGCPD, UIPE, JECP, NBCRV Sensor Suite Integration (SSI), JSAM, CALS, and WMD CSTs, Special Purpose Units - CB Equipment. Continue support to JPEO-CBD and Joint Science and Technology Office (JSTO)-CB regarding specific test methodology and test technology needs, technology transition planning, approval of T&E Strategies, and participation in scientific review panels. Continue to provide guidance to improve the Test and Evaluation Master Plan (TEMP)s for acquisition programs, threat support documentation, and validation of T&E Capabilities and associated standards. Continue to support OTAs in coordination of Lead OTA assignment, integration of test planning, issue resolution, and facilitation of OSD approval of test documents. 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. | | | |
| ***Title:*** 3) OSD MGT<br>***FY 2011 Accomplishments:***<br>Performed program reviews/assessments, provided programmatic PPBE oversight/analysis, and provided congressional issue analysis and support. Supported financial management services provided by DTRA, such as funding distribution and execution reporting.<br>***FY 2012 Plans:*** | 14.747 | 7.108 | 6.189 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue to perform program reviews/assessments, provide programmatic PPBE oversight/analysis, and provide congressional issue analysis and support. Continue to support financial management services provided by DTRA, such as funding distribution and execution reporting.<br>***FY 2013 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. | | | |
| ***Title:*** 4) PAIO MGT<br>***FY 2011 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 President's Budget submissions. Responded to specialized evaluation studies throughout the PPBE process. Provided JSCBIS database management.<br>***FY 2012 Plans:***<br>Continue to develop assessments to support RDA Planning. Continue to provide analytic programmatic support for development of program guidance, the Program, Budget and Execution Reviews, and the President's Budget submissions. Continue to respond to specialized evaluation studies throughout the PPBE process. Continue to provide JSCBIS database management.<br>***FY 2013 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 President's Budget submissions. Respond to specialized evaluation studies throughout the PPBE process. Provide JSCBIS database management. | 5.184 | 6.255 | 5.766 |
| ***Title:*** 5) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.390 | - |
| **Accomplishments/Planned Programs Subtotals** | 33.907 | 29.438 | 26.965 |

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

N/A

**D. Acquisition Strategy**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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* |

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| O49: *JOINT CONCEPT DEVELOPMENT AND EXPERIMENTATION PROGRAM* | 5.630 | 2.310 | 1.897 | - | 1.897 | 1.963 | 2.007 | 2.050 | 2.050 | 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) JCDE | 5.630 | 2.279 | 1.897 |
| ***FY 2011 Accomplishments:***<br>Supported the Joint Combat Developer for Experimentation (JCDE) 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 2012 Plans:***<br>Continue to support the Joint Combat Developer for Experimentation (JCDE) 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 2013 Plans:***<br>Support the Joint Combat Developer for Experimentation (JCDE) 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. | | | |
| ***Title:*** 2) SBIR | - | 0.031 | - |
| ***FY 2012 Plans:***<br>Small Business Innovative Research. | | | |
| **Accomplishments/Planned Programs Subtotals** | 5.630 | 2.310 | 1.897 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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* |

**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 2013 Chemical and Biological Defense Program | DATE: February 2012 |
|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Program Element | 13.720 | - | - | - | - | - | - | - | - | 0.000 | 13.720 |
| SB6: *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)* | 13.720 | - | - | - | - | - | - | - | - | 0.000 | 13.720 |

**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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total |
|---|---|---|---|---|---|
| Previous President's Budget | - | - | - | - | - |
| Current President's Budget | 13.720 | - | - | - | - |
| Total Adjustments | 13.720 | - | - | - | - |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | 13.720 | - | | | |
| • Other Adjustments | - | - | - | - | - |

**Change Summary Explanation**

Funding: FY11 - Funding transferred and applied to SBIR program (+$13,720K).

Schedule: N/A

Technical: N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SB6: *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)* | 13.720 | - | - | - | - | - | - | - | - | 0.000 | 13.720 |
| 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.

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.

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) SBIR | 13.720 | - | - |
| ***FY 2011 Accomplishments:***<br>Small Business Innovative Research. | | | |
| ***FY 2012 Plans:***<br>Small Business Innovative Research. | | | |
| **Accomplishments/Planned Programs Subtotals** | 13.720 | - | - |

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Chemical and Biological Defense Program | DATE: February 2012 |
|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Program Element | 6.521 | 15.956 | 14.745 | - | 14.745 | 11.307 | 13.499 | 10.447 | 23.606 | Continuing | Continuing |
| IP7: *INDIVIDUAL PROTECTION (OP SYS DEV)* | - | - | - | - | - | 0.500 | 2.501 | 1.490 | 1.490 | Continuing | Continuing |
| IS7: *INFORMATION SYSTEMS (OP SYS DEV)* | 1.789 | 6.911 | 10.091 | - | 10.091 | 6.618 | 4.090 | 5.615 | 9.915 | Continuing | Continuing |
| MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)* | - | 5.448 | 0.498 | - | 0.498 | 0.499 | 3.266 | 0.496 | 9.355 | Continuing | Continuing |
| TE7: *TEST & EVALUATION (OP SYS DEV)* | 4.732 | 3.597 | 4.156 | - | 4.156 | 3.690 | 3.642 | 2.846 | 2.846 | Continuing | Continuing |

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

This program element supports developmental 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 includes: (1) the upgrade and modernization of information systems; (2) the Joint Program Executive Office for Chemical Biological Defense (JPEO-CBD) Software Support Activity (SSA); (3) the upgrade and modernization of medical systems; and (4) revitalization and technical upgrade of existing instrumentation and equipment at Dugway Proving Ground (DPG).

| B. Program Change Summary ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 6.634 | 15.956 | 9.872 | - | 9.872 |
| Current President's Budget | 6.521 | 15.956 | 14.745 | - | 14.745 |
| Total Adjustments | -0.113 | - | 4.873 | - | 4.873 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | -0.079 | - | | | |
| • Other Adjustments | -0.034 | - | 4.873 | - | 4.873 |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Chemical and Biological Defense Program | DATE: February 2012 |
|---|---|
| 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)* |

**Change Summary Explanation**

Funding: FY13

+$4,873M Other Adjustments (IS7 +$4,059K; MB7 +$6K; TE7 +$808K)

Schedule: N/A

Technical: N/A

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 (OP SYS DEV)* | |

| COST ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IP7: *INDIVIDUAL PROTECTION (OP SYS DEV)* | - | - | - | - | - | 0.500 | 2.501 | 1.490 | 1.490 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

**Note**

This R-2A Plan is strictly for planning purposes; no funds are requested in this FY

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

N/A

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** N/A | - | - | - |
| ***FY 2011 Accomplishments:***<br>N/A | | | |
| **Accomplishments/Planned Programs Subtotals** | - | - | - |

**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 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IS7: *INFORMATION SYSTEMS (OP SYS DEV)* | 1.789 | 6.911 | 10.091 | - | 10.091 | 6.618 | 4.090 | 5.615 | 9.915 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

This Project provides for the upgrade and modernization of fielded Information Systems including the Joint Effects Model (JEM) and the Joint Warning and Reporting Network (JWARN). Also this Project provides for 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; high altitude releases, urban Nuclear Biological Chemical (NBC) environments; building interiors, and human performance degradation. 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 interfaces and communicates with the other programs such as JWARN, weather systems, intelligence systems, and various databases.

The Joint Warning and Reporting Network (JWARN) will provide the Joint Forces with a comprehensive Integrated Early Warning, 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 CBRN warning technology which will collect, analyze, identify, locate, report, and disseminate warnings. JWARN will be compatible and integrated with Joint Service C4ISR Systems. JWARN will transition from platform specific Common Operating Environment (COE) standards to a Web-based Service Oriented Architecture (SOA). JWARN will also 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. 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 and 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 JWARN capability described above will be developed utilizing an incremental approach based on Service requirements and host system architecture.

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

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

Warfighter's ability to communicate 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) JEM Command and Control (C2) Modernization Efforts<br>***FY 2012 Plans:***<br>Upgrade fielded JEM software due to changing C2 host architectures, systems, and standards in order to remain relevant on required, interoperable platforms. Perform test and evaluation of updated JEM software baseline.<br>***FY 2013 Plans:***<br>Continue efforts to upgrade fielded JEM software due to changing C2 host architectures, systems, and standards in order to remain relevant on required, interoperable platforms. Perform test and evaluation of updated JEM software baseline. | - | 0.796 | 0.831 |
| ***Title:*** 2) JEM Pre-Planned Product Improvement (P3I)<br>***FY 2012 Plans:***<br>Develop, test, and integrate previously fielded JEM software with science and technology upgrades and model enhancements to improve JEM accuracy and precision. Improve JEM architecture and overall performance through software updates and deficiency resolution.<br>***FY 2013 Plans:***<br>Continue efforts to develop, test, and integrate previously fielded JEM software with science and technology upgrades and model enhancements to improve JEM accuracy and precision. Improve JEM architecture and overall performance through software updates and deficiency resolution. | - | 1.963 | 1.469 |
| ***Title:*** 3) JWARN<br>***Description:*** System Modernization/Update Development<br>***FY 2012 Plans:***<br>Initiate engineering and manufacturing development to upgrade existing, operational JWARN Systems in order to maintain interoperability, efficiency and functionality within the targeted C2 systems.<br>***FY 2013 Plans:***<br>Continue engineering and manufacturing development to upgrade existing, operational JWARN Systems in order to maintain interoperability, efficiency and functionality within the targeted C2 systems. | - | 1.687 | 4.124 |
| ***Title:*** 4) JWARN<br>***Description:*** Program Management Support | - | 0.223 | 0.473 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2012 Plans:***<br>Perform program financial management, scheduling, planning and reporting support to modernization effort of JWARN.<br>***FY 2013 Plans:***<br>Continue JWARN program financial management, scheduling, planning and reporting support to modernization effort. | | | |
| ***Title:*** 5) JWARN<br>***Description:*** Test and Evaluation<br>***FY 2012 Plans:***<br>Initiate required government developmental testing on JWARN software updates and modernization efforts.<br>***FY 2013 Plans:***<br>Continue required governmental developmental testing on JWARN software updates and modernization efforts. | - | 0.337 | 1.336 |
| ***Title:*** 6) JWARN<br>***Description:*** Technical Support<br>***FY 2012 Plans:***<br>Initiate engineering and technical support efforts to support JWARN modernization.<br>***FY 2013 Plans:***<br>Continue engineering and technical support for JWARN modernization efforts. | - | 0.302 | 0.538 |
| ***Title:*** 7) SSA Policies, Standards and Guidelines<br>***FY 2011 Accomplishments:***<br>Provided ISP development support for JPEO-CBD programs. Continued to provide Modeling and Simulation (M&S) Accreditation Steering Group Support. Provided guidance and support to JPEO-CBD programs ensuring compliance with Service Net Centric requirements.<br>***FY 2012 Plans:***<br>Continue to provide ISP development support for JPEO-CBD programs. Continue to provide Modeling and Simulation Accreditation Steering Group Support. Continue to provide guidance and support to JPEO-CBD programs ensuring compliance with Service Net Centric requirements.<br>***FY 2013 Plans:*** | 0.457 | 0.383 | 0.273 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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 Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Provide ISP development support for JPEO-CBD programs and the Modeling and Simulation Accreditation Steering Group. | | | |
| ***Title:*** 8) SSA Integrated Architecture<br><br>***FY 2011 Accomplishments:***<br>Provided and updated program of record integrated architectures. Provided Net-Centric Policy implementation assistance. Supported Common CBRN Sensor Interface (CCSI) Standard updates. Provided CCSI reference implementation. Provided support of enterprise tools and common capabilities to ensure relevance across CBRN programs.<br><br>***FY 2012 Plans:***<br>Continue to provide and update program of record integrated architectures. Continue to provide Net-Centric Policy implementation assistance. Continue to support CCSI updates. Continue to provide CCSI reference implementation. Continue support of enterprise tools and common capabilities to ensure relevance across CBRN programs.<br><br>***FY 2013 Plans:***<br>Provide and update program of record integrated architectures and provide Net-Centric Policy implementation assistance. Continue to support CCSI updates. Continue to provide CCSI reference implementation. Support the enterprise tools and common capabilities to ensure relevance across CBRN programs. | 0.580 | 0.462 | 0.271 |
| ***Title:*** 9) SSA Chemical, Biological, Radiological, Nuclear (CBRN) Data Model<br><br>***FY 2011 Accomplishments:***<br>Provided CBRN Data Model implementation guidance including reference implementation. Analyzed requirements and assisted programs with implementation of the CBRN data model. Supported Data Model implementations and emerging CBRN programs including requirements for data elements in relation to Bio-surveillance initiatives.<br><br>***FY 2012 Plans:***<br>Continue to provide Data Model Implementation Guidance. Continue to develop and provide CBRN Data Model implementation guidance including reference implementation. Continue to analyze requirements and assist programs with implementation of the CBRN data model. Continue to support data model changes. Support Data Model requirements for Bio-surveillance initiatives.<br><br>***FY 2013 Plans:***<br>Provide changes to CBRN data models. Support Data Model requirements for Bio-surveillance initiatives. | 0.579 | 0.465 | 0.289 |
| ***Title:*** 10) SSA Information Assurance<br><br>***FY 2011 Accomplishments:*** | 0.173 | 0.202 | 0.487 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continued providing Information Assurance Site Compliance Testing for JPEO-CBD. Continued to provide Information Assurance Certification/Acceptance products and services for JPEO-CBD programs.<br>***FY 2012 Plans:***<br>Provide Information Assurance Site Compliance Testing for JPEO-CBD. Continue to provide Information Assurance Certification/ Acceptance products and services.<br>***FY 2013 Plans:***<br>Provide Information Assurance Site Compliance Testing for JPEO-CBD. Continue to provide Information Assurance Certification/ Acceptance products and services. | | | |
| ***Title:*** 11) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.091 | - |
| **Accomplishments/Planned Programs Subtotals** | 1.789 | 6.911 | 10.091 |

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

N/A

**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. JEM 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 Joint Program Executive Office for Chemical Biological Defense (JPEO-CBD) architectures and technologies, as well as, with Service Command and Control (C2) systems. JEM will develop three distinct increments of software. JEM is a web-services based application and has been granted an Interoperability Certificate by the Joint Interoperability Test Command (JITC). The program plans to award competitive contracts using fixed price or cost-plus as appropriate.

JWARN

JWARN will develop and provide Integrated Early Warning capabilities to specified (Common Operating Environment (COE-based)) operational-level Service Command and Control (C2) systems at the Global Command and Control System (GCCS) level, extend the integration effort into the Service tactical (non COE-based) C2 systems, provide connectivity to legacy and newly developed sensors, and complete the development of JWARN.

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

JWARN will extend these baseline capabilities to emerging, net-centric, Service C2 systems and Service CBRN sensors and detectors as they are developed and fielded. JWARN will also ensure CBRN warning and reporting capabilities remain synchronized with the changing demands of the Warfighter while keeping pace with evolving C2 systems and their architectures, and will further evolve by integrating next generation sensors, detectors and emerging Medical and Biological Surveillance requirements into the CBRN Enterprise.

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. (BA5 - System Development and Demonstration).

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 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JEM - SW SB - JEM | C/CPIF | Various: | - | 1.961 | Mar 2012 | 1.652 | Apr 2013 | - | | 1.652 | Continuing | Continuing | 0.000 |
| ** JWARN - SW S - JWARN | C/CPAF | TBD: | - | 1.686 | Feb 2012 | 2.625 | Feb 2013 | - | | 2.625 | Continuing | Continuing | 0.000 |
| ** SSA - HW S - Development Services | MIPR | SPAWAR System Center:San Diego, CA | 2.002 | 0.702 | Feb 2012 | 0.478 | Feb 2013 | - | | 0.478 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 2.002 | 4.349 | | 4.755 | | - | | 4.755 | | | 0.000 |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JEM - ES SB - JEM Increment 1 | C/CPAF | Various: | - | 0.798 | Mar 2012 | 0.648 | Apr 2013 | - | | 0.648 | Continuing | Continuing | 0.000 |
| ** JWARN - TD/D SB - JWARN | MIPR | Various: | - | 0.303 | Feb 2012 | 1.336 | Feb 2013 | - | | 1.336 | Continuing | Continuing | 0.000 |
| ** SSA - ES S - Develop Support Activities | MIPR | SPAWAR Systems Center:San Diego, CA | 2.040 | 0.300 | Feb 2012 | 0.313 | Feb 2013 | - | | 0.313 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 2.040 | 1.401 | | 2.297 | | - | | 2.297 | | | 0.000 |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JWARN - DTE SB - JWARN | MIPR | Various: | 0.100 | 0.337 | Feb 2012 | 1.787 | Feb 2013 | - | | 1.787 | Continuing | Continuing | 0.000 |
| ** SSA - OTHT S - Integration Verification and Valuation (IV&V) | MIPR | SPAWAR Systems Center:San Diego, CA | 2.138 | 0.510 | Feb 2012 | 0.529 | Feb 2013 | - | | 0.529 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 2.238 | 0.847 | | 2.316 | | - | | 2.316 | | | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

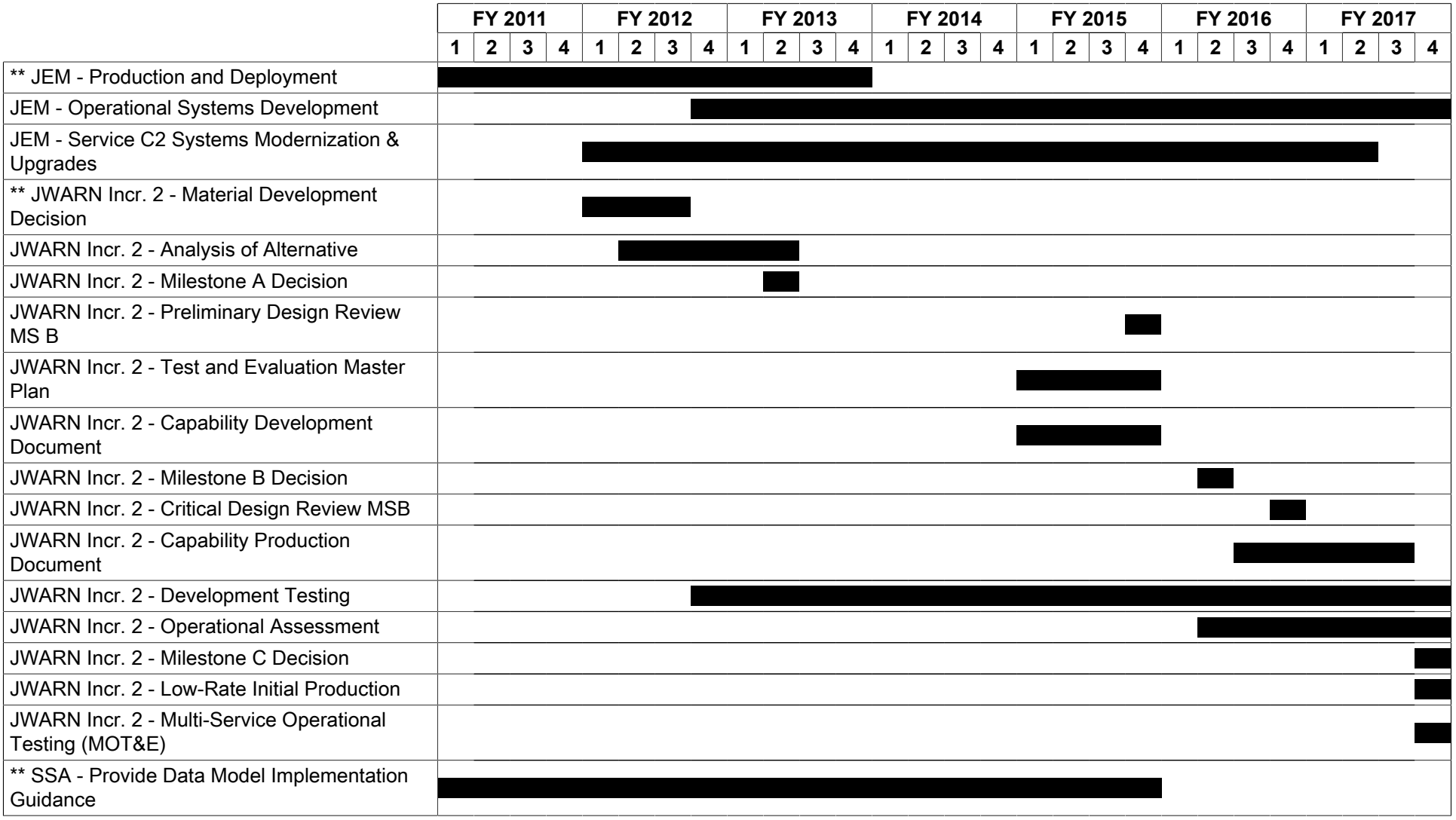
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JWARN - PM/MS S - JWARN | MIPR | Various: | - | 0.223 | Feb 2012 | 0.723 | Feb 2013 | - | | 0.723 | Continuing | Continuing | 0.000 |
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 0.091 | | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | - | 0.314 | | 0.723 | | - | | 0.723 | | | 0.000 |

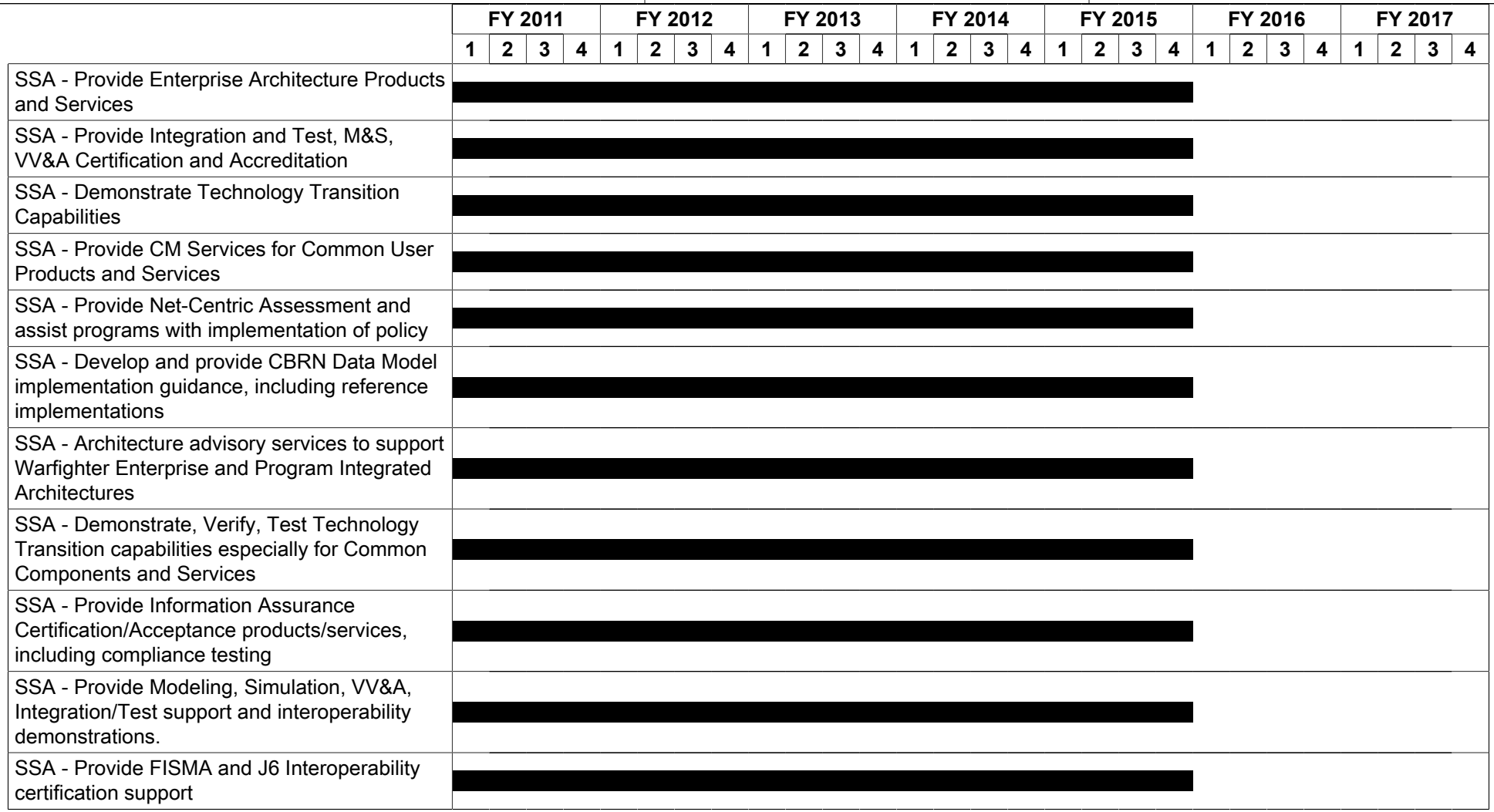
| | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 6.280 | 6.911 | | 10.091 | | - | | 10.091 | | | 0.000 |

**Remarks**

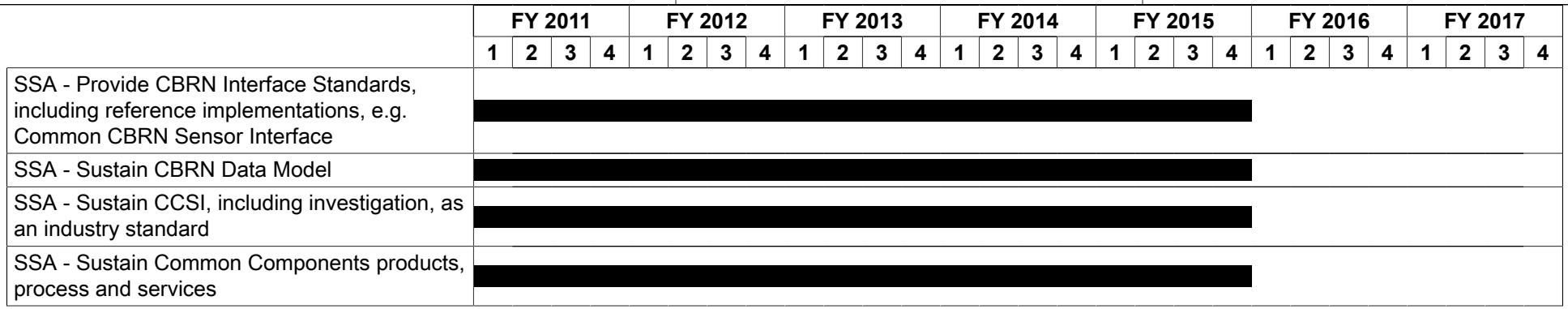
| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>0400: *Research, Development, Test & Evaluation, Defense-Wide*<br>BA 7: *Operational Systems Development* | R-1 ITEM NOMENCLATURE<br>PE 0607384BP: *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)* | PROJECT<br>IS7: *INFORMATION SYSTEMS (OP SYS DEV)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** JEM - Production and Deployment | 1 | 2011 | 4 | 2013 |
| JEM - Operational Systems Development | 4 | 2012 | 4 | 2017 |
| JEM - Service C2 Systems Modernization & Upgrades | 1 | 2012 | 2 | 2017 |
| ** JWARN Incr. 2 - Material Development Decision | 1 | 2012 | 3 | 2012 |
| JWARN Incr. 2 - Analysis of Alternative | 2 | 2012 | 2 | 2013 |
| JWARN Incr. 2 - Milestone A Decision | 2 | 2013 | 2 | 2013 |
| JWARN Incr. 2 - Preliminary Design Review MS B | 4 | 2015 | 4 | 2015 |
| JWARN Incr. 2 - Test and Evaluation Master Plan | 1 | 2015 | 4 | 2015 |
| JWARN Incr. 2 - Capability Development Document | 1 | 2015 | 4 | 2015 |
| JWARN Incr. 2 - Milestone B Decision | 2 | 2016 | 2 | 2016 |
| JWARN Incr. 2 - Critical Design Review MSB | 4 | 2016 | 4 | 2016 |
| JWARN Incr. 2 - Capability Production Document | 3 | 2016 | 3 | 2017 |
| JWARN Incr. 2 - Development Testing | 4 | 2012 | 4 | 2017 |
| JWARN Incr. 2 - Operational Assessment | 2 | 2016 | 4 | 2017 |
| JWARN Incr. 2 - Milestone C Decision | 4 | 2017 | 4 | 2017 |
| JWARN Incr. 2 - Low-Rate Initial Production | 4 | 2017 | 4 | 2017 |
| JWARN Incr. 2 - Multi-Service Operational Testing (MOT&E) | 4 | 2017 | 4 | 2017 |
| ** SSA - Provide Data Model Implementation Guidance | 1 | 2011 | 4 | 2015 |
| SSA - Provide Enterprise Architecture Products and Services | 1 | 2011 | 4 | 2015 |
| SSA - Provide Integration and Test, M&S, VV&A Certification and Accreditation | 1 | 2011 | 4 | 2015 |
| SSA - Demonstrate Technology Transition Capabilities | 1 | 2011 | 4 | 2015 |
| SSA - Provide CM Services for Common User Products and Services | 1 | 2011 | 4 | 2015 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| SSA - Provide Net-Centric Assessment and assist programs with implementation of policy | 1 | 2011 | 4 | 2015 |
| SSA - Develop and provide CBRN Data Model implementation guidance, including reference implementations | 1 | 2011 | 4 | 2015 |
| SSA - Architecture advisory services to support Warfighter Enterprise and Program Integrated Architectures | 1 | 2011 | 4 | 2015 |
| SSA - Demonstrate, Verify, Test Technology Transition capabilities especially for Common Components and Services | 1 | 2011 | 4 | 2015 |
| SSA - Provide Information Assurance Certification/Acceptance products/services, including compliance testing | 1 | 2011 | 4 | 2015 |
| SSA - Provide Modeling, Simulation, VV&A, Integration/Test support and interoperability demonstrations. | 1 | 2011 | 4 | 2015 |
| SSA - Provide FISMA and J6 Interoperability certification support | 1 | 2011 | 4 | 2015 |
| SSA - Provide CBRN Interface Standards, including reference implementations, e.g. Common CBRN Sensor Interface | 1 | 2011 | 4 | 2015 |
| SSA - Sustain CBRN Data Model | 1 | 2011 | 4 | 2015 |
| SSA - Sustain CCSI, including investigation, as an industry standard | 1 | 2011 | 4 | 2015 |
| SSA - Sustain Common Components products, process and services | 1 | 2011 | 4 | 2015 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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>MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)* | |

| COST ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)* | - | 5.448 | 0.498 | - | 0.498 | 0.499 | 3.266 | 0.496 | 9.355 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | | | |

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

This Project provides for the upgrade and modernization of fielded Medical Biological defense equipment/systems including the Joint Biological Agent Identification and Diagnostic System (JBAIDS).

JBAIDS is an evolutionary development program. JBAIDS is a commercial off-the-shelf development/production effort started in August 2003 that focused on rapid development and fielding efforts to deliver a critical capability to identify bacteria and virus agents in environmental surveillance sample types. By 2005, 16 biological warfare (BW) agent surveillance detection kits were fielded along with the first JBAIDS in vitro diagnostic (IVD) assay cleared by the U.S. Food and Drug Administration (FDA). JBAIDS currently has seven IVD kits cleared by the FDA, e.g. Anthrax, Plague, Tularemia, Q-Fever, H5 Avian, Influenza A&B, etc. An expanded influenza detection panel covering six new assays were cleared on Sept 13, 2011. Additionally, the JBAIDS Platinum Path Extraction Kit (PPEK) Bridging Study contract was awarded on Oct 20, 2011; this study will allow the PPEK to be used on the Anthrax, Plague, and Tularemia IVD kits. JBAIDS achieved full operational capability (340 systems delivered all Services) in July 2011. Future JBAIDS efforts in 2012-2016 using MB7 RDT&E funding, will focus on adding new surveillance food and water pathogen detection assays and starting the Glanders (Burkholderia) IVD kit effort. Also the development team will focus on completing two Pre-Emergency Use Authorization (Pre-EUA's) packages annually for FDA review. These sustainment RDT&E funds will also be used to conduct software security information assurance (IA) updates on fielded software and monitor analyzer/laptop parts obsolescence.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) JBAIDS<br>***FY 2012 Plans:***<br>Initiate development and integration of additional surveillance assay and diagnostic kits. | - | 4.402 | - |
| ***Title:*** 2) JBAIDS<br>***FY 2012 Plans:***<br>Conduct annual Federal Information Security Management Act (FISMA) software compliance certifications and parts obsolescence.<br>***FY 2013 Plans:***<br>Conduct annual Federal Information Security Management Act (FISMA) software compliance certifications and parts obsolescence. | - | 0.424 | 0.295 |
| ***Title:*** 3) JBAIDS | - | 0.549 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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>MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***FY 2012 Plans:***<br>Initiate Pre-Emergency Use Authorizations (EUA) packages for smallpox and orthopox. | | | |
| ***Title:*** 4) JBAIDS | - | - | 0.203 |
| ***FY 2013 Plans:***<br>Initiate Pre-Emergency Use Authorizations (EUA) packages for Hantavirus. | | | |
| ***Title:*** 5) SBIR | - | 0.073 | - |
| ***FY 2012 Plans:***<br>Small Business Innovative Research. | | | |
| **Accomplishments/Planned Programs Subtotals** | - | 5.448 | 0.498 |

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

N/A

**D. Acquisition Strategy**

JBAIDS

The Government JBAIDS program office plans an open competitive source selection to select the contractor to design and manufacture the additional surveillance assay kits to detect food and water pathogens (e.g., E coli, Salmonella, Cryptosporidium) along with diagnostic kits to detect Tier 2 Joint Operational Requirements Document (JORD) threat agents. Also, the JBAIDS program office plans to work with and MIPR funds to another JPEO-CBD activity (JPM-IS) to conduct the annual JBAIDS Federal Information Security Management Act (FISMA) software compliance certification in addition to any logistics sustainment issues associated with parts obsolescence. Additionally, the JBAIDS program office plans to partner with and MIPR funds to the US Army Medical Institute of Infectious Diseases (USAMRIID) to development FDA Pre-Emergency Use Authorization (EUA) packages for (e.g., Ebola, Marburg, and Smallpox diseases) that could be used as biological warfare threats to DoD military forces. JBAIDS program office will award a sole-source contract to the JBAIDS prime contractor, Idaho Technology Inc., to replace laptops and software operating systems in 340 deployed JBAIDS worldwide due to parts obsolescence and unsupportable Microsoft software (Microsoft XP Professional).

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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>MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)* | |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JBAIDS - HW S - Assay development | C/FFP | TBD: | - | 3.382 | May 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | - | 3.382 | | - | | - | | - | | | 0.000 |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JBAIDS - TD/D SB - Software Update & Parts Obsolescence | C/FFP | TBD: | - | 0.325 | May 2012 | 0.295 | May 2013 | - | | 0.295 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | - | 0.325 | | 0.295 | | - | | 0.295 | | | 0.000 |

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

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JBAIDS - OTHT S - EUA packages | MIPR | USAMRIID:Fort Detrick, MD | - | 0.249 | Feb 2012 | 0.203 | Feb 2013 | - | | 0.203 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | - | 0.249 | | 0.203 | | - | | 0.203 | | | 0.000 |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** JBAIDS - PM/MS S - Project Management | MIPR | TBD: | - | 0.150 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| PM/MS S - Project Management | PO | Goldbelt Raven LLC:Frederick, MD | - | 0.769 | May 2012 | - | | - | | - | Continuing | Continuing | 0.000 |
| PM/MS S - Project Management #2 | Allot | CBMS:Fort Detrick, MD | - | 0.500 | Feb 2012 | - | | - | | - | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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>MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)* |

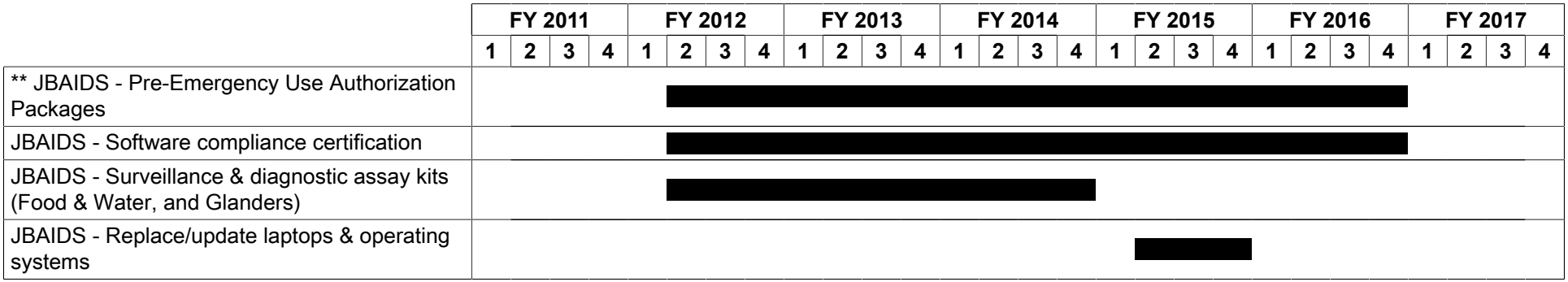
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 0.073 | | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | - | 1.492 | | - | | - | | - | | | 0.000 |

| | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | - | 5.448 | | 0.498 | | - | | 0.498 | | | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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>MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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>MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** JBAIDS - Pre-Emergency Use Authorization Packages | 2 | 2012 | 4 | 2016 |
| JBAIDS - Software compliance certification | 2 | 2012 | 4 | 2016 |
| JBAIDS - Surveillance & diagnostic assay kits (Food & Water, and Glanders) | 2 | 2012 | 4 | 2014 |
| JBAIDS - Replace/update laptops & operating systems | 2 | 2015 | 4 | 2015 |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | | DATE: February 2012 |
|---|---|---|---|
| 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 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TE7: *TEST & EVALUATION (OP SYS DEV)* | 4.732 | 3.597 | 4.156 | - | 4.156 | 3.690 | 3.642 | 2.846 | 2.846 | 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 West Desert Test Center (WDTC), located at Dugway Proving Ground (DPG), a Major Range and Test Facility Base (MRTFB), in support of their Chemical and Biological (CB) test mission.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| ***Title:*** 1) WDTC - MRTFB - Life Sciences Test Facility | 1.202 | 0.902 | 1.109 |

***FY 2011 Accomplishments:***

Provided upgrades of the Life Sciences Test Facility instrumentation and equipment at West Desert Test Center (WDTC), located 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 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) Procurement of aerosol samplers for chamber and field tests; (5) Enhancement of genotyping system to determine genetic identity of biological samples and procure genotyping analysis software to determine genetic identity of biological samples; (6) Upgrade of aerosol particles generation capabilities for standoff and point detector characterization; and, (7) Procurement of microbiological laboratory equipment needed to fully utilize BSL-3 laboratories.

***FY 2012 Plans:***

Continue to provide upgrades of the Life Sciences Test Facility instrumentation and equipment at WDTC, in support of their CB defense mission. This is the only U.S. facility equipped to test with aerosolized 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) Enhancing genotyping system and procure genotyping analysis software to determine genetic identity of biological samples; (6) Upgrade aerosol particles generation capabilities for standoff and point detector characterization; and, (7) Procurement of microbiological laboratory equipment needed to fully utilize BSL-3 laboratories.

***FY 2013 Plans:***

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| Continue to provide upgrades of the Life Sciences Test Facility instrumentation and equipment at WDTC, in support of their CB defense mission. This is the only U.S. facility equipped to test with aerosolized 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) Enhancing genotyping system and procure genotyping analysis software to determine genetic identity of biological samples; (6) Upgrade aerosol particles generation capabilities for standoff and point detector characterization; and, (7) Procurement of microbiological laboratory equipment needed to fully utilize BSL-3 laboratories. | | | |
| ***Title:*** 2) WDTC - MRTFB - Major Test Facilities | 1.004 | 0.782 | 0.802 |
| ***FY 2011 Accomplishments:***<br>Provided for modernization of existing instrumentation and equipment in the major test chambers at WDTC, 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 surety test facilities and laboratories used for the testing of protective material with 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 can be 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) Continued development of a chemical aerosol generation and sampling capability; and (2) Characterization of improved and/or articulated testing fixtures; and (3) Continued enhancement of Toxic Industrial Chemical (TIC) detection and test capability; and (4) Non-Traditional Agent test and detection capability. | | | |
| ***FY 2012 Plans:***<br>Continue to provide for modernization of existing instrumentation and equipment in the major test chambers at WDTC, in support of the CB defense mission. These consist of the following: (1) the MTF, which is a unique test chamber where real-world decontamination operations can be tested; (2) Building 4165, which houses updated surety test facilities and laboratories used for the testing of protective material with chemical agents and simulants; and the (3) Aerosol Test Facility, which houses simulant vapor test chamber and an aerosol test chamber. Modernization of instrumentation in the chambers includes: (1) Continue development of a aerosol generation and sampling capability; and (2) Characterization of improved and/or articulated testing fixtures; and (3) Continuous enhancement of TIC detection and test capability; and (4) NTA test and detection capability. | | | |
| ***FY 2013 Plans:***<br>Continue to provide for modernization of existing instrumentation and equipment in the major test chambers at WDTC, in support of the CB defense mission. These consist of the following: (1) the MTF which is a unique test chamber where real-world decontamination operations can be tested; (2) Building 4165, which houses updated surety test facilities and laboratories used for the testing of chemical protective material with chemical agents and simulants; and the (3) Aerosol Test Facility, which | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| houses simulant vapor test chamber and an aerosol test chamber. Modernization of instrumentation in the chambers include: (1) Continue development of a aerosol generation and sampling capability; and (2) Characterization of improved and/or articulated testing fixtures; and (3) Continue enhancement of TIC detection and test capability; and (4) NTA test and detection capability. | | | |
| ***Title:*** 3) WDTC - MRTFB - CB Test Grids | 1.042 | 0.779 | 0.884 |
| ***FY 2011 Accomplishments:***<br>Enhanced existing instrumentation and equipment at the Target S, Downwind, and Tower Outdoor Test Grids at WDTC, in support of their CB defense mission. Efforts addressed requirements not addressed by the Program Director Test and Evaluation Support Services (PD TESS) Test Grid project. The Outdoor Test Grids are critical for all Developmental Tests/Operational Tests of CB defense systems. Continuing modernization efforts included: (1) Remotely controlled simulant dissemination systems; (2) Updated referee instruments; (3) Real-time data network; (4) Development of NTA field simulants and monitoring equipment. | | | |
| ***FY 2012 Plans:***<br>Continue to enhance existing instrumentation and equipment at the Target S, Downwind, and Tower Outdoor Test Grids at WDTC, in support of their CB defense mission. Efforts are to address requirements not addressed by the PD TESS Test Grid project. The CB Test Grid is critical for all Developmental Tests/Operational Tests of CB defense systems. Continuing modernization efforts will include: (1) Development of NTA field simulants and monitoring equipment; (2) Increased Toxic Industrial Chemicals (TIC) testing capability for both point and standoff referee systems; (3) Adding testing capability to support expanded use of Agent Like Organisms (ALOs); and (4) Continuous update of referee systems; (5) Raptor management and control to support testing without affecting eagles and migratory birds. | | | |
| ***FY 2013 Plans:***<br>Continue to enhance existing instrumentation and equipment at the Target S, Downwind, and Tower Outdoor Test Grids at WDTC, in support of their CB defense mission. Efforts are to address requirements not addressed by the PD TESS Test Grid project. The CB Test Grid is critical for all Developmental Tests/Operational Tests of CB defense systems. Continuing 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) Adding testing capability to support expanded use of ALOs; (4) Continuous update of referee systems; (5) Expanded efforts for raptor management and control to support testing without affecting eagles and migratory birds. | | | |
| ***Title:*** 4) WDTC - MRTFB - Combined Chemical Test Facility | 1.484 | 1.087 | 1.361 |
| ***FY 2011 Accomplishments:***<br>Provided for revitalization and upgrade of existing instrumentation and equipment at the Combined Chemical Test Facility (CCTF) at WDTC, in support of their CB test mission. The CCTF tests the capability of detectors, decontaminants, and protective systems to defend against toxic chemical agents. This project upgraded analytical and field instrumentation with current technology to | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|
| include: (1) Characterization of new and upgraded test fixtures; (2) Control systems for small chambers; (3) Installation support for swatch testing capability; (4) Upgrade to CB Safari instrumentation in support of Navy ship collective protection test efforts; (5) Expanded test capabilities for large filter performance; (6) Referee agent instrumentation.<br>***FY 2012 Plans:***<br>Provides for continued revitalization and upgrade of existing instrumentation and equipment at the CCTF at WDTC, in support of their CB test mission. The CCTF 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; and (2) Upgraded control systems for small chambers; (3) Swatch testing capability; (4) Installation support for swatch testing capability; (5) Upgrade to CB Safari instrumentation in support of Navy ship collective protection test efforts; (6) Expanded test capabilities for large filter performance; (7) Referee agent instrumentation.<br>***FY 2013 Plans:***<br>Provides for continued revitalization and upgrade of existing instrumentation and equipment at the CCTF at WDTC, in support of their CB test mission. The CCTF 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; and (2) Upgraded control systems for small chambers; (3) Swatch testing capability; (4) Installation support for swatch testing capability; (5) Upgrade to CB Safari instrumentation in support of Navy ship collective protection test efforts; (6) Expanded test capabilities for large filter performance; (7) Referee agent instrumentation. | | | |
| ***Title:*** 5) SBIR<br>***FY 2012 Plans:***<br>Small Business Innovative Research. | - | 0.047 | - |
| **Accomplishments/Planned Programs Subtotals** | 4.732 | 3.597 | 4.156 |

**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 WDTC capabilities for Biological and Chemical testing of DoD CB materiel, weapons, and weapons systems from concept through production.

| Exhibit R-2A, RDT&E Project Justification: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** T&E UPGRAD - OTHT S - Technology Upgrades - WDTC, UT | MIPR | West Desert Test Center:DPG, UT | 9.537 | 3.550 | Aug 2012 | 4.156 | Aug 2013 | - | | 4.156 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 9.537 | 3.550 | | 4.156 | | - | | 4.156 | | | 0.000 |

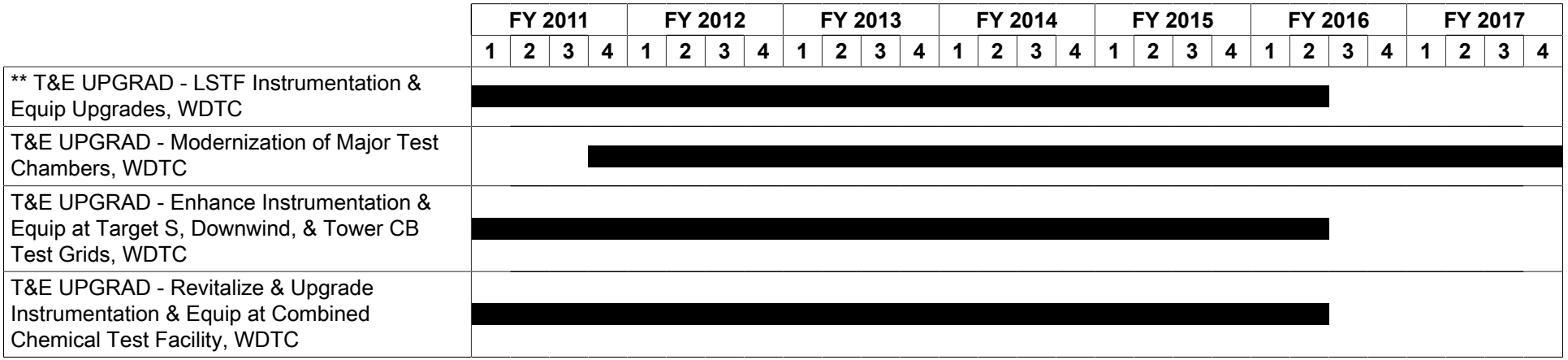
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** ZSBIR - SBIR/STTR - Aggregated from ZSBIR-SBIR/STTR | PO | HQ:AMC, Alexandria | - | 0.047 | | - | | - | | - | Continuing | Continuing | 0.000 |
| | | **Subtotal** | - | 0.047 | | - | | - | | - | | | 0.000 |

| | Total Prior Years Cost | FY 2012 Cost | FY 2012 Award Date | FY 2013 Base Cost | FY 2013 Base Award Date | FY 2013 OCO Cost | FY 2013 OCO Award Date | FY 2013 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 9.537 | 3.597 | | 4.156 | | - | | 4.156 | | | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| 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)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Chemical and Biological Defense Program | | DATE: February 2012 |
|---|---|---|
| **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 | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| ** T&E UPGRAD - LSTF Instrumentation & Equip Upgrades, WDTC | 1 | 2011 | 2 | 2016 |
| T&E UPGRAD - Modernization of Major Test Chambers, WDTC | 4 | 2011 | 4 | 2017 |
| T&E UPGRAD - Enhance Instrumentation & Equip at Target S, Downwind, & Tower CB Test Grids, WDTC | 1 | 2011 | 2 | 2016 |
| T&E UPGRAD - Revitalize & Upgrade Instrumentation & Equip at Combined Chemical Test Facility, WDTC | 1 | 2011 | 2 | 2016 |