Department of Defense
Fiscal Year (FY) 2015 Budget Estimates

March 2014

Chemical and Biological Defense Program

Defense Wide Justification Book Volume 4 of 5

Research, Development, Test & Evaluation, Defense-Wide

Table of Volumes

Defense Advanced Research Projects Agency ..... **Volume 1**
Missile Defense Agency ..... **Volume 2**
Office of the Secretary of Defense ..... **Volume 3**
Chemical and Biological Defense Programs ..... **Volume 4**
Defense Contract Management Agency ..... **Volume 5**
Defense Health Program ..... **Volume 5**
Defense Human Resources Activity ..... **Volume 5**
Defense Information Systems Agency ..... **Volume 5**
Defense Logistics Agency ..... **Volume 5**
Defense Security Cooperation Agency ..... **Volume 5**
Defense Security Service ..... **Volume 5**
Defense Technical Information Center ..... **Volume 5**
Defense Threat Reduction Agency ..... **Volume 5**
The Joint Staff ..... **Volume 5**
U.S. Special Operations Command ..... **Volume 5**
Washington Headquarters Service ..... **Volume 5**

Operational Test and Evaluation..... Volume 5

Defense Geospatial Intelligence Agency.....(see NIP and MIP Justification Books)

Defense Intelligence Agency..... (see NIP and MIP Justification Books)

National Security Agency.....(see NIP and MIP Justification Books)

Volume 4 Table of Contents

Introduction and Explanation of Contents.....Volume 4 - iv

Comptroller Exhibit R-1..... Volume 4 - viii

Master Program Element Table of Contents (by Budget Activity then Line Item Number)..... Volume 4 - xiv

Master Program Element Table of Contents (Alphabetically by Program Element Title)..... Volume 4 - xvii

Master Exhibit R-1.....Volume 4 - xviii

Exhibit R-2's.....Volume 4 - 1

Chemical Biological Defense Program Overview

Chemical, biological, radiological, and nuclear (CBRN) threats are dynamic and ever-changing. The rapid advancement and global proliferation of chemical and biological (CB) capabilities greatly extends the spectrum of plausible actors, agents, concepts of use, and targets. These advancements enable our nation's state and non-state adversaries to develop unique CBRN threats with the intent of circumventing our current defenses. To ensure an effective response to these threats, the Department of Defense (DoD) Chemical and Biological Defense Program (CBDP) continuously and actively develops CBRN defensive capabilities to stay ahead of evolving threats. This 2015 budget request includes $1.4 billion to provide 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 CBDP published a new strategy in 2012 to address current defense policy set by public law, National strategies, Departmental Directives and Instructions, and senior leadership guidance. This strategy outlined the CBDP vision and mission of a DoD that addresses CBRN threats and minimizes their effects, and its mission is to enable the Warfighter to deter, prevent, protect, mitigate, respond, and recover from CBRN threats and effects as part of a layered, integrated defense. To support the vision and mission, the CBDP has four enduring strategic goals that define the desired strategic end-states and associated lines of action for the program and its Enterprise Components. These are:

1. *Equip the force* to successfully conduct military operations to prevent, protect, and respond to CBRN threats and effects.
2. *Prevent surprise* by anticipating CBRN threats and developing new capabilities for the Warfighter to counter emerging threats.
3. *Maintain infrastructure* to meet and adapt current and future needs for personnel, equipment, and facilities within funding constraints.
4. *Lead the Enterprise* to integrate and align activities to fulfill the CBDP mission.

Throughout 2013 and going forward, the following strategic program objectives guide efforts to accomplish the *CBDP Strategic Plan* goals:

- Establish a robust MCM pipeline from requirements definition, through Research, Development, Test, and Evaluation (RDT&E) and U.S. Food and Drug Administration (FDA) approval, to manufacturing and distribution. This pipeline shall focus on mitigating current CBRN threats using platform technologies capable of expediting responses to validated known and emerging threats.
- Develop synergistic, technologically advanced environmental surveillance and point-of-need diagnostic capabilities against CBRN threats to enable rapid force protection decisions.

- Provide CBRN defense capabilities to support biosurveillance efforts and enable the Warfighter to achieve information dominance in the CBRN domain.
- Integrate NTA defense capabilities into future CB defense systems, as appropriate.
- Develop and field suitable, effective, and affordable broad-spectrum CB detection capabilities to detect current and emerging CB hazards.
- Maintain critical capabilities and competencies, aligned with RDA priorities, to rapidly develop, test, and field CBRN defensive capabilities to the Warfighter.
- Implement risk-based planning and decision-making processes within the Enterprise.

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 to the warfighter. Emphasis areas are derived from National Strategies, senior leader guidance, and CBDP community priorities. The four key emphasis areas are: medical countermeasures (MCMs), diagnostics, biosurveillance, and non-traditional agent (NTA) defenses.

Medical Countermeasures

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. Program 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.

Diagnostics

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.

Biosurveillance

The CBDP is a key contributor to the Department's efforts in support of the *National Biosurveillance Strategy* and its goal "to achieve **a well-integrated national biosurveillance enterprise that saves lives by providing *essential information* for better decisionmaking at all levels."** The CBDP focus and support are aligned with the four enabling capabilities outlined in the National Biosurveillance Strategy. These are; integrate capabilities, build capacity, foster innovation, and strengthen partnerships. Key CBDP efforts include; focusing on 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; improving the ability to find, track, interdict, and eliminate biological weapons and threats directed against our warfighters and citizens; and strengthening 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. The CBDP is integrating/leveraging various capabilities being developed in other areas across the DoD, Internationally, and within the Interagency in order to provide an enhanced biosurveillance capability.

Non Traditional Agent (NTA) Defense

The 2010 QDR directed the DoD to increase resources for R&D of countermeasures and defenses to NTAs in concert with interagency partners. DoD efforts supporting NTA defense are a key part of an integrated National effort supporting Research, Development, and Acquisition of defensive capabilities. 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.

CBDP Support to FY15 Resource Priorities to Counter Biological Threats (Presidential Policy Directive-2)

The CBDP program activities directly support the 2015 resource priorities for Countering Biological Threats. The policy priorities spell out three focus areas supported directly or tangentially by the CBDP program: 1) Prevent avoidable epidemics 2) Detect threats early and 3) Respond rapidly and effectively. All three priority areas are addressed throughout the CBDP S&T, Advanced Development, and Procurement efforts.

Summary

The CBDP continues to effectively meet today's highest priority needs for DoD CBRN defense solutions while shifting to establish the agility and flexibility necessary to rapidly adapt to the evolving strategic landscape. This ongoing transformation ensures that currently available technologies are produced, procured, and provided swiftly and that cutting-edge technologies are harnessed to provide improved capabilities in the future. The DoD CBDP continued to enhance CBRN readiness to counter known and emerging threats and collaborated with other Government agencies to foster exchange of knowledge and coordination of CB defense-related activities. This budget request supports the CBDP as a Joint Force enabler fulfilling the needs of the Warfighters to ensure that they are trained, equipped, and resourced to complete missions in CBRN environments now and in the future, preserving the security and freedom of our nation.

Department of Defense
FY 2015 President's Budget
Exhibit R-1 FY 2015 President's Budget
Total Obligational Authority
(Dollars in Thousands)

10 Feb 2014

Appropriation	FY 2013 (Base & OCO)	FY 2014 Base Enacted	FY 2014 OCO Enacted	FY 2014 Total Enacted	FY 2015 Base
Research, Development, Test & Eval, DW	1,011,935	1,111,246		1,111,246	1,066,811
Total Research, Development, Test & Evaluation	1,011,935	1,111,246		1,111,246	1,066,811

R-1C1: FY 2015 President's Budget (Published Version), as of February 10, 2014 at 12:13:17

Department of Defense
FY 2015 President's Budget
Exhibit R-1 FY 2015 President's Budget
Total Obligational Authority
(Dollars in Thousands)

10 Feb 2014

Summary Recap of Budget Activities	FY 2013 (Base & OCO)	FY 2014 Base Enacted	FY 2014 OCO Enacted	FY 2014 Total Enacted	FY 2015 Base
Basic Research	45,613	51,426		51,426	48,261
Applied Research	202,700	197,065		197,065	226,317
Advanced Technology Development	214,226	144,847		144,847	132,674
Advanced Component Development And Prototypes	163,464	189,237		189,237	179,236
System Development And Demonstration	268,360	426,299		426,299	345,883
Management Support	103,762	89,346		89,346	105,944
Operational System Development	13,810	13,026		13,026	28,496
Total Research, Development, Test & Evaluation	1,011,935	1,111,246		1,111,246	1,066,811
Summary Recap of FYDP Programs					
Research and Development	1,011,935	1,111,246		1,111,246	1,066,811
Total Research, Development, Test & Evaluation	1,011,935	1,111,246		1,111,246	1,066,811

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Defense-Wide
FY 2015 President's Budget
Exhibit R-1 FY 2015 President's Budget
Total Obligational Authority
(Dollars in Thousands)

10 Feb 2014

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Defense-Wide
FY 2015 President's Budget
Exhibit R-1 FY 2015 President's Budget
Total Obligational Authority
(Dollars in Thousands)

10 Feb 2014

Appropriation	FY 2013 (Base & OCO)	FY 2014 Base Enacted	FY 2014 OCO Enacted	FY 2014 Total Enacted	FY 2015 Base
Chemical and Biological Defense Program	1,011,935	1,111,246		1,111,246	1,066,811
Total Research, Development, Test & Evaluation	1,011,935	1,111,246		1,111,246	1,066,811

R-1C1: FY 2015 President's Budget (Published Version), as of February 10, 2014 at 12:13:17

Defense-Wide
FY 2015 President's Budget
Exhibit R-1 FY 2015 President's Budget
Total Obligational Authority
(Dollars in Thousands)

10 Feb 2014

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

Line No	Program Element Number	Item	Act	FY 2013 (Base & OCO)	FY 2014 Base Enacted	FY 2014 OCO Enacted	FY 2014 Total Enacted	FY 2015 Base	Sec
7	0601384BP	Chemical and Biological Defense Program	01	45,613	51,426		51,426	48,261	U
		Basic Research		45,613	51,426		51,426	48,261	
16	0602384BP	Chemical and Biological Defense Program	02	202,700	197,065		197,065	226,317	U
		Applied Research		202,700	197,065		197,065	226,317	
45	0603384BP	Chemical and Biological Defense Program - Advanced Development	03	214,226	144,847		144,847	132,674	U
		Advanced Technology Development		214,226	144,847		144,847	132,674	
84	0603884BP	Chemical and Biological Defense Program - Dem/Val	04	163,464	189,237		189,237	179,236	U
		Advanced Component Development And Prototypes		163,464	189,237		189,237	179,236	
118	0604384BP	Chemical and Biological Defense Program - EMD	05	268,360	426,299		426,299	345,883	U
		System Development And Demonstration		268,360	426,299		426,299	345,883	
150	0605384BP	Chemical and Biological Defense Program	06	89,100	89,346		89,346	105,944	U
151	0605502BP	Small Business Innovative Research - Chemical Biological Def	06	14,662					U
		Management Support		103,762	89,346		89,346	105,944	
184	0607384BP	Chemical and Biological Defense (Operational Systems Development)	07	13,810	13,026		13,026	28,496	U
		Operational System Development		13,810	13,026		13,026	28,496	
Total Research, Development, Test & Eval, DW				1,011,935	1,111,246		1,111,246	1,066,811	

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Chemical and Biological Defense Program
FY 2015 President's Budget
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10 Feb 2014

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Line No	Program Element Number	Item	Act	FY 2013 (Base & OCO)	FY 2014 Base Enacted	FY 2014 OCO Enacted	FY 2014 Total Enacted	FY 2015 Base	Sec
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		Total Chemical and Biological Defense Program		1,011,935	1,111,246		1,111,246	1,066,811	

R-1C1: FY 2015 President's Budget (Published Version), as of February 10, 2014 at 12:13:17

Master 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

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
7	01	0601384BP	CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)	Volume 4 - 1

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

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
16	02	0602384BP	CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)	Volume 4 - 7

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

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
45	03	0603384BP	CHEMICAL/BIOLOGICAL DEFENSE (ATD)	Volume 4 - 36

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

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
84	04	0603884BP	CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)	Volume 4 - 63

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

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
118	05	0604384BP	CHEMICAL/BIOLOGICAL DEFENSE (EMD)	Volume 4 - 146

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

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
150	06	0605384BP	CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)	Volume 4 - 237
151	06	0605502BP	SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)	Volume 4 - 258

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

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
184	07	0607384BP	CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	Volume 4 - 261

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

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)	0603884BP	84	04	Volume 4 - 63
CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)	0602384BP	16	02	Volume 4 - 7
CHEMICAL/BIOLOGICAL DEFENSE (ATD)	0603384BP	45	03	Volume 4 - 36
CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)	0601384BP	7	01	Volume 4 - 1
CHEMICAL/BIOLOGICAL DEFENSE (EMD)	0604384BP	118	05	Volume 4 - 146
CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	0607384BP	184	07	Volume 4 - 261
CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)	0605384BP	150	06	Volume 4 - 237
SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)	0605502BP	151	06	Volume 4 - 258

Chemical and Biological Defense Program • Budget Estimates FY 2015 • RDT&E Program
Master Exhibit R-1
(Listing by Budget Activity, then Program Element Number)

BA# 01: Basic Research

Line#	BA#	PE#	PE Title	Cost ($ in Millions) Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
7	01	0601384BP	CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)	-	45.613	51.426	48.261	-	48.261
Total: Basic Research				-	45.613	51.426	48.261	-	48.261

BA# 02: Applied Research

Line#	BA#	PE#	PE Title	Cost ($ in Millions) Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
16	02	0602384BP	CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)	-	202.700	197.065	226.317	-	226.317
Total: Applied Research				-	202.700	197.065	226.317	-	226.317

BA# 03: Advanced Technology Development (ATD)

Line#	BA#	PE#	PE Title	Cost ($ in Millions) Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
45	03	0603384BP	CHEMICAL/BIOLOGICAL DEFENSE (ATD)	-	214.226	144.847	132.674	-	132.674

BA# 03: Advanced Technology Development (ATD)

Line#	BA#	PE#	PE Title	Cost ($ in Millions) Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Total: Advanced Technology Development (ATD)				-	214.226	144.847	132.674	-	132.674

BA# 04: Advanced Component Development & Prototypes (ACD&P)

Line#	BA#	PE#	PE Title	Cost ($ in Millions) Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
84	04	0603884BP	CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)	-	163.464	189.237	179.236	-	179.236
Total: Advanced Component Development & Prototypes (ACD&P)				-	163.464	189.237	179.236	-	179.236

BA# 05: System Development & Demonstration (SDD)

Line#	BA#	PE#	PE Title	Cost ($ in Millions) Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
118	05	0604384BP	CHEMICAL/BIOLOGICAL DEFENSE (EMD)	-	268.360	426.299	345.883	-	345.883
Total: System Development & Demonstration (SDD)				-	268.360	426.299	345.883	-	345.883

BA# 06: RDT&E Management Support

Line#	BA#	PE#	PE Title	Cost ($ in Millions) Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
150	06	0605384BP	CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)	-	89.100	89.346	105.944	-	105.944
151	06	0605502BP	SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)	-	14.662	-	-	-	-
Total: RDT&E Management Support				-	103.762	89.346	105.944	-	105.944

BA# 07: Operational Systems Development

Line#	BA#	PE#	PE Title	Cost ($ in Millions) Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
184	07	0607384BP	CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	-	13.810	13.026	28.496	-	28.496
Total: Operational Systems Development				-	13.810	13.026	28.496	-	28.496

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Chemical and Biological Defense Program	**Date:** March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 1: *Basic Research*	**R-1 Program Element (Number/Name)** PE 0601384BP / *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	-	45.613	51.426	48.261	-	48.261	46.832	50.256	49.048	47.821	Continuing	Continuing
LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)*	-	29.606	34.646	31.727	-	31.727	28.939	33.469	32.117	31.314	Continuing	Continuing
PS1: *CHEM/BIO DEFENSE - PHYSICAL SCIENCES (BASIC RESEARCH)*	-	16.007	16.780	16.534	-	16.534	17.893	16.787	16.931	16.507	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

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 those fundamental sciences identified as having potential future impact on the Chemical and Biological Defense Program, 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 translational medical technologies program. 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 within this BA reflect the research areas of (1) Life Sciences (LF1) which focuses on fundamental efforts to investigate molecular signatures, mechanisms of action, recognition, catalysis and biomimetics, as well as agent interactions and evolution, and (2) Physical Sciences (PS1) which focuses on fundamental scientific phenomena including chemistry, physics, materials science, environmental science, and nanotechnology.

The projects in this PE are placed in BA1 because they are basic research efforts directed towards non-specific or non-unique military applications. Basic research technological breakthroughs support applied research (PE 0602384BP) activities.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Chemical and Biological Defense Program	Date: March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 1: *Basic Research*	**R-1 Program Element (Number/Name)** PE 0601384BP / *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	50.566	51.426	52.351	-	52.351
Current President's Budget	45.613	51.426	48.261	-	48.261
Total Adjustments	-4.953	-	-4.090	-	-4.090
• Congressional General Reductions	-0.067	-			
• Congressional Directed Reductions	-4.208	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.678	-			
• Other Adjustments	-	-	-4.090	-	-4.090

Change Summary Explanation

Funding: FY13: Reduction of $4.2M delayed research enabling bacterial and viral therapeutics, development efforts for new diagnostic techniques, and nanotechnology studies.

FY15: Reductions of $4.1M delay the ability to deliver future protection, sensing, and countermeasure technology.

Schedule: N/A

Technical: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program			Date: March 2014
Appropriation/Budget Activity 0400 / 1	R-1 Program Element (Number/Name) PE 0601384BP / *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*	Project (Number/Name) LF1 / *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)*	-	29.606	34.646	31.727	-	31.727	28.939	33.469	32.117	31.314	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

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 2013	FY 2014	FY 2015
Title: 1) Life Sciences	29.606	34.646	31.727

Description: Focuses on fundamental efforts to investigate molecular signatures, mechanisms of action, recognition, catalysis and biomimetics, as well as agent interactions and evolution.

FY 2013 Accomplishments:
Continued previous work emphasizing efforts to understand pathogens, novel threats and host responses (including human and zoonotic). Investigated and evaluated systemic biological responses following exposure of living systems to CB agents. Improved understanding of polymicrobial interactions influencing response to or course of disease. Exploited advances in systems biology to mine "omics" experimental designs involving agents and hosts to provide new biomarkers, targets and options. "Omics" informally refers to a field of study in biology ending in "-omics", such as genomics or proteomics. Explored materials in biotic/ abiotic interface and biomimetics to enable functional molecular development (such as robust synthetic enzymes).

FY 2014 Plans:
Continue efforts to understand pathogens, novel threats and host responses (including human and zoonotic) to prevent/minimize host injury. Investigate and evaluate systemic biological responses following exposure of living systems to CB agents. Improve understanding of how polymicrobial interactions interfere with bacterial activities (through investigation of genetic networks) to influence discovery of novel antagonists for medical countermeasures, thus influencing response to or course of disease. As an important Life Sciences issue, pursue computational infectious models that utilize experimental data to generate mathematical

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 1	**R-1 Program Element (Number/Name)** PE 0601384BP / *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*	**Project (Number/Name)** LF1 / *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
models of infection and immunity. Continue exploration of materials in biotic/abiotic interface and biomimetics to enable design of robust synthetic enzymes. Explore nano- and nanostructured materials as approaches to the needs of chemical and biological countermeasures, including behavior in biological systems and how morphology relates to biological interaction and function. ***FY 2015 Plans:*** Continue efforts to understand pathogens, novel threats and host responses (including human and zoonotic) to prevent/minimize host injury. Investigate and evaluate systemic biological responses following exposure of living systems to CB agents. Improve understanding of how polymicrobial interactions interfere with bacterial activities to influence discovery of novel antagonists for medical countermeasures, thus influencing response to or course of disease. Continue exploration of materials in biotic/ abiotic interface and biomimetics to enable design of robust synthetic enzymes and proteins. Continue to explore nano- and nanostructured materials as approaches to the needs of chemical and biological countermeasures, including behavior in biological systems and how morphology relates to biological interaction and function.			
Accomplishments/Planned Programs Subtotals	29.606	34.646	31.727

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	44.384	44.903	54.061	-	54.061	52.579	54.705	53.910	52.563	Continuing	Continuing
• TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)*	106.017	85.790	100.722	-	100.722	94.500	82.839	85.335	83.201	Continuing	Continuing
• CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)*	23.247	15.401	17.722	-	17.722	16.123	16.968	16.250	15.844	Continuing	Continuing
• TM3: *TECHBASE MED DEFENSE (ATD)*	160.195	101.827	87.610	-	87.610	90.079	100.916	101.559	99.018	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program												Date: March 2014
Appropriation/Budget Activity 0400 / 1					**R-1 Program Element (Number/Name)** PE 0601384BP / *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*				**Project (Number/Name)** PS1 / *CHEM/BIO DEFENSE - PHYSICAL SCIENCES (BASIC RESEARCH)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
PS1: *CHEM/BIO DEFENSE - PHYSICAL SCIENCES (BASIC RESEARCH)*	-	16.007	16.780	16.534	-	16.534	17.893	16.787	16.931	16.507	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

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 2013**	**FY 2014**	**FY 2015**
Title: 1) Physical Sciences	16.007	16.780	16.534
Description: Focuses on fundamental scientific phenomena including chemistry, physics, materials science, environmental science, and nanotechnology.			
FY 2013 Accomplishments: Explored development of multifunctional material design and synthesis that identified materials that integrate functionality with durability to improve CB protection by increasing protection factors (resistance or filtration) and reducing physical burden. Created 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. Funded 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 reduced the requirements for consumables or logistics while increasing specificity. Explored integration of functionality that may provide dynamic capabilities for CB defense countermeasures.			
FY 2014 Plans: Continue exploring multifunctional material design and synthesis to identify dynamic materials that combine functionality and durability to improve CB protection by increasing protection factors and reducing physical burden. Design and synthesize novel decontamination options that are broadly applicable to multiple chemicals or biologicals and are less harmful to equipment.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 1	**R-1 Program Element (Number/Name)** PE 0601384BP / *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*	**Project (Number/Name)** PS1 / *CHEM/BIO DEFENSE - PHYSICAL SCIENCES (BASIC RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue investigations into novel signatures and analytical methods, new separation approaches, and recognition elements to reduce logistical burden while increasing specificity to overcome limitations in current approaches to identifying and quantifying CB threats. Explore nano- and nanostructured materials as novel approaches to needs in chemical and biological countermeasures. Continue exploring integration of functionality that may provide adaptive materials and capabilities for CB defense countermeasures that sense, transduce, respond and mitigate threats. ***FY 2015 Plans:*** Continue exploring multifunctional material design and synthesis to identify dynamic materials that combine functionality and durability to improve CB protection by increasing protection factors and reducing physical burden. Design and synthesize novel decontamination options that are broadly applicable to multiple chemicals or biologicals and are less harmful to equipment. Continue investigations into novel signatures and analytical methods, new separation approaches, and recognition elements to reduce logistical burden while increasing specificity to overcome limitations in current approaches to identifying and quantifying CB threats. Continue exploration of nano- and nanostructured materials as novel approaches to needs in chemical and biological countermeasures. Continue exploring integration of functionality that may provide adaptive materials and capabilities for CB defense countermeasures that sense, transduce, respond and mitigate threats.			
Accomplishments/Planned Programs Subtotals	16.007	16.780	16.534

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	44.384	44.903	54.061	-	54.061	52.579	54.705	53.910	52.563	Continuing	Continuing
• CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)*	23.247	15.401	17.722	-	17.722	16.123	16.968	16.250	15.844	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Chemical and Biological Defense Program	**Date:** March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 2: *Applied Research*	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	-	202.700	197.065	226.317	-	226.317	215.133	209.007	214.062	208.711	Continuing	Continuing
CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	-	44.384	44.903	54.061	-	54.061	52.579	54.705	53.910	52.563	Continuing	Continuing
NT2: *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (APPLIED RESEARCH)*	-	52.299	66.372	71.534	-	71.534	68.054	71.463	74.817	72.947	Continuing	Continuing
TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)*	-	106.017	85.790	100.722	-	100.722	94.500	82.839	85.335	83.201	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This Program Element (PE) sustains a robust defense program and core science and technology capabilities, 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.

In the physical sciences area, Project CB2, focuses on continuing improvements in CB defense materiel, including contamination avoidance, decontamination, and protection technologies, as well as biological weapon/agent surveillance.

The medical program, Project TM2, focuses on the development of antidotes, drug treatments, disease surveillance and point-of-need diagnostic devices, patient decontamination and medical technologies management. The program also provides for the Medical Countermeasures Initiative (MCMI), which 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.

For Non-Traditional Agents (NTAs), Project NT2 consolidates all NTA efforts (both medical and non-medical) including pretreatments, therapeutics, detection, threat agent science, modeling, and protection and hazard mitigation.

Efforts under this PE will transition to or will provide risk reduction for Advanced Technology Development (PE: 0603384BP), Advanced Component Development and Prototypes (PE: 0603884BP) and System Development and Demonstration (PE: 0604384BP).

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Chemical and Biological Defense Program	Date: March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 2: *Applied Research*	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	223.269	227.065	231.152	-	231.152
Current President's Budget	202.700	197.065	226.317	-	226.317
Total Adjustments	-20.569	-30.000	-4.835	-	-4.835
• Congressional General Reductions	-0.294	-			
• Congressional Directed Reductions	-16.456	-30.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.848	-			
• SBIR/STTR Transfer	-2.971	-			
• Other Adjustments	-	-	-4.835	-	-4.835

Change Summary Explanation

Funding: FY13: Reductions of $16.5M impacted the ability to advance potential solutions for sensing technologies, diagnostics, medical countermeasures, and toxin efforts.

FY14: Reductions of $30.0M delay key physical and medical program applied research efforts in threat agent sciences, detection, algorithm development, protection, medical countermeasures, diagnostics, and hazard mitigation technology development.

FY15: Reductions of $4.8M slow applied research efforts for medical countermeasures, diagnostic, and modeling efforts.

Schedule: N/A

Technical: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program			Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** CB2 / *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	-	44.384	44.903	54.061	-	54.061	52.579	54.705	53.910	52.563	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Project CB2 provides physical science 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 hazard prediction, operational effects and risk assessment, 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) Biosurveillance	-	7.867	2.740

Description: 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 2014 Plans:
Continue efforts in FY13 from Diagnostics and Disease Surveillance (previously under Project TM2). Complete effort on biosurveillance data stream evaluation and analysis to identify most useful biosurveillance data streams for prediction and early warning and leverage this research for Biosurveillance (BSV) Ecosystem effort. Complete effort to devise a structured, outside continental U.S. (OCONUS) expansion roadmap for agent-based epidemiological models and continue to increase OCONUS analytic capability through targeted areas. Leverage this research for BSV Ecosystem effort. Advance research into data integration platforms through the BSV Ecosystem effort. Develop approaches for unique and emerging data collection, aggregation and provision of human, vector and animal/zoonotic health surveillance data. Develop algorithms, verification, and

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** CB2 / *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
validation for these data feeds to synthesize and interrogate multiple sources of data to provide high confidence in the prediction, early warning and forecasting (inclusive of mitigation strategies) of infectious disease outbreaks. Leverage Biosurveillance and point of need diagnostic efforts to support in-context, rapid detection, identification and response capabilities on the global scale through integrated access via the BSV Ecosystem. ***FY 2015 Plans:*** Complete efforts using social media to infer individual and collective health behavior for digital threat surveillance, epidemic planning and response. Complete effort to develop a flexible set of data driven models that dynamically assesses the socio-economic response to the spread of disease and, in turn, the effect of that response on disease spread. Complete efforts to refine technology to enable device to cloud communications in order to fully leverage biosurveillance and point of need diagnostic efforts. Continue the development of the BSV Ecosystem to include analyst collaboration tools, advanced analytics, and analyst workbench.			
Title: 2) Detection ***Description:*** 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. ***FY 2013 Accomplishments:*** Completed concept development of nano-scale biological agent identification and sensing technologies. Completed feasibility studies of nanoscale detection systems. Continued integration studies for Next Generation Chemical Detector (NGCD) based on Microelectromechnical System (MEMS) components for gas chromatography (GC) and mass spectrometry (MS). Completed development of breadboard prototype for complete sequencing entire pathogen genomes with automated sample preparation which also applies to biosurveillance. Continued algorithm development to increase range capabilities, reduce false positives, and provide decision capabilities for large data sets. ***FY 2014 Plans:*** Continue integration studies for NGCD based on MEMS components for GC and MS. Continue algorithm development to increase range capabilities, reduce false positives, and provide decision capabilities for large data sets. ***FY 2015 Plans:*** Continue integration studies for NGCD based on MEMS components for GC and MS. Continue algorithm development to increase range capabilities, reduce false positives, and provide decision capabilities for large data sets.	12.926	7.286	16.025
Title: 3) Warning and Reporting	2.256	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** CB2 / *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Description: Emphasis on developing science and technologies for collaborative information management, fusion of disparate information from multiple sources, environmental databases and modeling, fusion of syndromic/diseases surveillance data, and synthetic environments for model performance evaluation and acquisition decisions. ***FY 2013 Accomplishments:*** Initiate study on animal and human effects from time-varying toxic industrial chemical concentration exposures. Initiate development of a generalized Virtual Testing and Evaluation test bed 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.			
Title: 4) Hazard Prediction ***Description:*** Improve battlespace awareness by accurately predicting hazardous material releases, atmospheric transport and dispersion, and resulting human effects. Develop capability for predicting the source term of releases of chemical, biological, and industrial materials. ***FY 2013 Accomplishments:*** Completed development of a waterborne transport tool investigating transport methods for biological agents and other materials. Initiated development of waterborne inverse transport module based on feasibility study results. In FY14, the capability for virtual test and evaluation being developed in the Warning & Reporting area will now be consolidated within this Hazard Prediction area. ***FY 2014 Plans:*** Continue development of waterborne inverse transport modeling capability at a slower pace in conjunction with the verification and validation effort for waterborne transport models. Continue interior building transport and dispersion modeling effort to improve modeling of outdoor dispersion from indoor release and modeling of indoor dispersion in multiple buildings from an outdoor release, simulating wide-area effects of a release in an urban environment. Initiate verification and validation of interior building transport and dispersion models. Continue development of a generalized capability for virtual test and evaluation for evaluating/stressing source characterization and hazard refinement techniques. Develop and conduct verification and validation on modules emulating a variety of sensors and solid sorbent tubes. Initiate final work on advancing the urban modeling capability and optimizing the urban sub-system for interfacing transport models of varying fidelity and speed. ***FY 2015 Plans:***	1.908	5.005	2.216

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** CB2 / *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue development of next-generation waterborne transport models in conjunction with related validation and verification efforts. Continue interior building transport and dispersion modeling effort to improve modeling of outdoor dispersion from indoor release and modeling of indoor dispersion in multiple buildings from an outdoor release, simulating wide-area effects of a release in an urban environment. Complete initial verification and validation of interior building transport and dispersion models. Continue development of a generalized capability for virtual test and evaluation for evaluating/stressing source characterization and hazard refinement techniques. Focus on bridging the gap between meso- and micro-scale turbulence simulations. Continue advancing the urban modeling capability and optimizing the urban sub-system for interfacing transport models of varying fidelity and speed.			
Title: 5) Data Analysis ***Description:*** Develop CBRN data sharing capabilities and simulation tools. ***FY 2013 Accomplishments:*** Continued to develop the Chemical and Biological Agent Effects Manual Number 1 (CB-1), an authoritative source capturing analytical methods for evaluating the effects of CB agents on equipment, personnel, and operations. Initiated development of chapters on meteorological and geographic data, battle space management, and reconnaissance. Concluded development of initial versions of systems performance models in collective protection, individual protection, contamination avoidance and decontamination. Initiated system performance model integration and advanced development for program-wide exploitation (moved to Operational Effects in FY14). ***FY 2014 Plans:*** Continue to develop additional chapters of the Chemical and Biological Agent Effects Manual Number 1 (CB-1), an authoritative source capturing analytical methods for evaluating the effects of CB agents on equipment, personnel, and operations. Initiate new chapters related to consequence assessment and site characteristics. Complete study on animal and human effects from time-varying toxic industrial chemical concentration exposures. ***FY 2015 Plans:*** Complete initial chapter development and continue to develop additional chapters of the Chemical and Biological Agent Effects Manual Number 1 (CB-1), an authoritative source capturing analytical methods for evaluating the effects of CB agents on equipment, personnel, and operations.	1.415	2.442	3.989
Title: 6) Operational Effects & Planning ***Description:*** 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. ***FY 2013 Accomplishments:***	2.295	4.819	8.181

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** CB2 / *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continued studies on social/cultural norms for application in agent-based models. Continued study of social reaction to disease and disease mitigation strategies to support biosurveillance. Continued development of human cognitive models that incorporate the effects of chemical and biological agent interaction with other battle stressors to facilitate operational decision-making. Initiated special population analysis to model emerging disease and the effects of targeted countermeasures. Continued operational effects research and analysis efforts. ***FY 2014 Plans:*** Continue operational effects research and analysis efforts to provide the CBDP with objective, quantitative analysis in support of science and technology initiatives, material developments, operational guidance, and requirements setting. Continue system performance model integration and advanced development for program-wide exploitation (moved from Data Analysis in FY14). Initiate operational effects risk management framework development to inform service-specific analyses and decision-makers. Initial development will be at a reduced level. ***FY 2015 Plans:*** Continue system performance model integration and advanced development for program-wide exploitation for collective and individual protection and contamination avoidance. Continue operational effects risk management framework development to inform service-specific analyses and decision-makers. The Decision Support Tool increase in funding is to address Joint Operations Effects requirements and CBDP directed risk-based planning and decision making.			
Title: 7) Filtration ***Description:*** 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 (TICs). ***FY 2013 Accomplishments:*** Continued development of next generation filtration technology. Continued focus on low resistance/low profile novel filter media with augmented performance against TICs and chemical agents. Continued to replace legacy filter media with novel media that offers broad spectrum protection. Continued with technology areas to include: metal organic frameworks, novel adsorbents and reactive hybrids. ***FY 2014 Plans:*** 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	4.791	2.596	3.943

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** CB2 / *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
hybrids and transition these technologies to the Joint Service General Purpose Mask (JSGPM) and Joint Service Aircrew Mask (JSAM) programs. ***FY 2015 Plans:*** Transition a synthetic nano-structured material focused on toxic industrial chemical removal, including ammonia.			
Title: 8) Respirator ***Description:*** 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. ***FY 2013 Accomplishments:*** Continued development of next generation low burden respirator technology. Developed and integrated novel seal, anti-fogging, and dual cavity technologies. Developed and verified methods for a Respiratory Battlefield Evaluation System (RBEs). ***FY 2014 Plans:*** 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 RBEs. Develop a scalable respirator technology to quickly configure to different protective capabilities from air purifying respirator (APR) to self-contained breathing apparatus (SCBA). ***FY 2015 Plans:*** Restructure program to focus on special purpose tactical applications for high hazard areas. Explore configurations that rapidly scale from air purification respirators to closed circuit self-contained briefing apparatus.	3.237	1.533	1.150
Title: 9) Lightweight Integrated Fabric ***Description:*** Development of lightweight chemical and biological protective textiles that can be used as an integrated combat duty uniform. ***FY 2013 Accomplishments:*** Completed initial 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). Continued use of computational methods to assess and refine future prototypes. Continued improved thermal modeling simulations. Continued to develop new low burden fabrics and ensemble designs to support the Uniform Integrated Protection Ensemble (UIPE) programs. Continued 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. ***FY 2014 Plans:***	4.806	3.538	3.450

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** CB2 / *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue to develop new low burden fabrics and ensemble designs to support the UIPE programs with a focus on whole system assessments. 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. Continue exploring multifunctional material design and synthesis to identify dynamic materials that integrate functionality and durability to improve CB protection by increasing protection factors and reducing physical burden. Continue exploring integration of functionality that may provide adaptive materials and capabilities for CB defense countermeasures that sense, transduce, respond and mitigate threats. ***FY 2015 Plans:*** Transition new low burden fabrics and ensemble designs to the UIPE programs. Complete development areas that include: evaluation of materials with high resistance to organic compounds, refinement of "man in simulant test" sensors, aerosol system testing, advanced adsorbent nanofiber/textile production technology, and smart materials. Transition materials that integrate functionality and durability to improve CB protection by increasing protection factors and reducing physical burden. Conduct a demonstration of new fabric technologies.			
Title: 10) Personnel Decontamination ***Description:*** Develop new technologies to alleviate the risk associated with contaminated human remains and personal effects (materials) exposed to and contaminated by chemical agents by neutralizing and/or physically removing the residual chemical agents. ***FY 2015 Plans:*** Initiate Personnel Decontamination hazard mitigation projects to decontaminate individual human remains and manage personal effects following exposure to CWAs/NTAs/TICS/TIMs. Determine the fate and residual hazard of chemical, biological, and radiological warfare agents (CBRs) on contaminated human remains and personal effects; develop technological options to remove/neutralize CBR hazards from individual human remains and personal effects.	-	-	1.478
Title: 11) Decontamination ***Description:*** Development and analysis of non-traditional decontamination technologies and approaches which gain significantly improved effectiveness by complementary application. ***FY 2013 Accomplishments:*** Continued the development of new formulations adjusted for agent, material substrate, and environment; combined with optimized application systems and initiated additional efforts based on the results of the dial-a-decon analysis of alternatives. Continued coatings efforts to examine durable and temporary coatings that pursue reactive and barrier options and initiated efforts based on the results of the coatings analysis of alternatives. Continued development of delivery and application methods on	8.106	7.124	6.407

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** CB2 / *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
decontamination efficacy on complex surfaces. Continued to develop decontamination assurance sprays for biological agents and other agents of interest. Continued development of enzymes for sensitive equipment/platform decon. Initiated radiological/ nuclear decontamination/hazard mitigation effort. ***FY 2014 Plans:*** 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 decontamination. Investigate technologies to decontaminate spores over a wide area, approaches include looking at germinants paired lytic enzymes, directed energy, and predatory nematodes. Demonstrate the ability of technologies to decontaminate spores in complex, dirty environments. ***FY 2015 Plans:*** Focus efforts on the Dial-a-Decon and Enzyme Decon projects. Investigate non-aqueous formulations and responsive coatings. Continue the radiological/nuclear decontamination/hazard mitigation effort.			
Title: 12) Threat Agent Sciences ***Description:*** 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. ***FY 2013 Accomplishments:*** Developed a systems approach toward toxicological understanding of physiological injury by threat agents. Determined 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 using small resources and often with little or no formal training, oversight by professionals, or regulation by governments. Continued investigations that describe fundamental mechanisms that contribute to BWA persistence and transport. Defined particle properties and predict aerosolization behavior to inform hazard assessment. Studied emerging technological breakthroughs such as DIY biology that may impact novel threat emergence. Studied agent modulation in natural or laboratory environments to inform forensic examination of threats. ***FY 2014 Plans:***	2.644	2.693	4.482

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** CB2 / *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue investigations that describe fundamental mechanisms that contribute to BWA persistence and transport in the environment. Discontinue effort to define particle properties and predict aerosolization behavior to inform hazard assessment. Study biological modulation in natural or laboratory environments through genetic drift to inform forensic examination of threats. ***FY 2015 Plans:*** Continue to define particle properties and predict aerosolization behavior to inform hazard assessment. Move towards methods for rapid prediction of agent-substrate interactions/including correlation of CB agent physical properties. Develop models for absorption, distribution, metabolism, and excretion and toxicology (ADME (T)) for understanding operationally relevant exposure effects. Continue assessing the impact of environmental factors on threat agent activity (persistence, transport, degradation, etc).			
Accomplishments/Planned Programs Subtotals	44.384	44.903	54.061

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)*	23.247	15.401	17.722	-	17.722	16.123	16.968	16.250	15.844	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** NT2 / *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (APPLIED RESEARCH)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
NT2: *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (APPLIED RESEARCH)*	-	52.299	66.372	71.534	-	71.534	68.054	71.463	74.817	72.947	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

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 science and technology (S&T) solutions for detection, protection, decontamination, information systems and modeling and simulation, 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 2013	FY 2014	FY 2015
Title: 1) Chemical Diagnostics - Medical	0.380	2.044	2.425
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 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. ***FY 2013 Accomplishments:*** Began work to identify biomarkers to create an enhanced capability to pre-symptomatically diagnose NTA exposure. Refined method development for identification and validation of NTAs in clinical samples for additional compounds of interest. ***FY 2014 Plans:*** 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. ***FY 2015 Plans:*** Continue method development for identification and validation of NTAs in clinical samples for additional compounds of interest.			
Title: 2) Chemical Pretreatments - Medical	3.068	6.992	15.093

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** NT2 / *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
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. ***FY 2013 Accomplishments:*** Studied efficacy of catalytic bioscavengers for NTA exposure. ***FY 2014 Plans:*** Continue studies to develop new catalytic bioscavengers for NTA exposure. Pursue development of small molecule pretreatments against NTA exposure. ***FY 2015 Plans:*** Reduce scope of studies to develop catalytic bioscavenger for NTA exposure. Retire all other efforts/approaches.			
Title: 3) Chemical Therapeutics - Medical ***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). ***FY 2013 Accomplishments:*** Initiate investigation of other compounds of interest including mechanism of action and toxicity, and initiated search for effective countermeasures. ***FY 2014 Plans:*** Continue investigation of advanced and emerging threats including mechanism of action and toxicity, and continue search for effective countermeasures. Develop centrally active novel therapeutic compounds that cross the blood brain barrier (reduced scope of effort). Limited screening of currently licensed Food and Drug Administration (FDA) approved countermeasures to determine potential efficacy against other classes of NTAs. Pursue absorption, distribution, metabolism and excretion studies to further elucidate agent effects. ***FY 2015 Plans:*** Continue developing centrally acting novel therapeutic compounds that cross the blood brain barrier. Screen currently licensed Food and Drug Administration (FDA) approved countermeasures to determine potential efficacy against other classes of NTAs.	11.742	15.102	15.092

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** NT2 / *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Initiate research projects at the ADME Research Center of Excellence, with Tier 0, 1 and 2 assay potential at DoD Laboratories as a core program capability and use to improve agent effects understanding and facilitate countermeasure development.			
Title: 4) Detection ***Description:*** Primary focus is to assess the potential of multiple technologies to meet the needs to detect the presence of NTAs. ***FY 2013 Accomplishments:*** Continued developing feasibility evaluation of plant sentinel concept. Continued development from technology concepts and models to meet the needs to detect contamination on surfaces in pre- and post-decontamination application. Continued integration studies for chemical aerosol detection into the Next Generation Chemical Detector (NGCD). ***FY 2014 Plans:*** 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 NGCD. ***FY 2015 Plans:*** Continue development from technology concepts and models to meet the needs to detect contamination on surfaces in pre and post decontamination application. Complete integration studies for chemical aerosol detection into the NGCD MS B.	9.970	14.207	12.453
Title: 5) Modeling & Simulation ***Description:*** Provide modeling of NTA materials for hazard prediction. Develop NTA source term algorithms for predicting CBRN hazards from intentionally functioning weapons, counter-proliferation scenarios (bomb on target), and missile intercept. 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. ***FY 2013 Accomplishments:*** Continued with actual experimentation involving small-scale testing for NTA simulants for use in creating and verifying NTA modeling source terms, for defense against CBRN hazards. Continued to develop NTA source term models. ***FY 2014 Plans:***	1.260	1.398	2.172

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** NT2 / *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Complete experimentation phase of small scale testing for NTA simulants for use in creating and verifying NTA modeling source terms, for defense against CBRN hazards. Continue to develop new NTA source term scenario models and flexible scenario NTA scenario models. ***FY 2015 Plans:*** Continue analysis of data resulting from experimentation phase of small-scale testing for NTA simulants for use in creating and verifying NTA source terms, for defense against CBRN hazards. Continue to develop new NTA source term models and flexible NTA scenario models.			
Title: 6) Air Purification ***Description:*** Study and assessment of filter technologies. ***FY 2013 Accomplishments:*** Continued development and testing of novel materials to improve performance against NTAs. Replaced legacy filter media with novel media that offers broad spectrum NTA protection. Continued with technology areas that include: crystalline nano-porous framework materials, novel adsorbents, catalytic, nano-fibrous, composite materials and reactive hybrids. Transitioned these technologies to the Joint Service General Purpose Mask (JSGPM) and Joint Service Aircrew Mask (JSAM) programs. ***FY 2014 Plans:*** 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 JSGPM and JSAM programs. ***FY 2015 Plans:*** Assess performance of novel adsorbents and develop specific functionalities of absorbents on NTAs.	1.086	0.878	0.423
Title: 7) Respirator ***Description:*** Development and analysis of design alternatives for chemical and biological air purifying respirators to provide enhanced protection against NTAs with lower physical burden and improved interface with mission equipment. ***FY 2015 Plans:*** Continue the development and integration of novel seal, anti-fogging, and dual cavity technologies to protect against NTAs.	-	-	0.123
Title: 8) Percutaneous Protection	1.794	3.028	0.521

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** NT2 / *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Description: Study and assessment of percutaneous protective technologies. ***FY 2013 Accomplishments:*** Continued development of low burden technologies to improve overall protective clothing performance against NTAs leading toward verification, demonstration and transition. ***FY 2014 Plans:*** Continue development of low burden technologies to improve overall protective clothing performance against NTAs leading toward verification, demonstration and transition. Develop treatments that allow fabrics to protect and reduce the penetration of NTAs and increase the useful life of protective garments. ***FY 2015 Plans:*** Assess and optimize technologies to improve whole system performance against NTAs. The whole system performance includes the integration of the percutaneous protection with the respiratory protection, as well as effectiveness of the closures between the components of protective equipment.			
Title: 9) Decontamination ***Description:*** Study and assessment of decontamination technologies. ***FY 2013 Accomplishments:*** Continued development of decontamination technologies against NTAs. Continued to develop decontamination technologies and formulations that are optimized against NTAs. Continued to develop, demonstrate, and transition enzyme technology for low-impact decon of NTAs. Continued to integrate with the Decontamination Family-of-Systems effort. ***FY 2014 Plans:*** 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. ***FY 2015 Plans:*** Continue to assess performance and unique aspects of full spectrum of NTAs and develop technologies to optimize performance against NTAs. This includes the investigation and analysis of additional categories of emerging threats.	1.095	0.517	1.348
Title: 10) Threat Agent Sciences	21.904	22.206	21.884

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** NT2 / *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Description: Provide enabling science and technology on threat agents to prepare for surprise which informs 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. ***FY 2013 Accomplishments:*** Expanded assessment of novel threats into new classes of agents providing operationally relevant exposure limits using an integrated systems toxicology approach. Defined critical physico-chemical properties and characterize/predicted agent reactivity and interaction with environmental substrates. Provided supportable data to enable countermeasure development and testing as well as inform concept of operations policy, doctrine and procedure. ***FY 2014 Plans:*** Continue assessment of priority classes of novel threat agents providing operationally relevant exposure limits using an integrated systems toxicology approach with a delay in some data deliveries. Define critical physic-chemical properties and characterize/ predict agent reactivity and interaction with environmental substrates. Provide supportable knowledge, enabling countermeasure development and testing and informing concept of operations policy, doctrine and procedure. Move towards in-silico efforts to characterize threat agents with a reduced scope of effort. ***FY 2015 Plans:*** Continue to characterize the synthesis and physico-chemical properties of priority NTAs (informed by intelligence assessments and program requirements.) Continue preparing toxicity estimates for next priority NTAs. Refine and deliver human toxicity estimates for next priority NTAs. Provide supportable data to enable countermeasure development and testing as well as inform concept of operations (CONOPs), policy, doctrine and procedure. Continue to develop silico platforms for predicting human ADME and toxicity for threat agents.			
Accomplishments/Planned Programs Subtotals	52.299	66.372	71.534

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• NT3: *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (ATD)*	30.784	21.702	21.574	-	21.574	23.037	23.387	21.889	21.343	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** NT2 / *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (APPLIED RESEARCH)*

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program			Date: March 2014
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	Project (Number/Name) TM2 / *TECHBASE MED DEFENSE (APPLIED RESEARCH)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)*	-	106.017	85.790	100.722	-	100.722	94.500	82.839	85.335	83.201	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Project TM2 provides for applied research for innovative technology approaches to advance medical systems designed to rapidly identify, diagnose, prevent, and treat disease due to exposure to all three of radiological, 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). Against radiological threats, this project provides investment for the development of pretreatments (prophylaxis) and post-irradiation therapeutics against radiological/nuclear exposure. Against chemical and biological agents, 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. 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. 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.

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 science and technology (S&T) are concentrated in advancing two areas: 1) regulatory science and 2) flexible manufacturing technologies and processes for MCMs. Efforts conducted in these areas are enablers supporting the DoD Medical Countermeasures Advanced Development and Manufacturing (MCM-ADM) capability.

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) Techbase Med Defense - Diagnostics	4.575	-	4.032
Description: Biosurveillance/Disease Surveillance: 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. The Chem Bio Defense Program partners with civil agencies and DoD agencies to provide near real-time information and provide			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** TM2 / *TECHBASE MED DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
USG-wide situational awareness, yielding analytical and predictive capabilities for DoD decision makers including Combatant Commanders. ***FY 2013 Accomplishments:*** Continued efforts on biosurveillance data stream evaluation and analysis to identify most useful biosurveillance data streams for prediction and early warning. Continued effort to devise structured outside contiguous U.S. (OCONUS) expansion roadmap for agent-based epidemiological models and increase OCONUS analytic capability through targeted areas. Continued research into data integration platforms and expand biosurveillance portfolio to support in-context, rapid detection, identification and response capabilities on the global scale. ***FY 2015 Plans:*** Complete efforts using social media to infer individual and collective health behavior for digital threat surveillance, epidemic planning and response. Complete effort to develop a flexible set of data driven models that dynamically assesses the socio-economic response to the spread of disease and, in turn, the effect of that response on disease spread. Complete efforts to refine technology to enable device to cloud communications in order to fully leverage biosurveillance and point of need diagnostic efforts. Continue the development of the BSV Ecosystem to include analyst collaboration tools, advanced analytics, and analyst workbench.			
Title: 2) Chemical Diagnostics ***Description:*** 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. ***FY 2013 Accomplishments:*** Developed assays for enhancing the ability to identify exposure (sublethal) to emerging chemical agent threats using newly-identified biomolecular targets. ***FY 2014 Plans:*** Continue to develop assays for enhancing the ability to identify sublethal exposure to emerging chemical agent threats using newly-identified biomolecular targets. Complete effort on biosurveillance data stream evaluation and analysis to identify most useful biosurveillance data streams for prediction and early warning and leverage this research for BSV Ecosystem effort. Complete effort to devise a structured, outside continental U.S. (OCONUS) expansion roadmap for agent-based epidemiological models and continue to increase OCONUS analytic capability through targeted areas. Leverage this research for BSV Ecosystem effort. Advance research into data integration platforms through the BSV Ecosystem effort. Develop approaches for unique and	0.975	0.577	0.845

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** TM2 / *TECHBASE MED DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
emerging data collection, aggregation and provision of human, vector and animal/zoonotic health surveillance data. Develop algorithms, verification, and validation for these data feeds to synthesize and interrogate multiple sources of data to provide high confidence in the prediction, early warning and forecasting (inclusive of mitigation strategies) of infectious disease outbreaks. Leverage biosurveillance and point of need diagnostic efforts to support in-context, rapid detection, identification and response capabilities on the global scale through integrated access via the BSV Ecosystem. ***FY 2015 Plans:*** Continue development of assays for enhancing the ability to identify sublethal exposure to emerging chemical agent threats using newly-identified biomolecular targets. Complete efforts using social media to infer individual and collective health behavior for digital threat surveillance, epidemic planning and response. Complete effort to develop a flexible set of data driven models that dynamically assesses the socio-economic response to the spread of disease and, in turn, the effect of that response on disease spread. Complete efforts to refine technology to enable device to cloud communications in order to fully leverage biosurveillance and point of need diagnostic efforts. Continue the development of the BSV Ecosystem to include analyst collaboration tools, advanced analytics, and analyst workbench.			
Title: 3) Diagnostic Assays ***Description:*** 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, whether known or emerging. ***FY 2013 Accomplishments:*** Optimized processes and platform technologies employed in laboratory characterization of host and pathogen biomarker signatures of exposure and disease processes. Matured pipeline of genomics, proteomics, systems biology, and bioinformatics tools and methods to simultaneously support companion diagnostic tests, the development of medical countermeasures, and the analytic processes required to identify known, emerging, and re-emerging pathogens. ***FY 2014 Plans:*** Continue to optimize processes and platform technologies employed in laboratory characterization of host and pathogen biomarker signatures of exposure and disease processes. Continue to mature pipeline of genomics, proteomics, systems biology, and bioinformatics tools and methods to simultaneously support diagnostic tests, the development of MCMs and the analytic processes required to identify known, emerging, and re-emerging pathogens. Develop nanomaterial structure designs to enable companion diagnostics. ***FY 2015 Plans:*** Continue to optimize processes and platform technologies employed in laboratory characterization of host and pathogen biomarker signatures of exposure and disease processes. Continue to develop nanomaterial structure designs to enable	13.757	14.401	11.987

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** TM2 / *TECHBASE MED DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
companion diagnostics. Continue testing a method for transport of biothreat agents in clinical and environmental samples from field to laboratory.			
Title: 4) Diagnostic Technologies ***Description:*** 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. ***FY 2013 Accomplishments:*** Discovered and verified panel of pre-symptomatic differential diagnostic biomarkers of exposure to virulent bacterial and viral bio- and emerging threat class and agents. Developed portable diagnostic devices capable of use by minimally trained personnel, aiding in rapid diagnostics at the point of need.	7.017	-	-
Title: 5) Next Generation Diagnostics ***Description:*** 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. ***FY 2013 Accomplishments:*** Developed and matured point of need diagnostic platform technologies with orthogonal capabilities. Implemented design control phased development and acceptance criteria to identify a minimum of two Next Generation Diagnostic Systems, Increment 2, candidate device platforms. ***FY 2014 Plans:*** Continue to develop and mature point of need diagnostic platform technologies with orthogonal capabilities. Develop a multiplexed point of care diagnostic platform for detection of biothreat agent exposure. ***FY 2015 Plans:*** Expand multiplexed point of need diagnostic platform technologies into syndromic-based panels. Begin transition of candidate diagnostic technologies to Next Generation Diagnostic Systems, Increment 2. Develop and evaluate candidate host biomarker diagnostic targets in analytical test environments.	7.568	12.348	11.956
Title: 6) Medical Countermeasures Initiative	10.877	10.998	8.999

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** TM2 / *TECHBASE MED DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Description: Integrate the regulatory science and manufacturing technologies and processes developed into the DoD Medical Countermeasures Advanced Development and Manufacturing (MCM-ADM) as enablers of the advanced development and flexible manufacturing. ***FY 2013 Accomplishments:*** Investigated ex vivo platforms for MCM evaluation: organ constructs of liver, kidney, and lung with the goal of enhancing the product development process. Constructed next generation high yield protein expression platforms for biotechnology-based MCMs. Integrated the development of high capacity downstream technologies and process analytic technologies to enhance rapid manufacturing process development and control xcapability with the goal of accelerating the manufacturing of biotechnology-based Medical Countermeasures (MCMs). ***FY 2014 Plans:*** Continue to investigate organotypic platforms for MCM evaluation: (ex-vivo heart, liver, kidney, alveolar lung sacs, and blood-brain barrier) with the goal of accelerating and enhancing the FDA-regulated medicinal product development process. Construct next generation high yield protein expression platforms for biotechnology-based MCMs. Complete development of 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. ***FY 2015 Plans:*** Continue one project to investigate organotypic platforms for MCM evaluation: (ex-vivo heart, liver, kidney, lung, or blood-brain barrier) with the goal of accelerating and enhancing the FDA-regulated medicinal product development process. Construct one next generation high-yield protein-expression platforms for biotechnology-based MCMs.			
Title: 7) Bacterial/Toxins Vaccines ***Description:*** 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. ***FY 2013 Accomplishments:*** Refined appropriate animal models for aerosolized Burkholderia mallei and pseudomallei as well as Type A Francisella tularensis with regulatory guidance. Evaluated multiple novel subunit Burkholderia vaccine candidates in small animal models with and without adjuvants. Defined predictive value of correlates of immunity, elicited by Burkholderia species vaccine candidates. Evaluated 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 continued to produce vaccine candidates designed to protect	7.063	5.897	18.000

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** TM2 / *TECHBASE MED DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
against emerging or genetically engineered Anthrax strains. Tested multiple novel subunit vaccine candidates for protection against aerosolized Type A Francisella tularensis infection in appropriate small and large animal models. ***FY 2014 Plans:*** Continue refining appropriate animal models for aerosolized Burkholderia mallei and pseudomallei as well as Type A Francisella tularensis with regulatory guidance. Continue preparing and evaluating multiple novel subunit and nanoparticle Burkholderia vaccine candidates in small or large animal models with and without adjuvants. Continue defining predictive value of correlates of immunity, elicited by Burkholderia species vaccine candidates. Continue evaluating 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. Prepare and test multiple novel subunit and nanoparticle vaccine candidates for protection against aerosolized Type A Francisella tularensis infection in appropriate small and large animal models. 10 ***FY 2015 Plans:*** Continue the most promising in-progress animal model development projects to be refined with regulatory guidance, including animal models for aerosolized Burkholderia mallei, pseudomallei and Type A Francisella tularensis. Novel subunit Burkholderia vaccine candidates in small or large animal models will be evaluated with and without adjuvants. A selection of correlates of immunity elicited by Burkholderia species infection may be evaluated for predictive value. The most promising vaccine candidates designed to protect against genetically engineered Anthrax strains will be tested for safety and efficacy in non-human primates due to the expense. Test up to two novel subunit vaccine candidates for protection against aerosolized Type A Francisella tularensis infection in appropriate small animal models.			
Title: 8) Vaccine Platforms and Research Tools ***Description:*** 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 an in vitro model of the immune system that can predict the human immune response to biodefense vaccines under development. ***FY 2013 Accomplishments:*** Utilized relevant animal models for the evaluation of the immune response to novel multi-antigen platforms. Further refined the capabilities of the surrogate human immune system, Modular Immune In vitro Construct (MIMIC), which provides an in vitro assessment of the human immune response. Initiated studies designed to lend regulatory credence to functional assays on the	3.098	2.618	6.000

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** TM2 / *TECHBASE MED DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
MIMIC to evaluate immunity induced by multiple mature vaccine candidates. Increased efforts to develop methodologies, which remove the need for cold storage and transport for vaccines and render them stable in variable and extreme temperatures. ***FY 2014 Plans:*** 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, which provides an in vitro assessment of the human immune response. Continue 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. ***FY 2015 Plans:*** Use relevant small animal models for the evaluation of the immune response to novel multi-antigen platforms. Further refine, using 1-2 small studies, the capabilities of the surrogate human immune system, MIMIC, which provides an in vitro assessment of the human immune response.			
Title: 9) Viral Therapeutics ***Description:*** Identify, optimize and evaluate lead candidate therapeutics for efficacy against viral pathogens. ***FY 2013 Accomplishments:*** Evaluated FDA approved drug combinations against Arenavirus, Bunyavirus, and Flavivirus infection. Conducted structure-based drug discovery for Alphaviruses. Identified and evaluated novel broad-spectrum host and pathogen directed small molecule therapeutics for emerging infectious diseases. ***FY 2014 Plans:*** Conduct structure-based drug discovery for Alphaviruses. Develop antibody-based therapeutics for Filovirus infections. Identify and evaluate novel broad-spectrum host and pathogen directed small molecule therapeutics for emerging infectious diseases (i.e. Alphavirus, Filovirus, Flavivirus, Arenavirus, Bunyavirus). ***FY 2015 Plans:*** Evaluate FDA-approved drugs for potential repurposing as effective antivirals. Evaluate novel antibody-based therapeutics for Filovirus infections. Identify and evaluate novel pathogen-directed therapeutics for Alphaviruses.	8.150	14.178	13.000
Title: 10) Bacterial Therapeutics ***Description:*** Identify, optimize and evaluate lead therapeutic candidates effective against designated bacterial threat agents. ***FY 2013 Accomplishments:***	5.891	13.401	8.112

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** TM2 / *TECHBASE MED DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Maintained FDA approved drug screening programs for Burkholderia, Francisella tularensis and determined in vitro susceptibilities. Continued evaluation of novel compounds against bacterial biological warfare agents. Developed lead series of MurB compounds targeting cell wall biosynthesis. Determined synergy between MurB antibacterial agents and conventional antibiotics against B. anthracis and Y. pestis. Evaluated the electron transport chain, multi drug efflux systems, and purine (a naturally occurring organic compound) pathways as a target for broad-spectrum antibacterial development. ***FY 2014 Plans:*** Maintain FDA approved drug screening program for Burkholderia,Francisella tularensis and determine in vitro susceptibilities. Continue evaluation of novel compounds against bacterial biological warfare agents. Evaluate bioactive peptides for the ability to stimulate host protective pathways. Identify and design new small molecule inhibitors bacterial folate biosynthesis. Evaluate multidrug efflux systems as a target for broad-spectrum antibacterial development. ***FY 2015 Plans:*** Maintain FDA approved drug screening programs for Burkholderia, Francisella tularensis and determine in vitro susceptibilities. Refocus program on later stage optimization and testing of novel inhibitors of bacterial biological warfare agents, reducing efforts in discovery and addressing a limited number of priority pathogens.			
Title: 11) Toxin Therapeutics ***Description:*** Identify, optimize and evaluate therapeutic candidates that are effective against biological toxin agents. ***FY 2013 Accomplishments:*** Characterized host proteins that interact with Botulinum Neuro-Toxin (BoNT) and identified small molecule inhibitors preventing host-toxin interactions. Validated differential expression of host genes involved in neuron response to BoNT intoxication. Identified and developed therapies that target host proteins involved in BoNT persistence in the neuron. Continued co-crystallization studies of BoNT-inhibitor complexes. ***FY 2014 Plans:*** Continue to characterize host proteins that interact with BoNT and identify small molecule inhibitors preventing host-toxin interactions. Continue to validate differential expression of host genes involved in neuron response to BoNT intoxication. Continue to identify and develop therapies that target host proteins involved in BoNT persistence in the neuron. Continue co-crystallization studies of BoNT-inhibitor complexes. ***FY 2015 Plans:*** Continue to characterize BoNT small molecule inhibitors in vitro. Continue co-crystallization studies of BoNT-inhibitor complexes.	2.395	2.493	3.000
Title: 12) Multiagent Medical Countermeasures	15.923	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** TM2 / *TECHBASE MED DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Description: 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). In FY14, research under this thrust area will be transitioned into the Bacterial and Viral Therapeutics program under BA2 Techbase Med Defense - Bio CM (TM2). ***FY 2013 Accomplishments:*** Continued to support new MCM discovery efforts to refresh the Hemorrhagic Fever Virus (HFV) and Intracellular Bacterial Pathogen (IBP) product pipelines. Continued 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.			
Title: 13) Pretreatments, Nerve Agents ***Description:*** 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. ***FY 2013 Accomplishments:*** Initiated search for catalytic bioscavenger of V agents. Assessed feasibility and begin initial studies to develop a broad spectrum cocktail of V and G agent catalytic bioscavengers. ***FY 2014 Plans:*** Continue search for catalytic bioscavenger of V agents. Continue studies to develop a broad spectrum cocktail of V and G agent catalytic bioscavengers. ***FY 2015 Plans:*** Continue efforts to develop effective bioscavenger (stoichiometric and catalytic). Develop a broad spectrum cocktail of catalytic bioscavengers effective against multiple agents.	7.196	2.941	9.318
Title: 14) Cutaneous/Ocular Therapeutics ***Description:*** 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	1.270	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** TM2 / *TECHBASE MED DEFENSE (APPLIED RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
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. ***FY 2013 Accomplishments:*** Continued to utilize molecular biology approaches to elucidate drug targets and gain further mechanistic understanding of delayed ocular injury due to sulfur mustard exposure.			
Title: 15) Chemical Therapeutics ***Description:*** 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. ***FY 2013 Accomplishments:*** Continued investigating potential for broad spectrum/centrally active reactivator. Continued search for Neuroprotectant effective up to 4 hours after seizure initiation. ***FY 2014 Plans:*** Continue investigating potential for broad spectrum/centrally active cholinesterase reactivator. Continue studies to facilitate therapeutics crossing the blood brain barrier. Explore molecular, nanomaterial based drug delivery platforms. ***FY 2015 Plans:*** Reduce scope of development of technology to facilitate delivery of therapeutic regimen to the central nervous system (crossing the blood brain barrier). Explore molecular, nanomaterial based drug delivery platforms. Continue investigating potential for broad spectrum/centrally acting cholinesterase reactivator.	9.661	5.938	5.473
Title: 16) Radiation Countermeasures ***Description:*** 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. ***FY 2013 Accomplishments:*** Continued evaluation of novel biomarkers useful for biodosimetry and identification of potential therapeutic approaches.	0.601	-	-
Accomplishments/Planned Programs Subtotals	106.017	85.790	100.722

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 0602384BP / *CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	**Project (Number/Name)** TM2 / *TECHBASE MED DEFENSE (APPLIED RESEARCH)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• TM3: *TECHBASE MED DEFENSE (ATD)*	160.195	101.827	87.610	-	87.610	90.079	100.916	101.559	99.018	Continuing	Continuing
• MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*	111.415	122.328	102.080	-	102.080	101.019	60.981	32.683	48.277	Continuing	Continuing
• MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)*	-	2.000	-	-	-	-	3.750	10.692	25.089	Continuing	Continuing
• MB5: *MEDICAL BIOLOGICAL DEFENSE (EMD)*	173.505	246.436	169.497	-	169.497	138.224	154.851	179.989	168.644	Continuing	Continuing
• MC5: *MEDICAL CHEMICAL DEFENSE (EMD)*	17.396	55.087	58.529	-	58.529	65.966	40.880	33.205	1.550	Continuing	Continuing
• MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*	0.490	0.499	13.414	-	13.414	14.551	9.816	7.277	16.496	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Chemical and Biological Defense Program	**Date:** March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	-	214.226	144.847	132.674	-	132.674	136.597	149.496	147.556	143.867	Continuing	Continuing
CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)*	-	23.247	15.401	17.722	-	17.722	16.123	16.968	16.250	15.844	Continuing	Continuing
NT3: *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (ATD)*	-	30.784	21.702	21.574	-	21.574	23.037	23.387	21.889	21.343	Continuing	Continuing
TM3: *TECHBASE MED DEFENSE (ATD)*	-	160.195	101.827	87.610	-	87.610	90.079	100.916	101.559	99.018	Continuing	Continuing
TT3: *TECHBASE TECHNOLOGY TRANSITION*	-	-	5.917	5.768	-	5.768	7.358	8.225	7.858	7.662	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

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. The PE funds advanced technology development for Joint Service and Service-specific requirements in both medical and physical sciences CBR defense areas.

In the physical sciences area, Project CB3 focuses on demonstrations of CB defense technologies, including biological detection, chemical detection, information system technology for hazard prediction and systems performance, and protection, and decontamination. The Project continues to pursue solutions against traditional agents.

All non-traditional agent (NTA)-dedicated research (both medical and non-medical) is consolidated in Project NT3. This Project includes NTA chemical diagnostics, medical pretreatments, therapeutics, detection, and protection and hazard mitigation.

The medical program in Project TM3, aims to produce biological diagnostic assays and reagents, diagnostic device platforms, pretreatments and therapeutics for bacterial, viral, and toxin threats as well as for chemical threats, 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.

Project TT3, Techbase Technology Transition, pursues efforts to enhance military operational capability, concepts of operation, WMD elimination, and hazard mitigation following a biological warfare or chemical warfare attack.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Chemical and Biological Defense Program	**Date:** March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*

The PE is dedicated to conducting proof-of-principle field demonstrations, and testing system-specific technologies to meet specific military needs. Work conducted under this PE will transition to and will provide risk reduction for PE 0603884BP/PE 0604384BP activities.

B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	234.280	170.847	154.659	-	154.659
Current President's Budget	214.226	144.847	132.674	-	132.674
Total Adjustments	-20.054	-26.000	-21.985	-	-21.985
• Congressional General Reductions	-0.309	-			
• Congressional Directed Reductions	-14.784	-26.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.842	-			
• SBIR/STTR Transfer	-3.119	-			
• Other Adjustments	-	-	-21.985	-	-21.985

Change Summary Explanation

Funding: FY13: Reductions of $14.8M impacted efforts supporting threat agent sciences, medical countermeasures and diagnostics device development.

FY14: Reductions of $26.0M delay key physical and medical program technology development efforts in threat agent sciences, early warning/remote detection, biosurveillance informatics, medical countermeasure pretreatments, diagnostics, and hazard mitigation capabilities.

FY15: Reductions of $22.0M impact medical countermeasure candidates, diagnostic device technology evaluations, and brassboard prototypes supporting genomic sequencing capabilities.

Schedule: N/A

Technical: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program												Date: March 2014
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*				Project (Number/Name) CB3 / *CHEMICAL BIOLOGICAL DEFENSE (ATD)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)*	-	23.247	15.401	17.722	-	17.722	16.123	16.968	16.250	15.844	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Project CB3 develops technology advancements for joint service application in the area of information systems and modeling and simulation technologies. These activities will speed maturing of advanced technologies to reduce risk in system-oriented integration/demonstration efforts. Information systems advanced technology focuses on areas of advanced warning and reporting, hazard prediction and assessment, simulation analysis and planning, and systems performance modeling.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) Biosurveillance (BSV) ***Description:*** 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. ***FY 2014 Plans:*** Complete effort initiated in Project TM3 (Diagnostics and Disease 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. Demonstrate data stream (inclusive of point of need diagnostic data) integration for early warning and analytical capabilities of the BSV Ecosystem. Develop analytic capabilities to synthesize and interrogate multiple sources of data to provide high confidence in the prediction, early warning and forecasting (inclusive of mitigation strategies) of infectious disease outbreaks. Continue the development of a scalable, replicable framework to serve as the basis for a biosurveillance cloud for government data. Continue development of an infrastructure and integrated set of tools and methods for the collection, storage, recall, and cross comparison of a wide array of biologic-related data emerging from research, clinical testing, and diagnostics, and other diverse sources.	-	1.117	-
Title: 2) Detection ***Description:*** 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.	5.756	2.262	4.174

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** CB3 / *CHEMICAL BIOLOGICAL DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Continued processes of validating ground truth systems for detection technologies (genomic and proteomic technology) field assessments. ***FY 2014 Plans:*** Continue processes of validating ground truth systems for detection technologies (genomic and proteomic technology) field assessments. ***FY 2015 Plans:*** Continue processes of validating ground truth systems for detection technologies (genomic and proteomic technology) field assessments.			
Title: 3) Hazard Prediction	4.199	3.210	3.685
Description: 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. ***FY 2013 Accomplishments:*** Continued implementation of new numerical schemes for transport and dispersion models. Continued enhancement of urban transport and dispersion models which transitioned from CB2. Continued with work on configuration management prototype to establish upgraded capabilities listed as valid requirements for JEM. Completed development on the high altitude post-missile intercept effects model. Continued with field transport and dispersion databases and websites for accessible permanent test archiving. Continued implementation and testing of new numerical schemes for future establishment of 64-bit/multi-core capable models. ***FY 2014 Plans:*** Continue implementation of new numerical schemes and performance optimization for transport and dispersion models. Continue enhancement of high fidelity urban transport and dispersion. Continue with work on configuration management of science and technology prototype to establish upgraded capabilities listed as valid requirements for Hazard Prediction and Assessment Capability/JEM (HPAC/JEM). Initiate final development and integration of the missile intercept/functioning missile effects model (i.e., hazard predictions given an missile intercepted in flight and hazard predictions given a missile that correctly delivers its payload). Continue providing field transport and dispersion databases and websites for community accessible permanent test archiving. Continue implementation and testing of new numerical schemes for future establishment of 64-bit/multi-core capable models. ***FY 2015 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** CB3 / *CHEMICAL BIOLOGICAL DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue implementation of new numerical schemes and performance optimization for transport and dispersion models. Continue enhancement of high-fidelity urban transport and dispersion. Continue configuration management of science and technology prototype to establish upgraded capabilities listed as valid requirements for Hazard Prediction and Assessment Capability/Joint Effects Model (HPAC/JEM) at a slowed pace. Initiate next-generation development of missile intercept/functioning missile effects model. Complete implementation and testing of new numerical schemes for future establishment of 64-bit/multi-core-capable models.			
Title: 4) Data Analysis ***Description:*** Develop chemical, biological, radiological and nuclear data-sharing capabilities. ***FY 2013 Accomplishments:*** Continued to develop the Chemical and Biological Agent Effects Manual Number 1 (CB-1), an authoritative source capturing analytical methods for evaluating the effects of CB agents on equipment, personnel, and operations. Concluded development of initial versions of systems performance models in collective protection, individual protection, contamination avoidance and decontamination. Initiated system performance model integration with advanced development for program-wide exploitation. ***FY 2014 Plans:*** Integrate additional chapters 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. Initiate construction of a secure and capable framework for CB-1 within the Defense Threat Reduction Information Analysis Center (DTRIAC) Next Gen Scientific and Technical Information Archival and Retrieval System (STARS). ***FY 2015 Plans:*** Integrate additional chapters of the Chemical and Biological Agent Effects Manual Number 1 (CB-1), an authoritative source capturing analytical methods for evaluating the effects of CB agents on equipment, personnel and operations. Complete construction of a secure and capable framework for CB-1 within the Defense Threat Reduction Information Analysis Center (DTRIAC) Next Gen Scientific and Technical Information Archival and Retrieval System (STARS).	1.757	2.690	2.043
Title: 5) Operational Effects ***Description:*** Develop decision support tools and information management capabilities for planning and real-time analysis to determine and assess operational effects, risks, and overall impacts of CBRN incidents on decision-making. Focus areas include consequence management, population modeling, and knowledge management. ***FY 2013 Accomplishments:***	1.379	1.717	3.713

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** CB3 / *CHEMICAL BIOLOGICAL DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Need Text ***FY 2014 Plans:*** Continue system performance model integration with advanced development programs and initiate development of second generation versions of systems performance models in individual protection. ***FY 2015 Plans:*** Continue system performance model integration with advanced development programs. Complete second generation system performance model for multiple decontamination systems.			
Title: 6) Filtration ***Description:*** 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. ***FY 2013 Accomplishments:*** Continued 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. Continued transition of these technologies to the Joint Service General Purpose Mask(JSGPM) and Joint Service Aircrew Mask (JSAM) programs. ***FY 2014 Plans:*** 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. Continue transitioning these technologies to the JSGPM and JSAM programs. ***FY 2015 Plans:*** Transition a synthetic nano-structured material focused on toxic industrial chemical removal, including ammonia.	1.674	0.937	1.102
Title: 7) Respirators ***Description:*** 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. ***FY 2014 Plans:*** Develop prototype respirator and conduct testing in a relevant environment. ***FY 2015 Plans:***	-	0.467	0.360

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** CB3 / *CHEMICAL BIOLOGICAL DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue the development of a prototype respirator and conduct testing in a relevant environment.			
Title: 8) Fabrics ***Description:*** Demonstration of lightweight chemical and biological protective textiles that can be used as an integrated combat duty uniform. ***FY 2013 Accomplishments:*** Continued 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. Continued the trade-space analysis of all government, industrial, and academic candidate materials for use in future UIPE phase initiations. Continued to transition the human performance tool set to the Advanced Development - UIPE program so that it can be used in the optimization of protective ensemble design. ***FY 2014 Plans:*** Continue to integrate next phase of integrated textile systems into a complete second generation candidate ensemble for the UIPE Phase II program as well as other applicable Advanced Technology Demonstrations that may materialize. Transition new fabric technologies to the UIPE program. Scale-up fabrics to ensemble prototypes and test in a relevant environment. Continue the trade-space analysis of all government, industrial, and academic candidate materials for use in future UIPE phase initiations. Complete transition of the human performance tool set to ACD&P - UIPE program so that it can be used in the optimization of protective ensemble design. ***FY 2015 Plans:*** Complete all demonstration activities of the developed fabric technologies.	3.316	1.809	1.474
Title: 9) Decontamination ***Description:*** Demonstration of non-traditional decontamination technologies and approaches which gain significantly improved effectiveness by complementary application. ***FY 2013 Accomplishments:*** Continued the development, demonstration, and transition of non-traditional decontamination technologies and approaches which gain significantly improved effectiveness by complementary application. Continued to integrate and demonstrate robust surface chemistry and decontamination process analysis using ultra high vacuum system into technology maturation process for hazard mitigation. Continued to develop coatings, innovative chemistries/processes, enzyme approaches to hazard mitigation,	1.500	1.192	1.171

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** CB3 / *CHEMICAL BIOLOGICAL DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
human remains decontamination processes, and radiological/nuclear decontamination/hazard mitigation capabilities. Transitioned quantitatively evaluated interim capability for radiological/nuclear decontamination/hazard mitigation. ***FY 2014 Plans:*** 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. ***FY 2015 Plans:*** Continue S&T efforts related to Dial-a-Decon and Enzyme Decon projects. Investigate non-aqueous formulations and responsive coatings.			
Title: 10) Test and Evaluation (T&E) ***Description:*** Develop CBRN data sharing capabilities and simulation tools. ***FY 2013 Accomplishments:*** Continued 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. Concluded development of initial versions of systems performance models in collective protection, individual protection, contamination avoidance and decontamination.	3.666	-	-
Accomplishments/Planned Programs Subtotals	23.247	15.401	17.722

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• CA4: *CONTAMINATION AVOIDANCE (ACD&P)*	5.713	24.853	40.088	-	40.088	34.229	29.355	-	-	-	134.238
• DE4: *DECONTAMINATION SYSTEMS (ACD&P)*	11.463	14.978	2.900	-	2.900	-	-	-	10.000	Continuing	Continuing
• IS4: *INFORMATION SYSTEMS (ACD&P)*	15.728	8.199	6.169	-	6.169	3.684	1.637	0.100	0.100	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** CB3 / *CHEMICAL BIOLOGICAL DEFENSE (ATD)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• TE4: *TEST & EVALUATION (ACD&P)*	5.164	15.671	21.188	-	21.188	23.334	18.386	18.933	18.933	Continuing	Continuing
• TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)*	3.205	-	-	-	-	-	-	-	-	-	3.205

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program			Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** NT3 / *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (ATD)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
NT3: *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (ATD)*	-	30.784	21.702	21.574	-	21.574	23.037	23.387	21.889	21.343	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

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 science and technology (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 2013	FY 2014	FY 2015
Title: 1) Diagnostics - Medical ***Description:*** 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 Accomplishments:*** Refined mature technologies that can quickly diagnose pre-symptomatic NTA exposure. ***FY 2014 Plans:*** Continue development of mature technologies that can quickly diagnose pre-symptomatic NTA exposure. Begin transition method development for identification and validation of NTAs in clinical samples to the Laboratory Response Network. ***FY 2015 Plans:*** Continue development of mature technologies that can quickly diagnose pre-symptomatic NTA exposure.	0.398	0.574	0.667
Title: 2) Pretreatments - Medical ***Description:*** 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	0.501	3.960	6.175

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** NT3 / *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
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 Accomplishments:*** Continued exploitation of alternative expression systems for production of recombinant butylcholinesterase (rBuChE). Completed study of use of plasma derived human butylcholinesterase (huBChE) as prophylactic for all nerve agents. ***FY 2014 Plans:*** Continue exploitation of alternative expression systems for production of rBuChE. Pursue novel in-silico and/or in vitro methods to facilitate high throughput screening and development of medical countermeasures. ***FY 2015 Plans:*** Continue efforts to demonstrate feasibility of intra-muscular (IM) stoichiometric bioscavenger. Reduce scope in alternate manufacturing processes for recombinant human butyrylcholinesterase. Contributes to the research efforts at the ADME Research Center of Excellence, with Tier 0, 1 and 2 assay potential (with a reduced scope) at DoD Laboratories as a core program capability.			
Title: 3) Therapeutics - Medical ***Description:*** 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. ***FY 2013 Accomplishments:*** Continued formulation and stability studies. Began safety studies in small animal model using selected formulation. ***FY 2014 Plans:*** Reduced scope of formulation and stability studies of therapeutic compounds. Further examine small animal model safety studies of limited selected formulations of centrally active reactivator or anti-cholinergic compounds. ***FY 2015 Plans:*** Continue development of technology to facilitate delivery of therapeutic regimen to the brain. Further refine small animal model.	8.669	8.889	2.305
Title: 4) Detection ***Description:*** Detection NTA: Focuses on technologies to provide NTA detection capabilities. ***FY 2013 Accomplishments:***	14.153	5.322	9.034

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** NT3 / *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continued the development of test methodology to validate signatures for chemical aerosol threat materials. ***FY 2014 Plans:*** Continue the development of test methodology to validate signatures for chemical aerosol threat materials. ***FY 2015 Plans:*** Continue the development of test methodology to validate signatures for chemical aerosol threat materials.			
Title: 5) Modeling & Simulation ***Description:*** This effort develops non-traditional agent (NTA) technology advancements for joint service application in the area of information systems and modeling and simulation technologies. These activities will speed maturing of advanced technologies to reduce risk in system-oriented integration/demonstration efforts. Information systems advanced technology focuses on areas of advanced warning and reporting, hazard prediction and assessment, simulation analysis and planning, and systems performance modeling. ***FY 2014 Plans:*** Conduct analysis and oversight of NTA simulant testing related to creating and verifying NTA modeling source terms, for defense against CBRN hazards. ***FY 2015 Plans:*** Complete analysis of NTA simulant testing.	-	0.288	0.239
Title: 6) Air Purification ***Description:*** Study and assessment of filter technologies. ***FY 2013 Accomplishments:*** Continued development, verification and demonstration of novel materials to improve performance against NTAs. Transitioned these technologies to the Joint Service General Purpose Mask (JSGPM) and Joint Service Aircrew Mask (JSAM) programs. ***FY 2015 Plans:*** Re-establish funding for this effort in NT3. Assess the performance of novel adsorbents and develop specific functionalities of NTAs.	0.288	-	0.388
Title: 7) Percutaneous Protection ***Description:*** Study and assessment of protective technologies. ***FY 2013 Accomplishments:***	0.289	0.962	0.862

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** NT3 / *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continued the verification of protective fabrics against non-traditional agents. Demonstrated and began transition of low burden technologies (such as reduced thermal-burden fabrics, and lighter weight fabrics) to improve overall protective clothing performance against NTAs. ***FY 2014 Plans:*** Continue verification, demonstration and transition of low burden technologies to improve overall protective clothing performance against NTAs. Transition technologies to the Uniform Integrated Protective Ensemble (UIPE) program. ***FY 2015 Plans:*** Assess and optimize technologies to improve whole system performance against NTAs.			
Title: 8) Decontamination ***Description:*** Study and assessment of decontamination technologies. ***FY 2013 Accomplishments:*** Continued verification and demonstration of decontamination technologies against NTAs. Continued to develop and demonstrate enzyme technology for low-impact decon of NTAs. Continued to enhance NTA related understanding and capabilities of current decontamination and hazard mitigation technologies and develop additional processes for NTA hazard mitigation. ***FY 2014 Plans:*** Continue verification, demonstration, and transition of decontamination technologies against NTAs to the Advanced Development - Decontamination Family of Systems (DFoS) program. Continue to develop and demonstrate enzyme technology for low-impact decontamination of NTAs, and transition these technologies. Continue to enhance NTA-related understanding and capabilities of current decontamination and hazard mitigation technologies and develop additional processes for NTA hazard mitigation. ***FY 2015 Plans:*** Continue to assess performance and unique aspects of full spectrum of NTAs and develop technologies to optimize performance against NTAs.	0.290	0.872	1.109
Title: 9) Test & Evaluation ***Description:*** Develops test and evaluation technologies and processes in support of NTA activities. ***FY 2013 Accomplishments:*** Continued initial select agent testing, and continued further prioritized agent testing. ***FY 2014 Plans:***	6.196	0.835	0.795

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** NT3 / *TECHBASE NON-TRADITIONAL AGENTS DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Complete initial select agent testing, and continue further prioritized select agent testing. ***FY 2015 Plans:*** Continue further prioritized select agent testing.			
Accomplishments/Planned Programs Subtotals	30.784	21.702	21.574

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• CA4: *CONTAMINATION AVOIDANCE (ACD&P)*	5.713	24.853	40.088	-	40.088	34.229	29.355	-	-	-	134.238
• DE4: *DECONTAMINATION SYSTEMS (ACD&P)*	11.463	14.978	2.900	-	2.900	-	-	-	10.000	Continuing	Continuing
• IP4: *INDIVIDUAL PROTECTION (ACD&P)*	0.550	1.208	6.811	-	6.811	4.680	0.300	-	-	-	13.549
• MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)*	-	2.000	-	-	-	-	3.750	10.692	25.089	Continuing	Continuing
• TE4: *TEST & EVALUATION (ACD&P)*	5.164	15.671	21.188	-	21.188	23.334	18.386	18.933	18.933	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program			Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** TM3 / *TECHBASE MED DEFENSE (ATD)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
TM3: *TECHBASE MED DEFENSE (ATD)*	-	160.195	101.827	87.610	-	87.610	90.079	100.916	101.559	99.018	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

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.

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 science and technology (S&T) are concentrated in advancing two areas: 1) regulatory science and 2) flexible manufacturing technologies and processes for MCMs. Efforts conducted in these areas are enablers supporting the DoD Medical Countermeasures Advanced Development and Manufacturing (MCM-ADM) capability.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) Assays and Reagents	27.924	9.445	19.709
Description: 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.			
FY 2013 Accomplishments: Translated 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. Developed and transition thermostable reagents/scale-up protocols to advanced development for use in austere biosurveillance environments. Transitioned 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			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** TM3 / *TECHBASE MED DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
diagnostic, disease surveillance and MCM development. Submit pre-Emergency Use application data packages to FDA Office for in vitro diagnostics. ***FY 2014 Plans:*** Continue to develop laboratory, data fusion informatics methodologies and specimen pipelines into robust and well-characterized signatures required to identify and bio-type emerging, re-emerging, and identify antibiotic resistant mutations and phenotypes. Develop and transition an additional thermostable reagents/scale-up protocols to advanced development for use in austere biosurveillance environments. Collaborate with the Centers for Disease Control (CDC) to improve diagnostic and surveillance capabilities needed to counter traditional, engineered, emerging and biological threats. ***FY 2015 Plans:*** Continue to develop and transition an additional thermostable reagents/scale-up protocols to advanced development for use in austere biosurveillance environments. Continue to collaborate with the CDC to improve diagnostic and surveillance capabilities needed to counter traditional, engineered, emerging and biological threats. Complete development and transition signature analysis and assay/device for strain identification and genotyping of Burkholderia pseudomallei and CCHF virus. Continue development of Mass spectrometry protocol capable of identifying HHA false positive triggers on multiple toxin lateral flow assays.			
Title: 2) Bacterial Therapeutics ***Description:*** Identify, optimize and evaluate potential therapeutic compounds effective against bacterial threat agents. ***FY 2013 Accomplishments:*** Evaluated FDA approved compounds for efficacy in non-human primate models against aerosolized challenge of Y. pestis. Evaluated small molecule inhibitors of the electron transport chain and the ATP synthase bacterial biothreat agents. Performed pharmacokinetic studies of humanized CapD in mouse models. Continued 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. ***FY 2014 Plans:*** Evaluate FDA approved compounds for efficacy in non-human primate models against aerosolized challenge of B. anthracis. Continue evaluation of efficacy of novel topoisomerase inhibitor against Y. pestis and F. tularensis. Develop novel ribosome inhibitors and additional novel topoisomerase inhibitors as therapeutics for priority antimicrobial resistant bacterial pathogens. 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. ***FY 2015 Plans:***	5.100	13.590	15.521

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** TM3 / *TECHBASE MED DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Evaluate FDA approved compounds for efficacy in non-human primate models against aerosolized challenge of B. anthracis. Develop novel ribosome inhibitors as therapeutics for priority bacterial pathogens. Continue pre-clinical research required to submit IND applications to the FDA for additional products. Continue non-clinical work utilizing the Animal Rule for the submission of Supplemental New Drug Applications (sNDAs), reducing the focus to novel topoisomerase inhibitors and addressing a limited number of priority pathogens.			
Title: 3) Bacterial/Toxin Vaccines ***Description:*** Evaluate the best single agent bacterial and toxin vaccines for effectiveness against aerosol challenge in large animal models. ***FY 2013 Accomplishments:*** Deliver final data package for ricin vaccine. Completed a phase I clinical trial with the lead ricin vaccine candidate (RV Ec). ***FY 2014 Plans:*** Coordinate with the advanced developer to fulfill S&T needs in support of the ricin vaccine transition. Continue to test mutants of RVEc as backup candidates for improved safety and efficacy. ***FY 2015 Plans:*** Coordinate with the advanced developer to fulfill S&T needs in support of the ricin vaccine transition. Down-select to a back-up candidate to RV Ec.	0.604	0.459	9.900
Title: 4) Bacterial/Toxin Vaccines ***Description:*** Develops medical countermeasures to protect the Warfighter against radiological/nuclear exposure. The Department of Defense is the only governmental agency currently developing medical prophylaxis to protect Warfighters or other responders in the event of a radiological incident. ***FY 2013 Accomplishments:*** Explored the development of a biodosimetry hand-held diagnostic device that is minimally invasive, accurate, rapid, high-throughput and suitable for medical triage.	0.172	-	-
Title: 5) Biosurveillance ***Description:*** 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	1.327	-	0.936

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** TM3 / *TECHBASE MED DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
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 Accomplishments:*** Continued effort 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. ***FY 2015 Plans:*** Complete the development of a scalable, replicable framework to serve as the basis for a biosurveillance cloud for government data. Continue the development of analytic capabilities to synthesize and interrogate multiple sources of data to provide high confidence in the prediction, early warning and forecasting (inclusive of mitigation strategies) of infectious disease outbreaks.			
Title: 6) Chemical Diagnostics ***Description:*** 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 2013 Accomplishments:*** Expanded the current set of analytical methods to more sensitive analytical platforms for the detection of CWAs. ***FY 2014 Plans:*** Continue to expand the current set of analytical methods to more sensitive analytical platforms for the detection of CWAs in clinical samples. ***FY 2015 Plans:*** Continue to expand the current set of analytical methods to more sensitive analytical platforms for the detection of CWAs in clinical samples	0.399	0.460	0.395
Title: 7) Diagnostic Device Platforms ***Description:*** 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. ***FY 2013 Accomplishments:***	15.292	29.211	19.711

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** TM3 / *TECHBASE MED DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Provided documented assessments of candidate devices potential for transition to advanced developers to support the deployment of point of care diagnostic capabilities. Verified 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. ***FY 2014 Plans:*** Continue to develop candidate devices for potential transition to advanced developers to support the deployment of point of care diagnostic capabilities. Development of hardware solutions and assay formats to enable point of need 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. ***FY 2015 Plans:*** Evaluate candidate host biomarker diagnostic targets in clinical test environments. Develop point-of-need diagnostic platforms with host biomarker diagnostic assays and test performance. Evaluate metrics of host-based diagnostic approach by comparing with pathogen detection approaches (infection to detection time, sensitivity, specificity, etc.) in analytical and/or clinical environments. Continue to develop candidate devices for potential transition to support the deployment of point of care diagnostic capabilities. Continue development of hardware solutions and assay formats to enable point of need diagnostic capabilities. Verify clinical utility of host and pathogen biomarkers and integrate onto diagnostic platform prototypes that confer(s) the ability to identify and type novel infectious agents as a function of their relationship to previously characterized pathologies.			
Title: 8) Medical Countermeasures Initiative ***Description:*** The MCMI will integrate the regulatory science and manufacturing technologies and processes developed into the Advanced Development and Manufacturing (MCM-ADM) as enablers of the advanced development and flexible manufacturing capability. ***FY 2013 Accomplishments:*** Furthered 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. Continued to develop and make practical improvements to existing agile, flexible, manufacturing bioprocesses for the purpose of accelerating access to biodefense MCMs. Continued the development of a plant-based virus-like particle (VLP) vaccine. Identified additional ex vivo cell/tissue mimetics such as precision cut tissue slices to serve as predictive surrogates for accelerated MCM efficacy and safety evaluation. ***FY 2014 Plans:*** Continue 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	16.654	12.759	9.642

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** TM3 / *TECHBASE MED DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
development of a plant-based 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. ***FY 2015 Plans:*** Continue 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 development of a plant-based VLP vaccine.			
Title: 9) Multiagent Medical Countermeasures ***Description:*** Continues efforts previously funded under the Transformational Medical Technologies Initiative to develop candidate countermeasures for Hemorrhagic Fever Virus (HFV) and Intracellular Bacterial Pathogen (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. ***FY 2013 Accomplishments:*** Continued 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 Emerging Infectious Disease (EID) product pipelines. Continued 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, incorporating feedback from the FDA and Services into requirements.	34.101	-	-
Title: 10) Nerve Agent Pretreatments ***Description:*** 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. ***FY 2013 Accomplishments:***	2.519	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** TM3 / *TECHBASE MED DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continued characterization of recombinant human butyrylcholinesterase (rHuBChE) bioscavenger product of selected alternative expression systems.			
Title: 11) Neurologic Therapeutics ***Description:*** 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. ***FY 2013 Accomplishments:*** Completed studies developing appropriate animal models. Maintained 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., Good Laboratory Practice or GLP), is needed to ensure quality and consistency of study test data submitted in applications to FDA in support of regulatory actions. ***FY 2014 Plans:*** Maintain reduced core capability for in vitro and in vivo testing efforts supporting regulatory science to facilitate FDA licensure including in vitro and in vivo testing. ***FY 2015 Plans:*** Reduced emphasis on continuing efforts supporting regulatory science to facilitate FDA licensure including in vitro and in vivo testing.	9.166	4.585	1.670
Title: 12) Next Generation Diagnostics ***Description:*** 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. ***FY 2013 Accomplishments:*** Performed pre-clinical validation studies in relevant animal models and human/zoonotic disease states to stratify pre-symptomatic biomarker panel positive and negative predictive values.	12.872	-	-
Title: 13) Toxin Therapeutics ***Description:*** Identify, optimize and evaluate potential therapeutic candidates effective against biological toxin threat agents. ***FY 2013 Accomplishments:***	1.645	0.412	1.000

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** TM3 / *TECHBASE MED DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Evaluated small molecule non-peptidic inhibitors for pharmacokinetic and toxicology profiles. Tested novel small molecule inhibitors in mouse model of BoNT A intoxication for efficacy. ***FY 2014 Plans:*** Continue evaluation of small molecule non-peptidic inhibitors for pharmacokinetic and toxicology profiles. Test novel small molecule inhibitors in mouse model of BoNT A intoxication for efficacy. ***FY 2015 Plans:*** Continue evaluation of small molecule non-peptidic inhibitors for pharmacokinetic and toxicology profiles. Test novel small molecule inhibitors in mouse model of BoNT A intoxication for efficacy.			
Title: 14) Vaccine Platforms and Research Tools ***Description:*** Use novel technology and methods to support development of vaccine candidates. Conduct 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. Identify correlates of protection in humans, and predict the success of lead vaccine candidates in humans. ***FY 2013 Accomplishments:*** Continued formulation studies to produce a thermo-stable, spray-dried formulation of an advanced vaccine candidate. Continued to evaluate stabilization technologies that provide thermal stability to multiple classes of vaccines such as viral vectored vaccines and subunit protein vaccines. Continued to evaluate alternative (needle-free) vaccine delivery technologies such as inhalers or skin patches for the delivery of mature vaccine candidates. Utilized clinical samples from Filovirus or Alphavirus outbreaks in multiple international locations to help define clinically relevant correlates of immunity. ***FY 2014 Plans:*** 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. ***FY 2015 Plans:*** Emphasize alternative production platforms applying them to current CBDP vaccine needs. Utilize clinical samples from Filovirus outbreaks in multiple international locations to help define clinically relevant correlates of immunity.	3.788	2.423	3.826
Title: 15) Viral Therapeutics	6.100	14.066	2.000

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** TM3 / *TECHBASE MED DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Description: Identify, optimize and evaluate potential therapeutic candidates effective against designated viral threat agents. ***FY 2013 Accomplishments:*** Continued evaluation of immunotherapies for Filoviruses in non-human primate models. Developed immune modulators for the treatment of Filovirus infection. Continued screening program to determine efficacy of FDA approved compounds against emerging infectious diseases. Therapeutic efforts were primarily focused on Alphavirus and Filovirus families. Continued pre-clinical research required to submit Investigational New Drug (IND) applications to the FDA for additional products or additional product indications to refresh the viral therapeutics product pipeline. ***FY 2014 Plans:*** Evaluate immunotherapies for Filoviruses in non-human primate models. Continue development of antibody-based therapies for Filovirus infections. Continue screening program to determine efficacy of FDA approved compounds against emerging infectious diseases. Evaluate FDA-approved host-directed tyrosine kinase inhibitors for efficacy against Alphavirus, Filovirus, Flavivirus, Arenavirus, Bunyavirus, and Orthopoxvirus. 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. ***FY 2015 Plans:*** Evaluate immunotherapies for filoviruses in non-human primate models. Continue and repurposing screening program to determine efficacy of FDA approved compounds against emerging infectious diseases. 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.			
Title: 16) Viral Vaccines ***Description:*** Evaluates the best vaccine candidates for Alphaviruses and Filoviruses for effectiveness and duration of protective immune response against aerosol challenge in large animal models. Animal models will be developed to support FDA licensure of mature vaccine candidates. ***FY 2013 Accomplishments:*** Coordinated with the advanced developer to fulfill S&T needs in support of the Filovirus vaccine transition. Continued development of Filovirus and Alphavirus immunological assays to support product development. Submitted IND for Phase I clinical trial of Venezuelan Equine Encephalitis (VEE) DNA vaccine delivered by in vivo electroporation via intra-muscular or intra-dermal administration. Completed pre-clinical studies on a trivalent VEE, Eastern and Western Equine Encephalitis (EEE, WEE) DNA formulation. Continued to conduct pre-clinical studies of the Alphavirus replicon vaccine in coordination with the advanced developer. Continued the development of animals models for Alphaviruses (VEE, EEE, and WEE), and Filoviruses (Ebola Sudan,	22.532	14.417	3.300

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** TM3 / *TECHBASE MED DEFENSE (ATD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Ebola Zaire, Ebola Bundibugyo, and Marburg), to fulfill future FDA 'Animal Rule' requirements necessary for vaccine licensure. Although the Filovirus vaccines transitioned in FY11, work continued on the selected candidate(s) to fill knowledge gaps. ***FY 2014 Plans:*** Continue development of Alphavirus immunological assays to support product development. Conduct Good Lab Practices (GLP) animal efficacy studies of the VEE DNA vaccine delivered by in vivo electroporation via intra-muscular or intra-dermal administration. 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), to fulfill future FDA 'Animal Rule' requirements necessary for vaccine licensure. ***FY 2015 Plans:*** Conduct Good Lab Practices (GLP) animal efficacy studies of the VEE DNA vaccine delivered by in vivo electroporation via intra-muscular or intra-dermal administration. Continue to conduct pre-clinical studies of the Alphavirus replicon vaccine in coordination with the advanced developer. Complete GLP natural history studies for Alphaviruses (W/E/VEEV). Continue the development of animals models for Alphaviruses (EEE and WEE), to fulfill future FDA 'Animal Rule' requirements necessary for vaccine licensure. Begin a Phase 1 clinical trial with a multivalent Alphavirus DNA vaccine candidate.			
Accomplishments/Planned Programs Subtotals	160.195	101.827	87.610

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*	111.415	122.328	102.080	-	102.080	101.019	60.981	32.683	48.277	Continuing	Continuing
• MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)*	-	2.000	-	-	-	-	3.750	10.692	25.089	Continuing	Continuing
• MB5: *MEDICAL BIOLOGICAL DEFENSE (EMD)*	173.505	246.436	169.497	-	169.497	138.224	154.851	179.989	168.644	Continuing	Continuing
• MC5: *MEDICAL CHEMICAL DEFENSE (EMD)*	17.396	55.087	58.529	-	58.529	65.966	40.880	33.205	1.550	Continuing	Continuing
• MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*	0.490	0.499	13.414	-	13.414	14.551	9.816	7.277	16.496	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** TM3 / *TECHBASE MED DEFENSE (ATD)*

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** TT3 / *TECHBASE TECHNOLOGY TRANSITION*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
TT3: *TECHBASE TECHNOLOGY TRANSITION*	-	-	5.917	5.768	-	5.768	7.358	8.225	7.858	7.662	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Project TT3 validates high-risk/high-payoff technologies, concepts-of-operations, and a new Joint Combat Development concept development and experimentation process 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 including limited objective experiments, laboratory experiments, risk reduction efforts, engineering and integration. These demonstrations and programs seek to demonstrate the potential for enhanced military operational capability and/or cost effectiveness. This project addresses four family of products areas: Biological Resiliency, Weapons of Mass Destruction (WMD) Elimination, Hazard Mitigation and Facilities Protection. Biological resiliency efforts are targeted to reduce biological threats by: (1) improving Department of Defense (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. WMD Elimination addresses detection, identification, verification and baseline assessments in support of expeditionary forces deployed in non-permissive environments. Hazard Mitigation 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. Facilities protection transitions mature technologies to improve individual and critical infrastructure protection capabilities for U.S. and coalition Warfighters.

Three demonstrations will be ongoing in FY15: Joint Biological Agent Decontamination System (JBADS) JCTD- Demonstration of the operational utility of a interior-exterior airframe decontamination capability; Thermal Imaging Dual-Use for Aerosol Monitoring Alarms and Security (TIDAMAS)- Evaluation of a dual capability that can perform chemical standoff detection and ISR; and Joint Concept Development and Experimentation (JCDE)/Rapid Military Utility Assessment Initiative - a partnership with Maneuver Support Center of Excellence (MSCOE) to better ensure S&T solutions address warfighter needs.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) Experiment & Technology Demonstrations	-	5.917	5.768
FY 2014 Plans: Conduct technical and operational demonstrations for persistent and contagious bio agent scenarios in the US European Command Area of Responsibility (EUCOM AOR). Conduct and complete a series of vignettes addressing sampling and analysis (to include forensics preparation), wide area decontamination and medical/epidemiological management. Complete Coalition Warfare Program science and technology (S&T) efforts with international partner in EUCOM AOR. Conduct a field experiment process to assess early technology capability contributions, in collaboration with the CBDP Joint Combat Developer and with			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603384BP / *CHEMICAL/BIOLOGICAL DEFENSE (ATD)*	**Project (Number/Name)** TT3 / *TECHBASE TECHNOLOGY TRANSITION*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
outcomes to support the creation of an initial capabilities document (ICD). Demonstrate decontamination technologies for the interior of airframes against bio agents as part of a Joint Combat Technology Demonstration (JCTD) initiative with US Transportation Command (TRANSCOM). Initiate analysis and market research for a complete facilities protection system that is rapidly deployable, to include threat detection, building hardening, and personal protection. ***FY 2015 Plans:*** Initiate Advanced Technology Demonstration (ATD) for Rapid Response and Recovery thrust area, which includes the WMD Elimination mission space. Conduct extended user evaluation of recently transitioned capabilities for persistent and contagious bio agent scenarios in the US European Command Area of Responsibility (EUCOM AOR). Initiate bio-resiliency S&T development in additional AORs. Conduct early warning/remote detection S&T efforts with international partner in the US Pacific Command (PACOM) AOR. Conduct a rapid military utility assessment and field experiment process to assess early technology capability contributions across combating WMD (C-WMD) mission areas, in collaboration with the CBDP Joint Combat Developer and with outcomes to support CBDP requirements and capability development. Complete demonstration of decontamination technologies for the interior of airframes against bio agents as part of a JCTD initiative with US TRANSCOM.			
Accomplishments/Planned Programs Subtotals	-	5.917	5.768

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)*	3.205	-	-	-	-	-	-	-	-	-	3.205

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Chemical and Biological Defense Program	Date: March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	-	163.464	189.237	179.236	-	179.236	166.946	114.409	62.408	102.399	Continuing	Continuing
CA4: *CONTAMINATION AVOIDANCE (ACD&P)*	-	5.713	24.853	40.088	-	40.088	34.229	29.355	-	-	-	134.238
CM4: *HOMELAND DEFENSE (ACD&P)*	-	7.490	-	-	-	-	-	-	-	-	-	7.490
DE4: *DECONTAMINATION SYSTEMS (ACD&P)*	-	11.463	14.978	2.900	-	2.900	-	-	-	10.000	-	39.341
IP4: *INDIVIDUAL PROTECTION (ACD&P)*	-	0.550	1.208	6.811	-	6.811	4.680	0.300	-	-	-	13.549
IS4: *INFORMATION SYSTEMS (ACD&P)*	-	15.728	8.199	6.169	-	6.169	3.684	1.637	0.100	0.100	Continuing	Continuing
MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*	-	111.415	122.328	102.080	-	102.080	101.019	60.981	32.683	48.277	Continuing	Continuing
MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)*	-	-	2.000	-	-	-	-	3.750	10.692	25.089	Continuing	Continuing
MR4: *MEDICAL RADIOLOGICAL DEFENSE (ACD&P)*	-	2.736	-	-	-	-	-	-	-	-	-	2.736
TE4: *TEST & EVALUATION (ACD&P)*	-	5.164	15.671	21.188	-	21.188	23.334	18.386	18.933	18.933	Continuing	Continuing
TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)*	-	3.205	-	-	-	-	-	-	-	-	-	3.205

The FY 2015 OCO Request will be submitted at a later date.

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. 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 Department 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. The 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 accelerates 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 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 2015 Chemical and Biological Defense Program	Date: March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	179.023	196.237	186.892	-	186.892
Current President's Budget	163.464	189.237	179.236	-	179.236
Total Adjustments	-15.559	-7.000	-7.656	-	-7.656
• Congressional General Reductions	-0.237	-			
• Congressional Directed Reductions	-15.513	-7.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	2.582	-			
• SBIR/STTR Transfer	-2.391	-			
• Other Adjustments	-	-	-7.656	-	-7.656

Change Summary Explanation

Funding: FY13: Reductions of $15.5M delayed technology development phase efforts for medical countermeasures, specifically the Filovirus vaccine program.

FY14: Reductions of $7.0M impact planned technology development for the Next Generation Chemical Detector (NGCD) and Filovirus vaccine.

FY15: Reductions of $7.7M include termination of funding for the Joint Standoff Detection System (JSDS) and the Ricin vaccine program.

Schedule: N/A

Technical: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program												Date: March 2014
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*				Project (Number/Name) CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
CA4: *CONTAMINATION AVOIDANCE (ACD&P)*	-	5.713	24.853	40.088	-	40.088	34.229	29.355	-	-	-	134.238
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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) Joint Biological Tactical Detection System (JBTDS); (2) Joint Chemical Biological Radiological Agent Water Monitor (JCBRAWM) Increment 2; (3) Joint Standoff Detection System (JSDS); and (4) Next Generation Chemical Detector (NGCD).

The Joint Biological Tactical Detection System (JBTDS) is the first lightweight, low cost biological surveillance system that will detect, collect, and identify biological warfare agent aerosols. JBTDS will provide warning through the Joint Warning And Reporting Network (JWARN) and 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 will be man-portable, battery-operable, and easy to employ. JBTDS will be used to provide notification of a biological hazard and enhanced battle space awareness to protect and preserve the force. When networked, JBTDS will augment existing biological detection systems to provide a theater-wide seamless array capable of biological detection, identification and warning.

The Joint Chemical Biological Radiological Agent Water Monitor (JCBRAWM) Increment 2 efforts will evaluate existing and emerging technologies to provide improvement to chemical detection in water to meet Tri-Service Drinking Water Standards and to detect emerging threats in water.

The Joint Standoff Detection System (JSDS) will provide near real-time detection of chemical and biological attacks/incidents at a standoff distance. The modular system will be tailorable to the Service and can be employed at Aerial Port of Debarkation (APOD)/Sea Port of Debarkation (SPOD), Forward Operating Base (FOB), and on multiple platforms to include: fixed site, aerostat, and ground systems. The system will be networked to allow for cueing of point sensor arrays. Additionally, Unmanned Aerial Vehicle (UAV) (as demonstrated in the WMD Aerial Collection System (WACS) Advanced Technology Demonstration (ATD))/Unmanned Ground Vehicle (UGV) platforms could be integrated for sampling and identification. This schedule has been synchronized with the WACS ATD schedule to facilitate data exchange and possible excursions.

The Next Generation Chemical Detector (NGCD) consists of several detection systems. The variants will address sampling of multiple phases of matter; locating liquids and solids on surfaces; and vapor and aerosol monitoring. NGCD will detect and identify non-traditional agents, chemical warfare agents (CWAs), toxic industrial chemicals (TICs) in the air and on surfaces. The NGCD will provide improved CWA/TIC selectivity and sensitivity on multiple platforms as well as multiple environments. These detectors will improve detection, consequence management and reconnaissance, and weapons of mass destruction (WMD) interdiction capabilities. The scope of the project includes detection of agent a few feet away from the detector as well as at the sampling point of the detector.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) Joint Biological Tactical Detection System (JBTDS) ***FY 2013 Accomplishments:*** Completed interferent method development for technology development live agent testing.	0.100	-	-
Title: 2) Joint Biological Tactical Detection System (JBTDS) ***FY 2013 Accomplishments:*** Completed strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, and technical support.	2.987	-	-
Title: 3) Joint Biological Tactical Detection System (JBTDS) ***FY 2013 Accomplishments:*** Initiated and completed user representation and involvement for Technology Development (TD) phase.	1.132	-	-
Title: 4) Joint CBR Agent Water Monitor Increment 2 (JCBRAWM) ***FY 2014 Plans:*** Evaluate existing and emerging technologies to provide improvement to chemical detection in water and to detect emerging threats in water.	-	0.200	-
Title: 5) Joint Standoff Detection System (JSDS) ***FY 2014 Plans:*** Initiate early prototype designs, conduct studies, and perform testing to support evaluation of technology concepts.	-	5.500	-
Title: 6) Joint Standoff Detection System (JSDS) ***FY 2014 Plans:*** Establish program office to conduct strategic, tactical planning, government system engineering, program/financial management, costing, contracting, scheduling, technical support, and milestone documentation.	-	1.500	-
Title: 7) Next Generation Chemical Detector (NGCD) ***FY 2013 Accomplishments:*** Initiated Government program management, systems engineering, and Integrated Product Team (IPT) support and prepared for MS A. ***FY 2014 Plans:*** Continue Government program management, systems engineering and IPT support. ***FY 2015 Plans:***	1.294	5.853	10.433

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue Government program management, systems engineering and IPT support.			
Title: 8) Next Generation Chemical Detector (NGCD) ***FY 2013 Accomplishments:*** Initiated Request For Proposal (RFP) preparation. ***FY 2014 Plans:*** Award multiple contracts to develop prototypes and conduct Integrated Product Reviews (IPR) (9 systems at $100,000 each). ***FY 2015 Plans:*** Develop prototypes and conduct Integrated Product Reviews(IPR) (18 systems at $100,000 each).	0.200	10.450	19.125
Title: 9) Next Generation Chemical Detector (NGCD) ***FY 2014 Plans:*** Initiate and complete the Breadboard testing. ***FY 2015 Plans:*** Initiate and complete the Brassboard testing.	-	1.350	10.530
Accomplishments/Planned Programs Subtotals	5.713	24.853	40.088

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• CA5: *CONTAMINATION AVOIDANCE (EMD)*	21.825	32.766	50.582	-	50.582	76.595	64.248	61.660	18.598	Continuing	Continuing
• JF0100: *JOINT CHEMICAL AGENT DETECTOR (JCAD)*	16.212	47.598	33.685	-	33.685	7.834	7.547	-	-	-	112.876
• JF0104: *NEXT GEN CHEMICAL DETECTOR (NGCD)*	-	-	-	-	-	3.000	3.000	4.356	17.208	Continuing	Continuing
• JN0900: *NON TRADITIONAL AGENT DETECTION (NTAD)*	4.770	8.000	-	-	-	-	-	-	-	-	12.770
• MC0100: *JOINT NBC RECONNAISSANCE SYSTEM (JNBCRS)*	83.215	-	3.600	-	3.600	3.600	3.600	3.600	-	-	97.615

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• MC0101: *CBRN DISMOUNTED RECONNAISSANCE SYSTEMS (CBRN DRS)*	15.080	34.998	113.333	-	113.333	97.399	98.453	95.333	144.289	Continuing	Continuing
• MX0001: *JOINT BIO TACTICAL DETECTION SYSTEM (JBTDS)*	-	-	-	-	-	-	7.530	65.385	69.379	Continuing	Continuing

Remarks

D. Acquisition Strategy

JOINT BIO TACTICAL DETECTION SYSTEM (JBTDS)

The JBTDS is being developed using an evolutionary acquisition strategy. JBTDS will maximize the use of commercial off-the-shelf (COTS) and Government off-the-shelf (GOTS) technology. The awards for the Technology Development (TD) phase utilized a best value approach via the competitive CBRNE mission support contract to three contractor teams. Full and open competition will be utilized for the EMD contract with options for Low Rate Initial Production and Full Rate Production. Coordination with other programs (Common Analytical Laboratory System and Next Generation Diagnostic System) is occurring to share information and leverage potential common identification technology solutions to the three programs.

JS CHEM/BIO/RAD AGENT WATER MONITOR (JCBRAWM)

Current effort is being conducted in-house to address emerging threats in water and to enhance chemical detection capabilities to meet current Tri-Service Drinking Water Standards. Initial work focuses on determining viability of enhancements to existing kits through analysis of chemical processes. Results will provide data required to develop viable alternative approaches and to develop performance requirements for the Increment 2 program at MS A.

JOINT STANDOFF DETECTION SYSTEM (JSDS)

JSDS will maximize the use of commercial and government off the shelf mature technologies with an expected start at Milestone B. Full and open competition will be utilized for the SDD phase of the program.

NEXT GENERATION CHEMICAL DETECTOR (NGCD)

The NGCD analysis of alternatives will be used to generate performance specifications that will support contracting for competitive prototype development. The request for proposal was released July 2013. The goal for the initial stage of development will be to award multiple contracts for each variant of the NGCD. Full and open competition will be used to award one contract per variant at Milestone B. Mature technology will be accelerated as appropriate.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

E. Performance Metrics

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

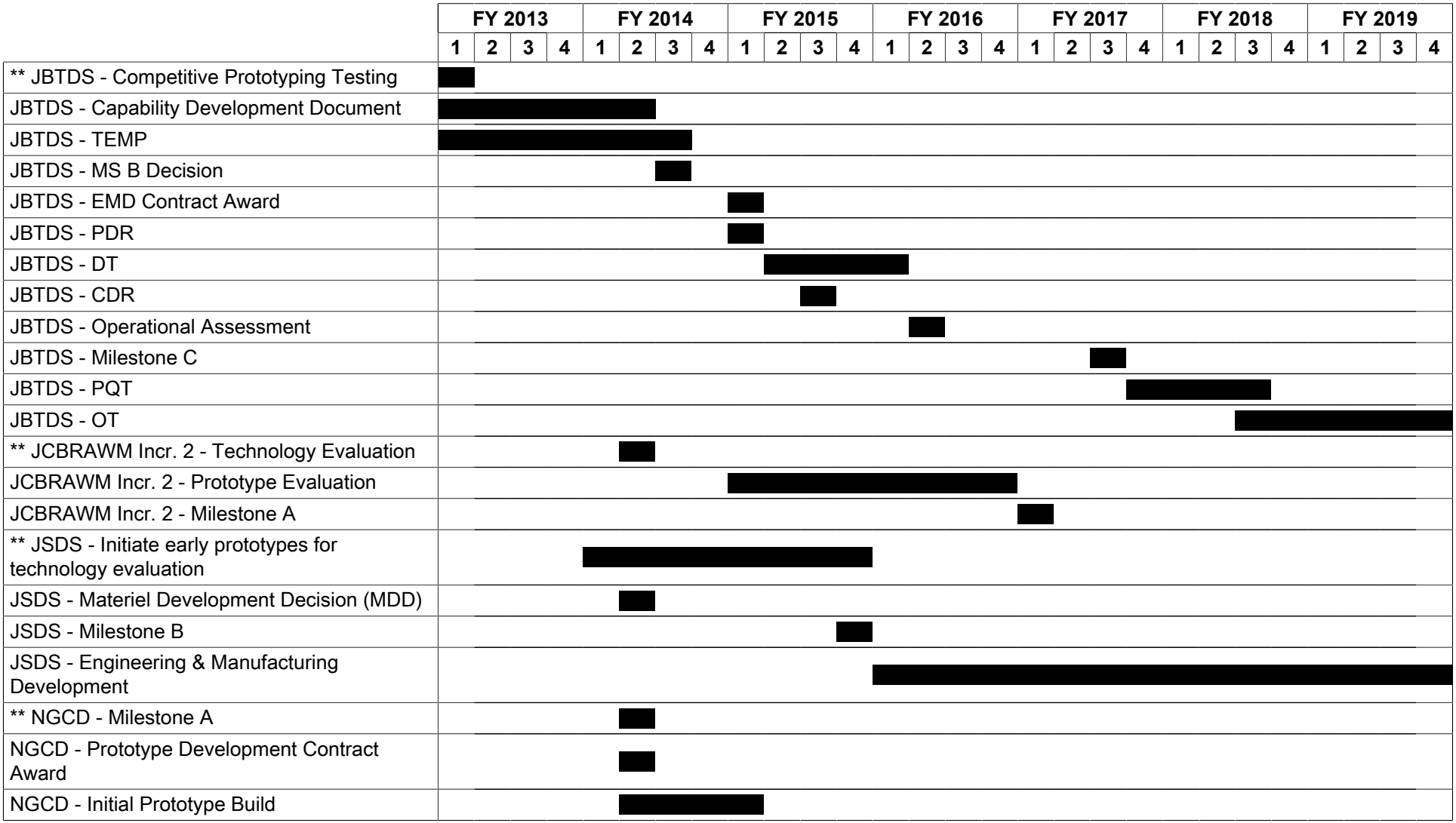

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

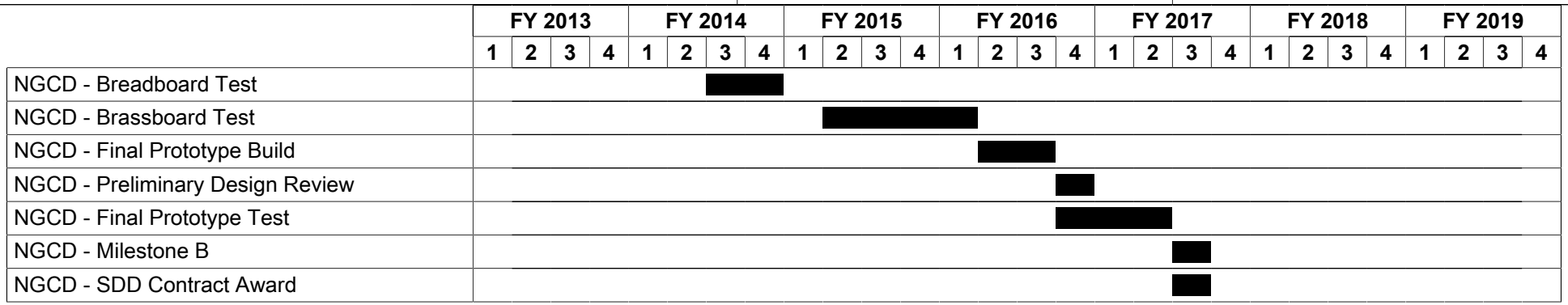

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** JBTDS - Competitive Prototyping Testing	1	2013	1	2013
JBTDS - Capability Development Document	1	2013	2	2014
JBTDS - TEMP	1	2013	3	2014
JBTDS - MS B Decision	3	2014	3	2014
JBTDS - EMD Contract Award	1	2015	1	2015
JBTDS - PDR	1	2015	1	2015
JBTDS - DT	2	2015	1	2016
JBTDS - CDR	3	2015	3	2015
JBTDS - Operational Assessment	2	2016	2	2016
JBTDS - Milestone C	3	2017	3	2017
JBTDS - PQT	4	2017	3	2018
JBTDS - OT	3	2018	4	2019
** JCBRAWM Incr. 2 - Technology Evaluation	2	2014	2	2014
JCBRAWM Incr. 2 - Prototype Evaluation	1	2015	4	2016
JCBRAWM Incr. 2 - Milestone A	1	2017	1	2017
** JSDS - Initiate early prototypes for technology evaluation	1	2014	4	2015
JSDS - Materiel Development Decision (MDD)	2	2014	2	2014
JSDS - Milestone B	4	2015	4	2015
JSDS - Engineering & Manufacturing Development	1	2016	4	2019
** NGCD - Milestone A	2	2014	2	2014
NGCD - Prototype Development Contract Award	2	2014	2	2014
NGCD - Initial Prototype Build	2	2014	1	2015

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NGCD - Breadboard Test	3	2014	4	2014
NGCD - Brassboard Test	2	2015	1	2016
NGCD - Final Prototype Build	2	2016	3	2016
NGCD - Preliminary Design Review	4	2016	4	2016
NGCD - Final Prototype Test	4	2016	2	2017
NGCD - Milestone B	3	2017	3	2017
NGCD - SDD Contract Award	3	2017	3	2017

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program			Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CM4 / *HOMELAND DEFENSE (ACD&P)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
CM4: *HOMELAND DEFENSE (ACD&P)*	-	7.490	-	-	-	-	-	-	-	-	-	7.490
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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: Technology 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. Users of the system will include the National Guard Bureau Civil Support Teams, the Army 20th Support Command, the Army Medical Laboratory, the Air Force and the Navy.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) CALS - System Engineering and Program Management ***FY 2013 Accomplishments:*** Continued System Engineering and Program Management to provide engineering support and program and technical guidance to ongoing System Integration Laboratory (SIL) efforts where methods and technologies are developed, evaluated, and tested. Maintained oversight of component test completion, and contract actions in support of modular design concepts and conducted the Preliminary Design Review.	2.332	-	-
Title: 2) CALS - System Integration Laboratory ***FY 2013 Accomplishments:*** Completed 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.	0.265	-	-
Title: 3) CALS - Development Engineering - Component Evaluation and Subsystem Design ***FY 2013 Accomplishments:***	4.107	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CM4 / *HOMELAND DEFENSE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Completed subsystem component evaluation and design of alternative system modules and system configurations.			
Title: 4) CALS - Production Engineering and Planning	0.786	-	-
FY 2013 Accomplishments: Completed producibility, quality assurance, logistics studies and conducted the preliminary design review required to support development of modules for the CALS.			
Accomplishments/Planned Programs Subtotals	7.490	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• CM5: *HOMELAND DEFENSE (EMD)*	5.193	14.533	16.508	-	16.508	8.910	8.365	15.484	9.344	Continuing	Continuing
• JS0004: *WMD - CIVIL SUPPORT TEAMS (WMD CST)*	23.474	13.314	12.740	-	12.740	5.069	-	-	-	-	54.597
• JS0005: *COMMON ANALYTICAL LABORATORY SYSTEM (CALS)*	-	-	-	-	-	16.245	26.629	17.524	61.664	Continuing	Continuing

Remarks

D. Acquisition Strategy

COMMON ANALYTICAL LABORATORY SYSTEM (CALS)

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

E. Performance Metrics

N/A

Exhibit R-4, **RDT&E Schedule Profile:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CM4 / *HOMELAND DEFENSE (ACD&P)*

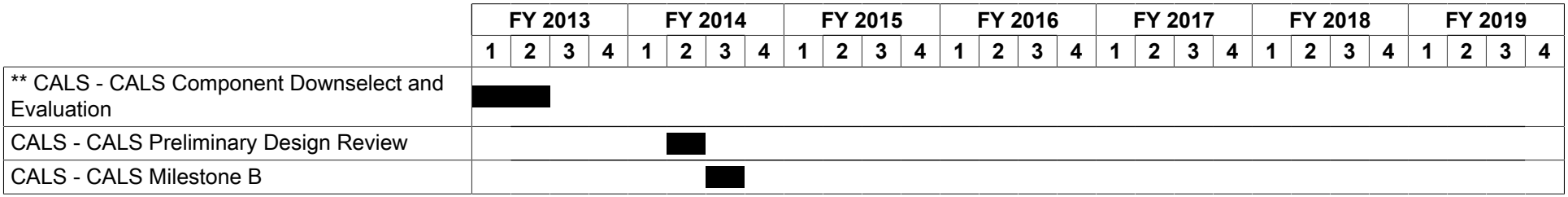

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CM4 / *HOMELAND DEFENSE (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** CALS - CALS Component Downselect and Evaluation	1	2013	2	2013
CALS - CALS Preliminary Design Review	2	2014	2	2014
CALS - CALS Milestone B	3	2014	3	2014

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program												Date: March 2014
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*				Project (Number/Name) DE4 / *DECONTAMINATION SYSTEMS (ACD&P)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
DE4: *DECONTAMINATION SYSTEMS (ACD&P)*	-	11.463	14.978	2.900	-	2.900	-	-	-	10.000	-	39.341
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This Project supports the development of Contamination Mitigation (ConMit) systems utilizing solutions that will remove and/or detoxify contaminated material without damaging combat equipment, personnel, or the environment. ConMit 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.

The programs supported under this Project include (1) Decontamination Family of Systems (DFoS), (2) Contamination Indicator Decontamination Assurance System (CIDAS), (3) General Purpose Decontaminant (GPD), (4) Joint Service Equipment Wipe (JSEW), and (5) Joint Biological Aircraft Decontamination (JBAD) System.

The DFoS program facilitates the rapid transition of mature Science and Technology (S&T) research efforts to existing Decontamination or ConMit 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 (MDD) (3QFY11) directed Analysis of Alternatives (AoA), DFoS will develop a Family of Systems (FoS) to provide novel preparatory and responsive contamination mitigation technologies to meet the capability gaps for decontaminating chemical and biological (CB) warfare agents and Non Traditional Agents (NTA) from personnel, equipment, vehicle, ship, and aircraft interiors/exteriors, terrain and fixed facility interiors/exteriors.

CIDAS will provide a contamination indicator/decontamination assurance technology; it will consist of an indicator and an applicator, for which there will be three configurations. The indicator will be sprayed on tactical vehicles, shipboard surfaces, crew-served and individual weapons in hostile and non-hostile environments that may have been exposed to traditional and non-traditional chemical contamination. CIDAS is a new capability for the Joint Forces that will reduce logistics burden of decontamination by indicating presence and location of traditional (Nerve and Blister) and non-traditional chemical agents on militarily relevant surfaces pre- and post-decontamination.

GPD is a liquid decontaminant that 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 traditional and non-traditional CB contamination.

JSEW is a decontamination wipe that will provide immediate/operational decontamination capabilities for sensitive and non-sensitive equipment in hostile and non-hostile environments that have been exposed to traditional (Nerve and Blister) and non-traditional chemical agents/contamination. In addition, the JSEW program is intended to be a replacement for the Individual Equipment Decontamination Kit (M295).

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *DECONTAMINATION SYSTEMS (ACD&P)*

The JBAD System program is a new start in FY15. The JBAD System will provide thorough biological decontamination of the interior and exterior of tactical and cargo aircraft. The JBAD System is a capability set that will include a shelter to encapsulate an airframe, a decontamination delivery system (e.g. hot-humid air-blower, etc.), environmental control and monitoring system(s), and other ancillary components required to ensure efficacious biological agent decontamination. It will provide the capability to decontaminate biologically contaminated airframes to safe levels and allow more rapid return to service.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) DFoS - Non-Traditional Agent (NTA) ***FY 2013 Accomplishments:*** Continued NTA Solid Oxidizer Reformulation and completed accelerated aging studies, Efficacy Design of Experiment (DOE) for chemical decontamination and decontamination equipment wipes NTA efforts.	1.871	-	-
Title: 2) DFoS ***FY 2014 Plans:*** Initiate engineering, testing and logistics planning and contract documentation to support technology development of Coatings in support of Milestone A. Initiate engineering, testing and logistics planning and contract documentation to support technology development of Dial-A-Decon in support of Milestone A. Complete NTA Solid Oxidizer Reformulation effort. Initiate and complete aircraft contamination mitigation demo for thorough decontamination of biological agents.	-	2.377	-
Title: 3) DFoS - CIDAS ***FY 2013 Accomplishments:*** Initiated Technology Demonstrations for the CIDAS program to include indication efficacy and pot life, material compatibility, and accelerated aging tests. Conducted Environmental, Safety, and Occupational Health (ESOH) analysis.	2.173	-	-
Title: 4) DFoS - CIDAS ***FY 2013 Accomplishments:*** Awarded contract to purchase 133 gallons of CIDAS prototype indicator (consisting of three formulations for total of $102,259), five prototype applicators (at $9,556 each) and training and support for the Technology Demonstrations.	0.167	-	-
Title: 5) DFoS - GPD ***FY 2013 Accomplishments:*** Purchased 2,052 gallons of prototype GPDs (at $31 per gallon) for Developmental Testing (DT).	0.212	-	-
Title: 6) DFoS - GPD ***FY 2013 Accomplishments:***	3.857	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *DECONTAMINATION SYSTEMS (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Completed Competitive Prototyping Phase I (CP I) and initiated CP II of Developmental Testing for the GPD program to include efficacy (hot/cold/relative humidity) on large panels, IPE Compatibility, detector compatibility, Applicator/Mixing and Packaging Handling Shipping & Transportation (PHS&T) Assessment and conducted Manufacturing Readiness Assessment (MRA).			
Title: 7) DFoS - JSEW ***FY 2013 Accomplishments:*** Completed Competitive Prototyping Phase I (CP I) and initiated CP II of Developmental Testing (DT) for the JSEW program to include pre-studies for coverage area testing accelerated shelf-life, Individual Protective Equipment (IPE) compatibility, Human Factors Assessment (HFA) and conducted a Manufacturing Readiness Assessment	3.026	-	-
Title: 8) DFoS - JSEW ***FY 2013 Accomplishments:*** Purchased 4,656 prototype JSEW systems (at $32 each) for CP II testing.	0.157	-	-
Title: 9) DFoS - CIDAS ***FY 2014 Plans:*** Design and build large scale applicator prototype to meet specific User requirements. Complete Technology Demonstrations to include indication efficacy and pot life testing, material compatibility testing, environmental efficacy testing, human factors assessment, accelerated aging testing, and a logistics analysis. Initiate Milestone B and contract documentation.	-	3.921	-
Title: 10) DFoS - CIDAS ***FY 2015 Plans:*** Complete Milestone B and contract documentation.	-	-	0.300
Title: 11) DFoS - GPD ***FY 2014 Plans:*** Complete Competitive Prototyping Phase II and initiate the final phase of Developmental Testing (DT) to include, the System Requirements Review (SRR), expanded chemical and biological efficacy, packaging/Military Standard (MIL-STD) 810G, shelf-life, and decontaminant compatibility.	-	5.915	-
Title: 12) DFoS - GPD ***FY 2014 Plans:*** Purchase 2,142 gallons of prototype GPDs (at $35 per gallon) for the final phase of DT.	-	0.075	-
Title: 13) DFoS - JSEW ***FY 2014 Plans:***	-	2.545	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *DECONTAMINATION SYSTEMS (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Complete Competitive Prototyping Phase II and initiate Developmental Testing (DT) to include expanded efficacy, materials and detector compatibility as well as additional Individual Protective Equipment (IPE) and shelf-life testing and conduct a Critical Design Review.			
Title: 14) DFoS - JSEW ***FY 2014 Plans:*** Award base contract to purchase 1,000 JSEW test assets (at $17 each) for DT and Contract Data Requirements List (CDRLs)/ Data Item Descriptions (DIDs).	-	0.145	-
Title: 15) JBAD ***FY 2015 Plans:*** Release Request for Proposal (RFP); conduct Technology Readiness Assessment (TRA) and Manufacturing Readiness Assessment (MRA) to ensure candidate technologies can be accelerated to the Engineering Manufacturing and Development (EMD) phase.	-	-	2.600
Accomplishments/Planned Programs Subtotals	11.463	14.978	2.900

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• DE5: *DECONTAMINATION SYSTEMS (EMD)*	7.407	2.412	11.146	-	11.146	16.296	19.151	19.559	7.655	Continuing	Continuing
• JD0050: *DECONTAMINATION FAMILY OF SYSTEMS (DFoS)*	-	-	3.450	-	3.450	9.754	13.937	16.726	18.006	Continuing	Continuing
• JD0063: *CONTAMINATED HUMAN REMAINS POUCH (CHRP)*	-	-	2.865	-	2.865	1.542	-	-	-	-	4.407
• JD0070: *JOINT BIOLOGICAL AGENT DECONTAMINATION SYSTEM (JBAD)*	-	-	-	-	-	-	-	-	18.038	Continuing	Continuing

Remarks

D. Acquisition Strategy

DECONTAMINATION FAMILY OF SYSTEMS (DFoS)

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *DECONTAMINATION SYSTEMS (ACD&P)*

The DFoS is utilizing an incremental acquisition strategy to transition various developmental technology efforts (Commercial-Off-The-Shelf (COTS), and DoD technology efforts) 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.

DFoS CONTAMINATION INDICATOR DECONTAMINATION ASSURANCE SYSTEM (DFoS CIDAS)

The CIDAS program will follow an evolutionary acquisition strategy in consonance with the Joint Requirements Office (JRO)/User developed capability documents. Following MS A, collaborated with JSTO/DTRA efforts, including the Hazard Mitigation, Materiel and Equipment Restoration (HaMMER) Advanced Technology Development Operational Demonstration and Extended User Evaluations, and conducted technology demonstrations on candidate indicator and applicator technologies to mitigate risk and identify affordable mature technologies that meet requirements. Determined need for and initiated Government designed large scale applicator to meet specific User requirements. Following MS B, use full and open competition to award a performance based contract with options for LRIP and FRP for indicator and small and mid scale applicator systems. Integrate and test contractor and Government designs in DT and operational testing.

DFoS GENERAL PURPOSE DECONTAMINANT (DFoS GPD)

The GPD program employed a Competitive Prototyping (CP) effort to facilitate the evaluation of COTs technologies. Seven contracts were awarded for competing vendors to provide prototype GPDs in support of CP I. A down select occurred based on technical performance and cost and four contracts were awarded to vendors in support of CP II. As the GPD program enters the next acquisition phase, the program will continue following an evolutionary acquisition strategy; employing a verification/validation effort to facilitate the identification and evaluation of mature technologies that can meet the GPD Capabilities Development Document (CPD) requirements satisfying Chemical, Biological, Radiological and Nuclear (CBRN) user needs.

DFoS JOINT SENSITIVE EQUIPMENT WIPE (DFoS JSEW)

JSEW program employed competitive prototyping to facilitate the evaluation of Commercial Off The Shelf (COTS) Technologies during the Technology Development Phase. Candidates were evaluated from competing vendor prototypes to determine optimal JSEW systems. Four contracts were awarded to vendors in support of Competitive Prototyping Phase (CP) II. As the JSEW enters the next acquisition phase, the program will continue following an evolutionary acquisition strategy; employing a verification/validation effort to facilitate the identification and evaluation of mature technologies that can meet the JSEW Capabilities Development Document (CPD) requirements. Follow-on increments of JSEW may include biological agent capability and use on skin.

JOINT BIOLOGICAL AGENT DECONTAMINATION SYSTEM (JBAD)

The JBAD System program will utilize an evolutionary acquisition strategy to mature and deliver incremental capabilities to meet Air Mobility Command and US Transportation Command needs for interior and exterior decontamination of aircraft against biological agents. The JBAD will employ full and open competition and competitive prototyping during the Engineering Manufacturing and Development (EMD) phase.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *DECONTAMINATION SYSTEMS (ACD&P)*

E. Performance Metrics

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *DECONTAMINATION SYSTEMS (ACD&P)*

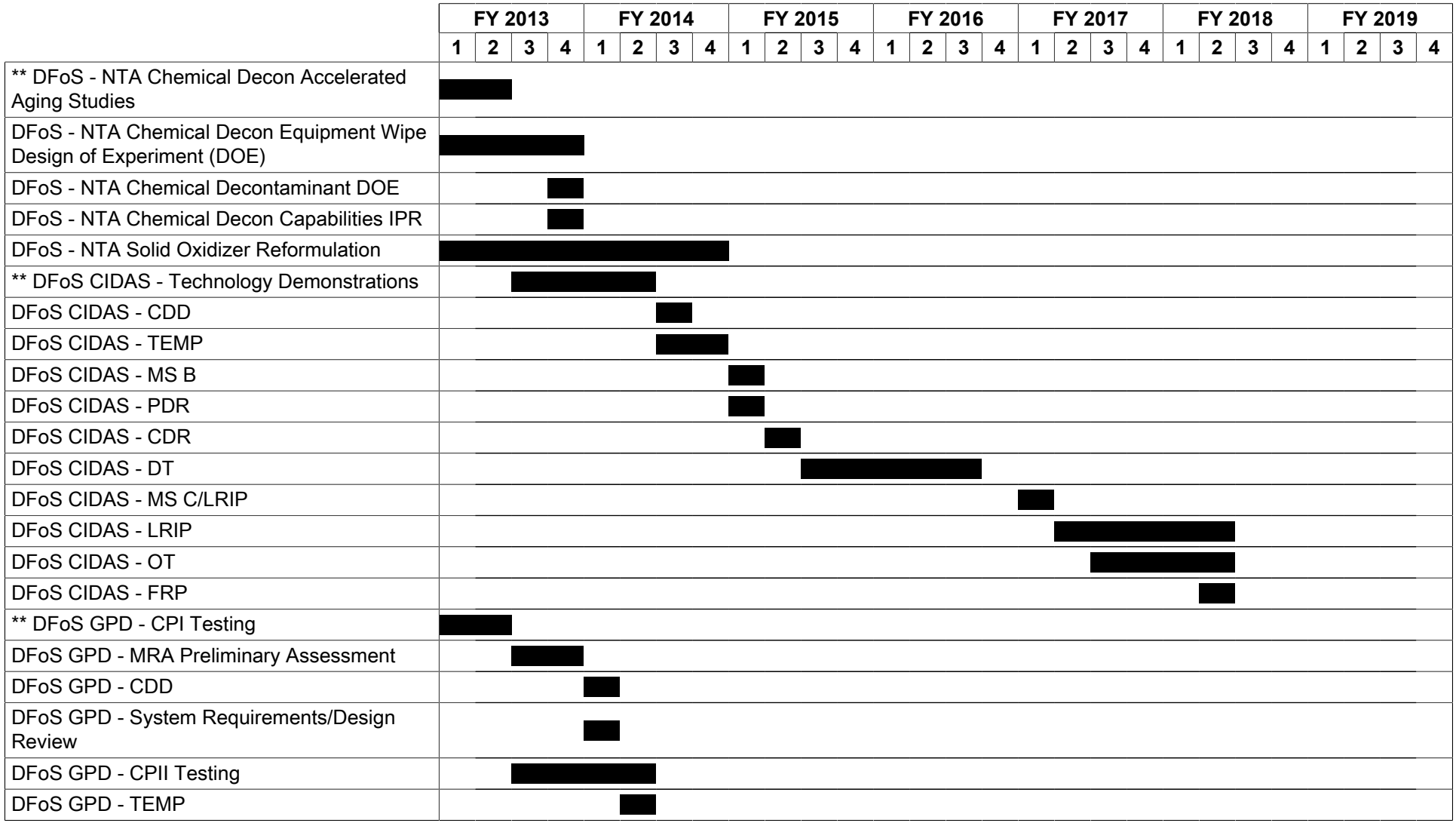

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *DECONTAMINATION SYSTEMS (ACD&P)*

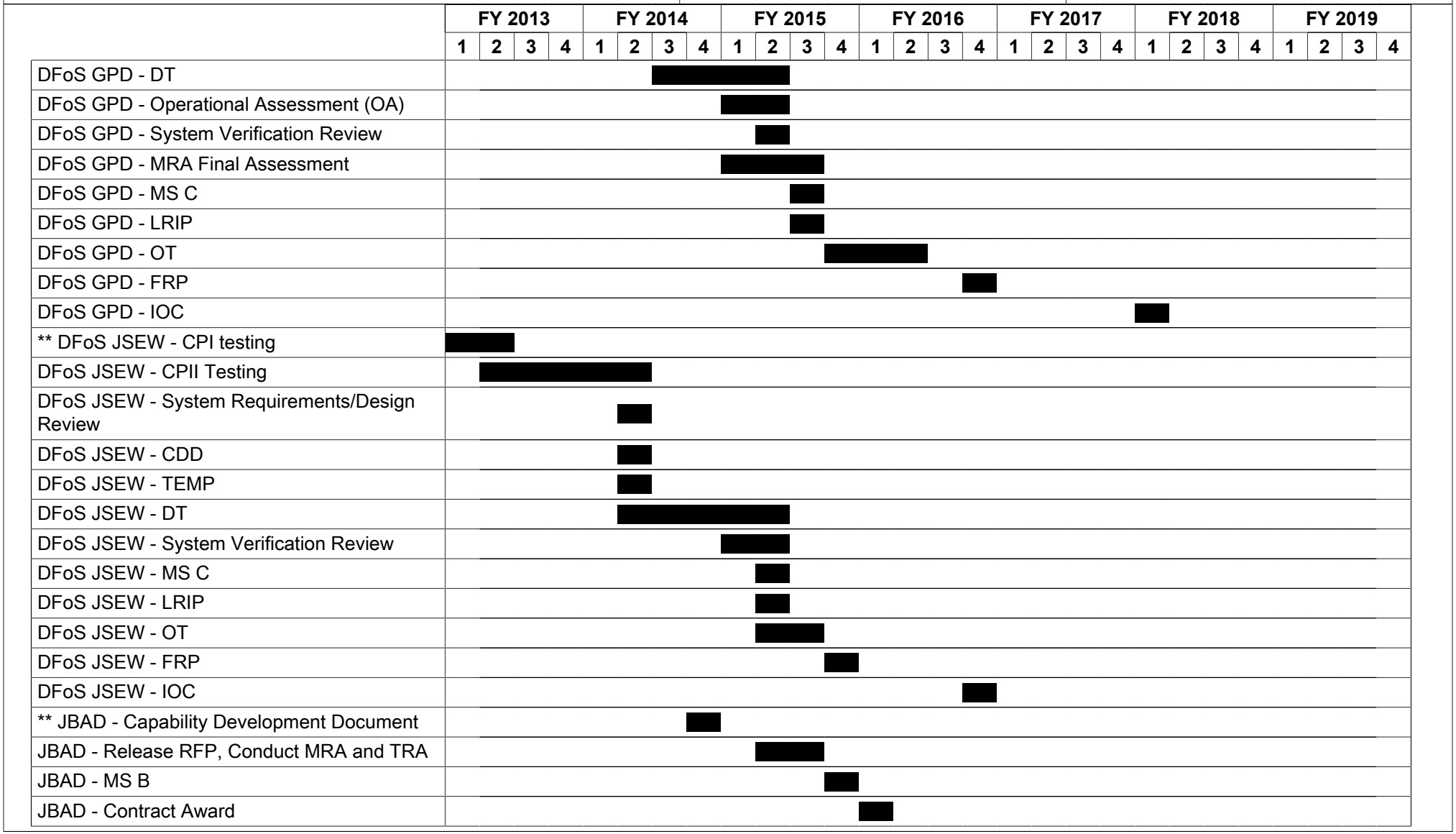

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *DECONTAMINATION SYSTEMS (ACD&P)*

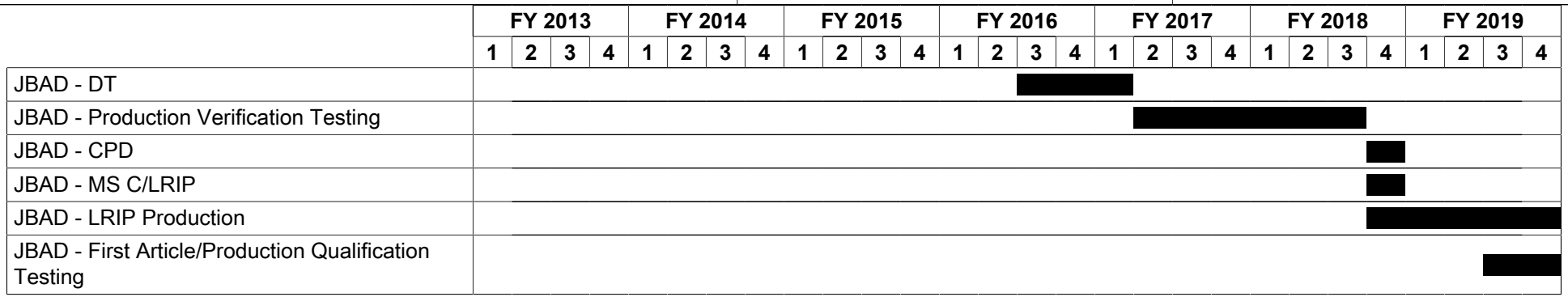

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *DECONTAMINATION SYSTEMS (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** DFoS - NTA Chemical Decon Accelerated Aging Studies	1	2013	2	2013
DFoS - NTA Chemical Decon Equipment Wipe Design of Experiment (DOE)	1	2013	4	2013
DFoS - NTA Chemical Decontaminant DOE	4	2013	4	2013
DFoS - NTA Chemical Decon Capabilities IPR	4	2013	4	2013
DFoS - NTA Solid Oxidizer Reformulation	1	2013	4	2014
** DFoS CIDAS - Technology Demonstrations	3	2013	2	2014
DFoS CIDAS - CDD	3	2014	3	2014
DFoS CIDAS - TEMP	3	2014	4	2014
DFoS CIDAS - MS B	1	2015	1	2015
DFoS CIDAS - PDR	1	2015	1	2015
DFoS CIDAS - CDR	2	2015	2	2015
DFoS CIDAS - DT	3	2015	3	2016
DFoS CIDAS - MS C/LRIP	1	2017	1	2017
DFoS CIDAS - LRIP	2	2017	2	2018
DFoS CIDAS - OT	3	2017	2	2018
DFoS CIDAS - FRP	2	2018	2	2018
** DFoS GPD - CPI Testing	1	2013	2	2013
DFoS GPD - MRA Preliminary Assessment	3	2013	4	2013
DFoS GPD - CDD	1	2014	1	2014
DFoS GPD - System Requirements/Design Review	1	2014	1	2014
DFoS GPD - CPII Testing	3	2013	2	2014
DFoS GPD - TEMP	2	2014	2	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *DECONTAMINATION SYSTEMS (ACD&P)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
DFoS GPD - DT	3	2014	2	2015
DFoS GPD - Operational Assessment (OA)	1	2015	2	2015
DFoS GPD - System Verification Review	2	2015	2	2015
DFoS GPD - MRA Final Assessment	1	2015	3	2015
DFoS GPD - MS C	3	2015	3	2015
DFoS GPD - LRIP	3	2015	3	2015
DFoS GPD - OT	4	2015	2	2016
DFoS GPD - FRP	4	2016	4	2016
DFoS GPD - IOC	1	2018	1	2018
** DFoS JSEW - CPI testing	1	2013	2	2013
DFoS JSEW - CPII Testing	2	2013	2	2014
DFoS JSEW - System Requirements/Design Review	2	2014	2	2014
DFoS JSEW - CDD	2	2014	2	2014
DFoS JSEW - TEMP	2	2014	2	2014
DFoS JSEW - DT	2	2014	2	2015
DFoS JSEW - System Verification Review	1	2015	2	2015
DFoS JSEW - MS C	2	2015	2	2015
DFoS JSEW - LRIP	2	2015	2	2015
DFoS JSEW - OT	2	2015	3	2015
DFoS JSEW - FRP	4	2015	4	2015
DFoS JSEW - IOC	4	2016	4	2016
** JBAD - Capability Development Document	4	2014	4	2014
JBAD - Release RFP, Conduct MRA and TRA	2	2015	3	2015
JBAD - MS B	4	2015	4	2015
JBAD - Contract Award	1	2016	1	2016

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *DECONTAMINATION SYSTEMS (ACD&P)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JBAD - DT	3	2016	1	2017
JBAD - Production Verification Testing	2	2017	3	2018
JBAD - CPD	4	2018	4	2018
JBAD - MS C/LRIP	4	2018	4	2018
JBAD - LRIP Production	4	2018	4	2019
JBAD - First Article/Production Qualification Testing	3	2019	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IP4 / *INDIVIDUAL PROTECTION (ACD&P)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
IP4: *INDIVIDUAL PROTECTION (ACD&P)*	-	0.550	1.208	6.811	-	6.811	4.680	0.300	-	-	-	13.549
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This project supports the ACD&P of the following efforts:

The Joint Service General Purpose Mask (JSGPM) Advanced Respiratory Protection Initiative (ARPI) will address improved mask protection, filter protection against Toxic Industrial Chemicals (TIC)/Toxic Industrial Materials (TIM) and improved profile and breathing resistance; and wearability compatibility/integration. This will be accomplished through class-based analysis, Filtration Advanced Screening Test (FAST), desorption study, and advanced CBRN filtration efforts.

The Uniform Integrated Protective Ensemble (UIPE) Increment 2 will enhance fielded and emerging individual protective equipment as part of a Family of Systems that enables the Warfighter to operate in a contaminated Chemical and Biological (CB) environment with no or minimal degradation in performance. UIPE is supported by an approved Initial Capabilities Document (ICD). UIPE increment 2 will build on and increase capabilities attained in Increment 1. In addition, Increment 2 will seek to address the broader scope of ICD requirements to include the capability to protect warfighters from operationally relevant traditional, non-traditional, and advanced CBRN/TIM threats likely to be encountered during joint force operations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) JSGPM (ARPI)	0.550	1.208	3.906
FY 2013 Accomplishments: Conducted verification of technologies data transition of component base filter media from Tech Base. Conducted verification of TICs criteria and test methodology. Conducted testing of performance specifications. Conducted Bed Design Analysis for first technology.			
FY 2014 Plans: Investigate alternative designs and modifications to ZZAT (Zirconium hydroxide, Zinc, Argentum (Silver), Triethylene di-amine (TEDA)) to further increase filtration of TICs and Chemical Warfare Agents (CWA). ZZAT is a zirconium hydroxide based filtration media that can potentially be layered with carbon. Investigate various applications of nanofiber particulate media.			
FY 2015 Plans: Begin Bed Design Analysis for second technology to be transitioned from Tech Base.			
Title: 2) UIPE Incr 2	-	-	2.905

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IP4 / *INDIVIDUAL PROTECTION (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
FY 2015 Plans: Conduct program planning. Prepare MS A documentation. Complete Request for Information (RFI). Conduct baseline assessments to determine trade space around key capabilities.			
Accomplishments/Planned Programs Subtotals	0.550	1.208	6.811

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• IP5: *INDIVIDUAL PROTECTION (EMD)*	23.952	26.296	15.435	-	15.435	16.832	9.411	8.522	10.053	Continuing	Continuing
• JI0002: *JS AIRCREW MASK (JSAM)*	5.742	10.552	11.526	-	11.526	31.500	54.050	68.924	38.343	Continuing	Continuing
• JI0003: *JOINT SERVICE GENERAL PURPOSE MASK (JSGPM)*	51.199	85.343	61.131	-	61.131	54.146	59.340	49.026	-	-	360.185
• MA0401: *CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE (UIPE)*	10.376	13.772	6.948	-	6.948	11.101	11.101	11.101	11.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

JS GENERAL PURPOSE MASK (JSGPM)

The JSGPM ARPI effort is using the M61 filter contracts awarded to 3M and Avon to develop improved filters for the JSGPM. There is a continual technology refreshment CLIN that allows for filter development tasks to be awarded under this contract. The tasks can be competed between the two awardees.

CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE (UIPE)

The UIPE Increment 2 will enhance fielded and emerging individual protective equipment as part of a Family of Systems that enables the Warfighter to operate in a contaminated Chemical and Biological (CB) environment with no or minimal degradation in performance. UIPE is supported by an approved Initial Capabilities Document (ICD). UIPE increment 2 will build on and enhance capabilities attained in Increment 1. In addition, Increment 2 will seek to address the broader scope of ICD requirements to include the capability to protect warfighters from operationally relevant traditional, non-traditional, and advanced CBRN/TIM threats likely to be

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IP4 / *INDIVIDUAL PROTECTION (ACD&P)*

encountered during joint force operations. UIPE Increment 2 acquisition strategy will be defined to address material requirements identified in CDD utilizing both COTS and Government-owned design to attain increased capabilities.

E. Performance Metrics

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IP4 / *INDIVIDUAL PROTECTION (ACD&P)*

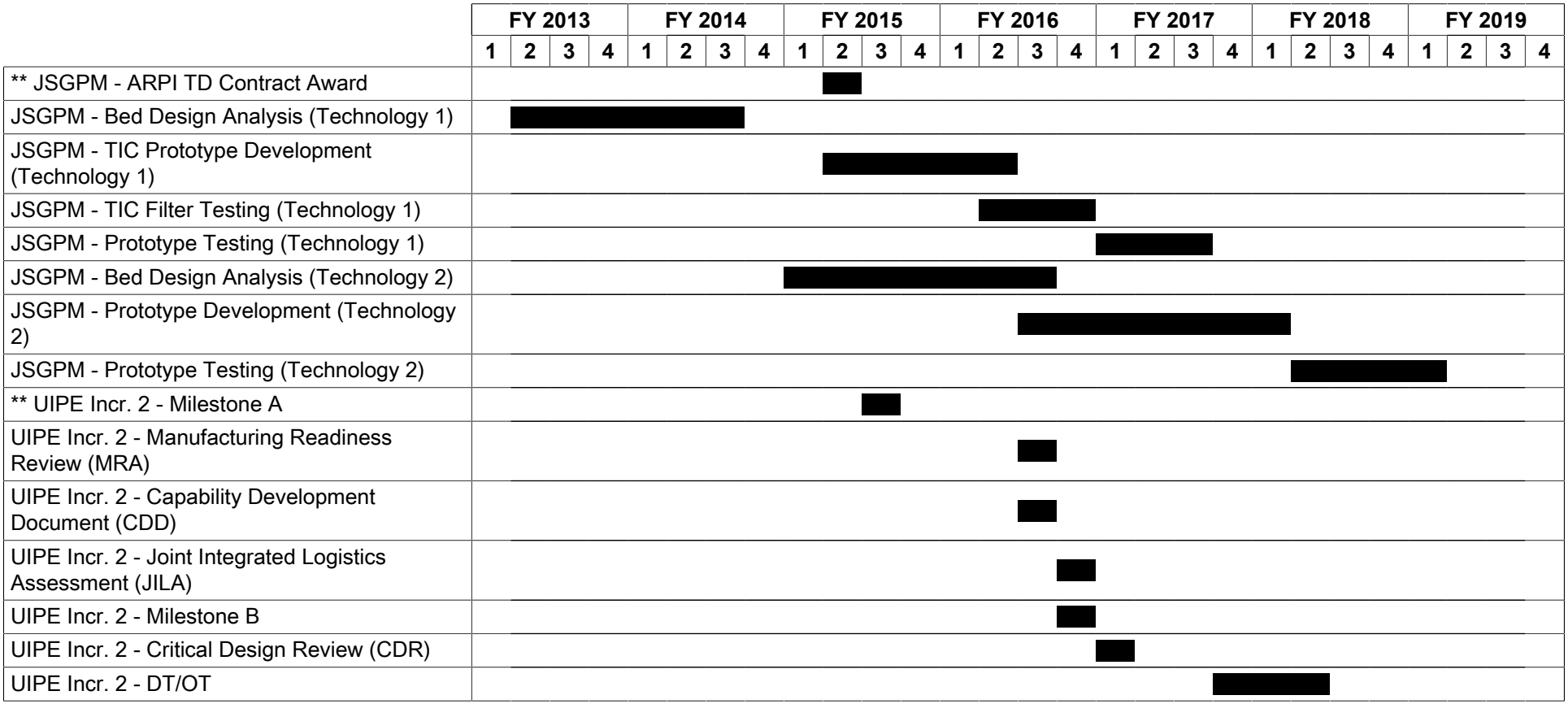

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IP4 / *INDIVIDUAL PROTECTION (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** JSGPM - ARPI TD Contract Award	2	2015	2	2015
JSGPM - Bed Design Analysis (Technology 1)	2	2013	3	2014
JSGPM - TIC Prototype Development (Technology 1)	2	2015	2	2016
JSGPM - TIC Filter Testing (Technology 1)	2	2016	4	2016
JSGPM - Prototype Testing (Technology 1)	1	2017	3	2017
JSGPM - Bed Design Analysis (Technology 2)	1	2015	3	2016
JSGPM - Prototype Development (Technology 2)	3	2016	1	2018
JSGPM - Prototype Testing (Technology 2)	2	2018	1	2019
** UIPE Incr. 2 - Milestone A	3	2015	3	2015
UIPE Incr. 2 - Manufacturing Readiness Review (MRA)	3	2016	3	2016
UIPE Incr. 2 - Capability Development Document (CDD)	3	2016	3	2016
UIPE Incr. 2 - Joint Integrated Logistics Assessment (JILA)	4	2016	4	2016
UIPE Incr. 2 - Milestone B	4	2016	4	2016
UIPE Incr. 2 - Critical Design Review (CDR)	1	2017	1	2017
UIPE Incr. 2 - DT/OT	4	2017	2	2018

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program												Date: March 2014
Appropriation/Budget Activity 0400 / 4					**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*				**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
IS4: *INFORMATION SYSTEMS (ACD&P)*	-	15.728	8.199	6.169	-	6.169	3.684	1.637	0.100	0.100	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This Project provides for Advanced Component Development and Prototypes (ACD&P).

Efforts included in this project are: (1) Joint Effects Model (JEM); (2) the Joint Warning and Reporting Network (JWARN); and (3) Software Support Activity (SSA).

JEM and JWARN will utilize the Joint Capabilities Integration and Development System (JCIDS) Manual prescribed Agile Information Technology Box "IT Box" construct for managing requirements for the follow-on increments of capability development. Use of the "IT Box" acquisition approach increases flexibility and will expedite fielding of Information System products through a series of Build Decisions (BDs) versus less frequent traditional DoD Milestone B and C decisions. Each program will use an Information Systems Initial Capabilities Document (IS ICD) to describe the required operational capabilities for the development effort. JEM's IS ICD was approved by the Joint Staff J8 Joint Requirements Office for Chemical, Biological, Radiological and Nuclear Defense (JRO-CBRND) in September 2013 and JWARN's IS ICD will be reviewed for approval in 2QFY14. After the IS ICD is approved, more detailed requirements will be captured in Requirements Definition Packages (RDP) and will be approved at the Functional Capability Board (FCB) level. In order to support an agile incremental approach, each program will ensure that the "IT Box" describes the entire IT program and not just a single increment. The supporting BDs will ensure incorporation of mature technology and development efforts culminating in incremental deliveries of capability to Joint and Service Command and Control (C2) architectures. These limited fielding efforts are based on providing capabilities with the most value to the operators based on Warfighter priorities/needs, maturation of the technology being incorporated and available resources supporting the effort. As software-intensive systems both JEM and JWARN have no separately identifiable unit production components. Both are designated ACAT III programs and unit cost calculations including Program Acquisition Unit Cost/Average Procurement Unit Cost (PAUC/APUC) and Operations and Sustainment (O&S) average annual per unit costs are not applicable.

JEM Increment 2, using IT Box Acquisition Strategy, adds capability to JEM Increment 1 including modeling of missile intercepts and improved modeling of hazard events in urban and littoral terrain. It also includes improved architecture called Common CBRN Modeling Interface (CCMI). Together, CCMI and IT Box enable more rapid and less costly integration of Science and Technology updates, aligning with the S&T provider to provide the most current capability to the warfighter. 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.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

JWARN Increment 2 will provide an expansion of sensors that will connect to JWARN, increased automation of message handling, improved false alarm filtering, integration of route-planning calculator, and interoperability with additional Command and Control (C2), medical information and evolving Bio-Surveillance 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 to improve the efficiency of limited CBRN personnel assets. This employment will transfer data automatically from existing sensors and to and from the future sensors to provide commanders with the capability to support operational decision making in a CBRN environment. JWARN will 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. JWARN will transition from a Command and Control (C2) platform specific implementation to a Web-based Service Oriented Architecture (SOA) meeting the DoD's evolution to a more comprehensive Common Operating Environment (COE) and will operate as a standalone capability. Activities include: logistical elements, support equipment, manuals and training required to operate and support the system.

The Software Support Activity (SSA) is a Chem-Bio Defense user developmental support and service organization to facilitate net-centric interoperability of systems in acquisition for the Warfighter. The SSA provides the CBRN Warfighter with Joint Service solutions for Integrated Architectures, Data Management/Modeling, Information Assurance (IA), Interoperability Certifications, Verification, Validation and Accreditation (VV&A) to support interoperable and integrated net-centric, service-oriented solutions for CBRN systems. The SSA emphasizes development of reference implementations to guide Government and industry system and software developers to ensure that their products meet common interoperability standards. The latest technologies/products include the definition of a Common CBRN Sensor Integration Standard (CCSI) and the CBRN Data Model. These technologies and direct enablers for the development of CBRN integrated sensor networks and the dissemination of CBRN information across all users. The SSA directly supports Chemical and Biological Defense Program (CBDP) initiatives by providing common service oriented architectures and frameworks for the collection and dissemination of Bio-Surveillance and other critical CBRN information.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) JEM IT Box Prototyping and Development ***FY 2013 Accomplishments:*** Award contract option to winner of competitive down select and develop JEM IT BOX software baseline. ***FY 2014 Plans:*** Complete competitive prototyping down-select and award option for development and integration of JEM IT BOX capabilities. Prepare for first Milestone Decision Authority build decision by integrating mature Science and Technology capabilities identified during the execution of the prototype contract with prototype software from competitive down-select. ***FY 2015 Plans:*** Prepare for second Milestone Decision Authority build decision by integrating mature Science and Technology capabilities identified during the development of FY15 software capability drops with software baseline from FY14 build decision.	4.301	1.103	1.249
Title: 2) JEM IT Box Test & Evaluation (T&E) ***FY 2013 Accomplishments:***	1.626	0.646	1.551

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Initiated governmental development testing in support of competitive prototypes. Prepared T&E documentation for the Preliminary Design Review (PDR) and down-select decision. ***FY 2014 Plans:*** Complete governmental development testing in support of competitive prototyping contract and down-select. Prepare T&E documentation for the Preliminary Design Review (PDR) and down-select decision. Prepare and submit for approval IT BOX Test and Evaluation Master Plan to support IT BOX build decision in current year and Government Developmental Test in FY15. ***FY 2015 Plans:*** Continue governmental development testing in support of JEM IT BOX software. Prepare and conduct Multi-Service Operational Test and Evaluation (MOT&E). Prepare and submit for approval update to IT BOX Test and Evaluation Master Plan to support second IT BOX build decision in current year.			
Title: 3) JEM IT Box Management Support ***FY 2013 Accomplishments:*** Provided program planning, financial management, contracting, schedule, and acquisition oversight support. Updated JEM Integrated Master Schedule to reflect change from incremental capability release to agile IT BOX concept, concurrently developing and releasing . Coordinated Preliminary Design Review (PDR) with Army, Navy, Air Force, Marine Corps, SOCOM, and National Guard stakeholders to develop requirements for the competitive prototype contracts. ***FY 2014 Plans:*** Provide program planning, financial management, contracting, schedule, and acquisition oversight support. Coordinate Critical Design Review (CDR) of capabilities to include in first software capability drop scheduled for 1QTR FY15. Coordinate Critical Design Review (CDR)of second software capability drop scheduled for 3QTR FY15. Coordinate first JEM IT BOX Milestone Decision Authority build decision with stakeholders. ***FY 2015 Plans:*** Continue to provide program planning, financial management, contracting, schedule, and acquisition oversight support. Coordinate System Verification Review/Operational Test Readiness Review (SVR/OTRR), Requirements Definition Package (RDP) Development and Approval and Capability Drops with stakeholders, and Initial Operational Capability (IOC) for JEM IT BOX. Coordinate Critical Design Review (CDR) of FY16 capability drops, and first JEM IT BOX Milestone Decision Authority build decision with stakeholders.	1.341	0.307	0.257
Title: 4) JEM IT Box Technical Support ***FY 2013 Accomplishments:***	0.994	0.472	0.368

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Prepared technical documentation to support the Preliminary Design Review (PDR). Developed Verification and Validation Plan for capability drops of JEM IT BOX scheduled to begin 1QTR FY15. Provided technical support during the competitive prototyping phase and requirements analysis processes. ***FY 2014 Plans:*** Prepare and review of technical documentation to support competitive prototyping contract down-select decision and the Milestone Decision Authority build decision. Finalize Verification and Validation Plan for the capability drops of JEM scheduled to begin 1QTR FY15. Provide technical support during the competitive prototyping phase and technical assessment. ***FY 2015 Plans:*** Complete Verification, Validation, and Accreditation (VV&A) package for JEM IT BOX.			
Title: 5) JEM IT Box Bio-Surveillance ***FY 2013 Accomplishments:*** Conducted market analysis to identify mature models that were available for use within industry and government. Integrated and adapted existing infectious disease prediction models for incorporation into future capability drops of JEM IT BOX as well as the Bio-Surveillance Portal (BSP). Conducted analysis to ensure scientific validity and potential technology readiness levels (TRL) of existing infectious disease models.	2.665	-	-
Title: 6) JWARN ***Description:*** Analysis of Alternatives (AoA) - Support and Analysis of Technical Alternatives (ATA) Evaluation. ***FY 2013 Accomplishments:*** Completed evaluation of the AoA/ATA results and initiated analysis on impacts of implementing the emerging technologies into the JWARN architecture. ***FY 2014 Plans:*** Complete analysis on impacts of implementing the emerging technologies into the JWARN architecture.	0.669	0.218	-
Title: 7) JWARN ***Description:*** Prototyping. ***FY 2014 Plans:*** Conduct prototyping contracting efforts for JWARN to select candidate(s) for baseline development. ***FY 2015 Plans:***	-	1.607	1.353

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue contracting efforts supporting JWARN Sensor Connectivity Capability (SCC) baseline development.			
Title: 8) JWARN IT BOX Program Development ***Description:*** Technology Demonstrations and User Assessments. ***FY 2014 Plans:*** 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 IT BOX construct and Agile Process developed software prototype(s). ***FY 2015 Plans:*** 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 IT BOX construct and Agile Process developed software prototype(s).	-	0.598	0.167
Title: 9) JWARN IT BOX Test and Evaluation (T&E) ***FY 2013 Accomplishments:*** Conducted evaluation, testing, and analysis of components and subsystems, to include Technology Readiness Assessments (TRAs), of Science and Technology (S&T) capabilities targeted for the next increment of JWARN software. Initiated development of the Test and Evaluation Master Plan (TEMP) with the Test and Evaluation (T&E) Working Integrated Product Team (WIPT). ***FY 2014 Plans:*** Initiate government developmental testing and analysis of component and subsystem maturity, to include Technology Readiness Assessment(s), of software submitted for evaluation during prototyping. Prepare required documentation to support the DoD Information Assurance Certification and Accreditation Process and Joint Interoperability Certification process. Continue development of the Test and Evaluation Master Plan (TEMP). ***FY 2015 Plans:*** Continue government developmental testing and analysis of component and subsystem maturity, to include Technology Readiness Assessment(s), of software submitted for evaluation during prototyping. Continue the DoD Information Assurance Certification and Accreditation and Joint Interoperability Certification process. Complete development of the Test and Evaluation Master Plan (TEMP).	0.890	0.225	0.337
Title: 10) JWARN Software Contract ***FY 2013 Accomplishments:***	0.892	0.843	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Completed proposal evaluations, drafted and finalized technical evaluation report for contract award supporting follow-on software prototyping efforts utilizing the IT BOX construct and Agile Software development processes. ***FY 2014 Plans:*** Awarded contract to conduct follow-on software efforts.			
Title: 11) JWARN IT BOX Program Management Support ***FY 2013 Accomplishments:*** Conducted strategic, tactical planning, program/financial management, costing, contracting, scheduling, acquisition oversight, and milestone documentation for the program within IT BOX construct and Agile Software development process. ***FY 2014 Plans:*** Continue strategic, tactical planning, program/financial management, costing, contracting, scheduling, acquisition oversight, and milestone documentation for the program within IT BOX construct and Agile Software development process. ***FY 2015 Plans:*** Continue strategic, tactical planning, program/financial management, costing, contracting, scheduling, acquisition oversight, and milestone documentation for the program within IT BOX construct and Agile Software development process.	1.037	1.074	0.443
Title: 12) JWARN IT BOX Technical Support ***FY 2013 Accomplishments:*** Conducted requirements and engineering analysis and technical support for JWARN development efforts under the IT BOX construct and Agile Software development processes. ***FY 2014 Plans:*** Conduct engineering and technical support for JWARN development under the IT BOX construct and Agile Software development processes.. Initiate independent system verification, validation and class type accreditation efforts as required. ***FY 2015 Plans:*** Continue engineering and technical support for JWARN development under the IT BOX construct and Agile Software development processes.. Continue independent system verification, validation, and class type accreditation as required.	1.313	1.006	0.344
Title: 13) SSA Integrated Architecture ***FY 2014 Plans:***	-	0.100	0.100

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Initiate required modifications to the integrated Architecture on host platforms and document the infrastructure and technical standards. Examine program and system characteristics to determine compliance with DoD Directive 8500.01E (Information Assurance) and develop an acquisition IA strategy if required. ***FY 2015 Plans:*** Continue required modifications to the integrated Architecture on host platforms and document the infrastructure and technical standards, developing an acquisition IA strategy if deemed necessary in FY14.			
Accomplishments/Planned Programs Subtotals	15.728	8.199	6.169

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• IS5: *INFORMATION SYSTEMS (EMD)*	1.869	9.267	10.340	-	10.340	9.208	16.302	17.508	20.646	Continuing	Continuing
• IS7: *INFORMATION SYSTEMS (OP SYS DEV)*	9.590	6.518	4.091	-	4.091	7.835	11.995	13.034	11.019	Continuing	Continuing
• G47101: *JOINT WARNING & REPORTING NETWORK (JWARN)*	2.646	1.112	0.766	-	0.766	-	4.589	1.522	0.533	Continuing	Continuing
• JC0208: *JOINT EFFECTS MODEL (JEM)*	-	-	1.141	-	1.141	3.316	5.069	3.086	3.031	Continuing	Continuing

Remarks

D. Acquisition Strategy

JOINT EFFECTS MODEL (JEM)

JEM Increment 2 acquisition will utilize the JROC's "IT Box" construct for software development. The intent is to provide the next generation of capability with current and future technologies, as stated in the IS ICD, in less time and away from an incremental delivery approach. This effort is being acquired through a Request for Proposal (RFP) to Industry under full and open competition. The program plans to award multiple development contracts in a competitive prototyping phase prior to downselecting a single JEM developer and integrator.

JOINT WARNING & REPORTING NETWORK (JWARN)

JWARN Increment 2 acquisition will utilize the JROC's "IT Box" construct for software requirements management and development. The intent is to provide the next generation of capability with current and future technologies, as stated in the IS ICD, in less time and away from an incremental delivery approach. This effort is

being executed under a Cost-Plus-Award Term Incentive structure to gain maximum benefit to the Government in maintaining the fielded baseline and future software capability development and was awarded under a full and open competition Request for Proposal (RFP). The JWARN Program will procure a Sensor Connectivity Capability (SCC) (hardware materiel solution) in order to facilitate the transfer of CBRN sensor information from legacy CBRN sensors to DoD networks. This solution will be external to the CBRN Sensors and Service-identified network transmission device(s).

SOFTWARE SUPPORT ACTIVITY (SSA)

The SSA provides enterprise-wide services and coordination across all CBDP programs 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). Phase 1a identifies CBDP programs that deal with data or software, and have an IT component. This will be followed by coordination 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 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-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

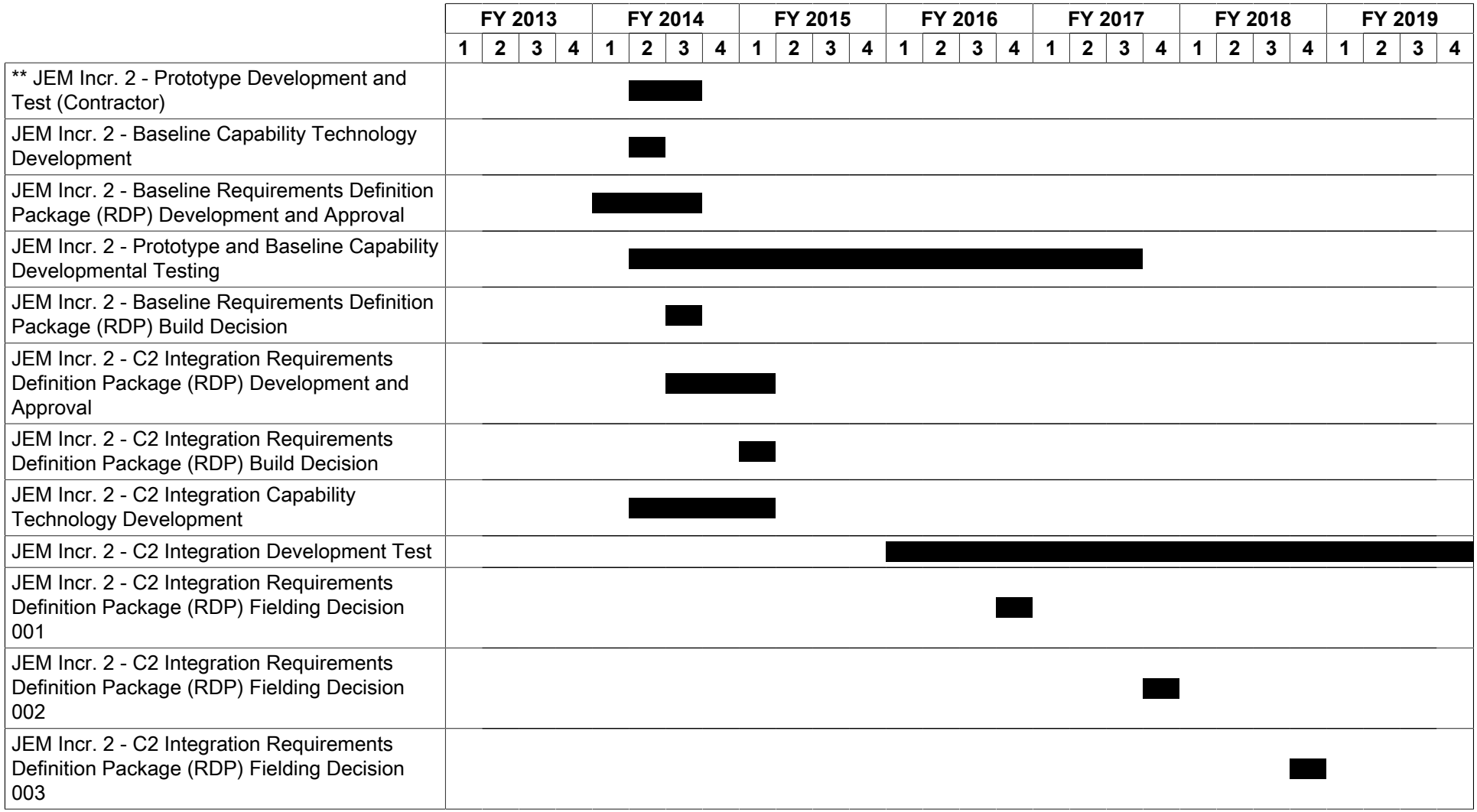

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

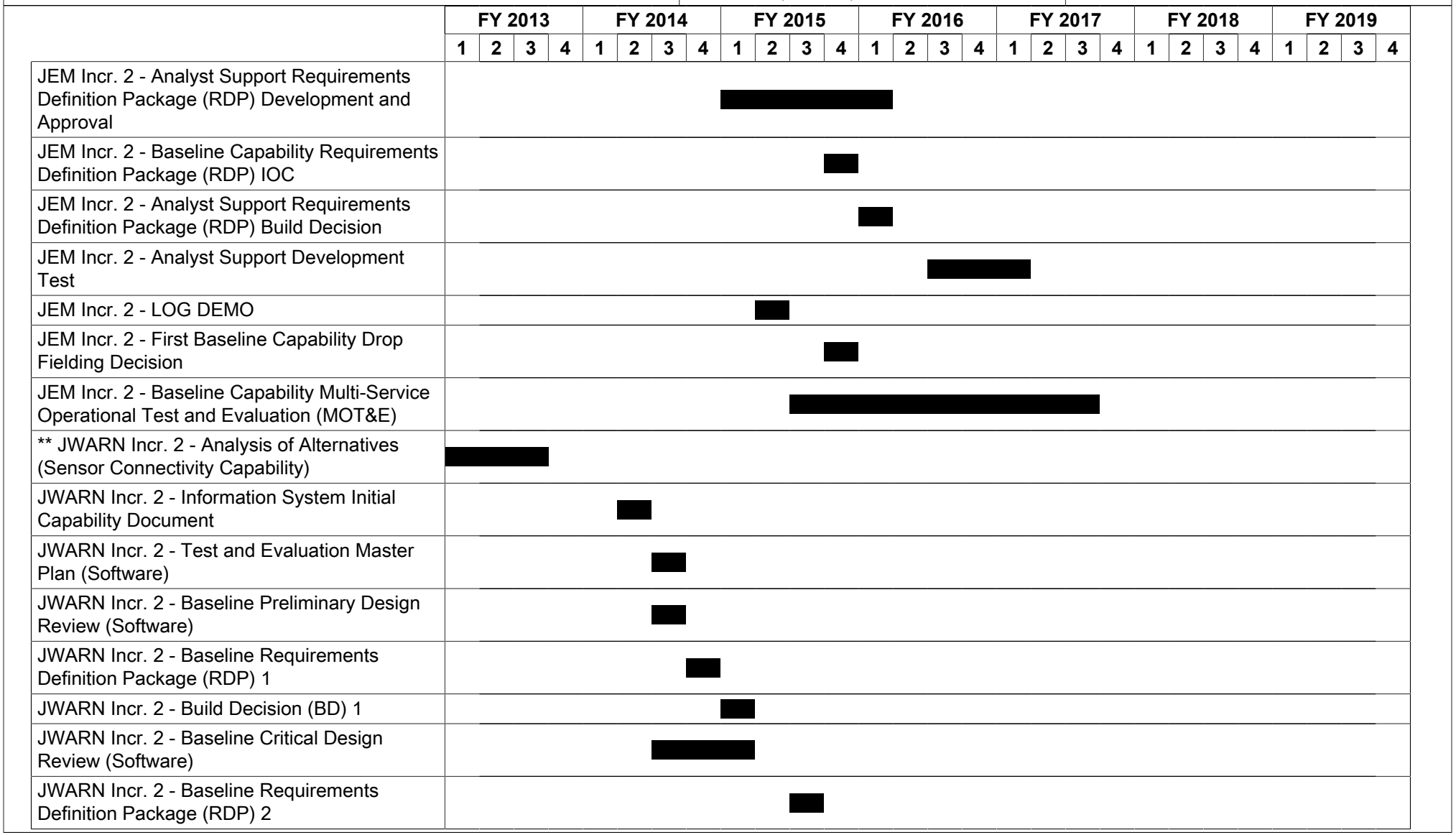

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

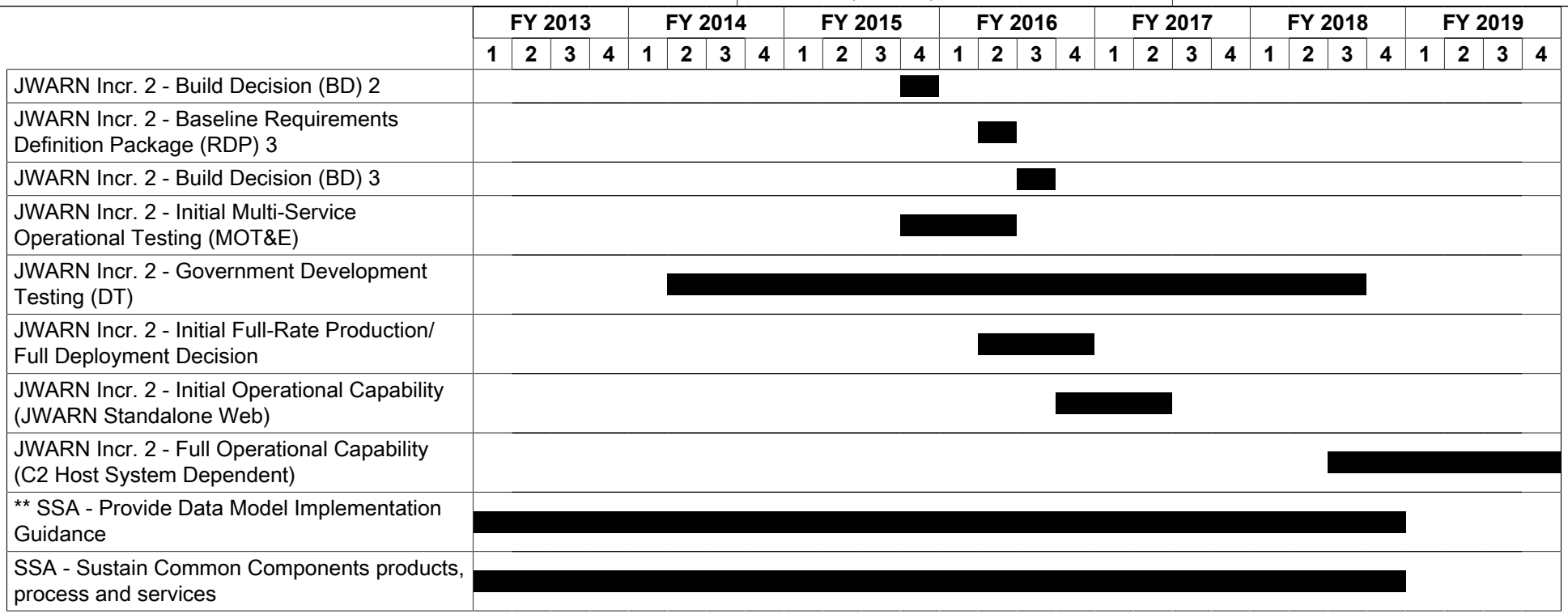

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** JEM Incr. 2 - Prototype Development and Test (Contractor)	2	2014	3	2014
JEM Incr. 2 - Baseline Capability Technology Development	2	2014	2	2014
JEM Incr. 2 - Baseline Requirements Definition Package (RDP) Development and Approval	1	2014	3	2014
JEM Incr. 2 - Prototype and Baseline Capability Developmental Testing	2	2014	3	2017
JEM Incr. 2 - Baseline Requirements Definition Package (RDP) Build Decision	3	2014	3	2014
JEM Incr. 2 - C2 Integration Requirements Definition Package (RDP) Development and Approval	3	2014	1	2015
JEM Incr. 2 - C2 Integration Requirements Definition Package (RDP) Build Decision	1	2015	1	2015
JEM Incr. 2 - C2 Integration Capability Technology Development	2	2014	1	2015
JEM Incr. 2 - C2 Integration Development Test	1	2016	4	2019
JEM Incr. 2 - C2 Integration Requirements Definition Package (RDP) Fielding Decision 001	4	2016	4	2016
JEM Incr. 2 - C2 Integration Requirements Definition Package (RDP) Fielding Decision 002	4	2017	4	2017
JEM Incr. 2 - C2 Integration Requirements Definition Package (RDP) Fielding Decision 003	4	2018	4	2018
JEM Incr. 2 - Analyst Support Requirements Definition Package (RDP) Development and Approval	1	2015	1	2016
JEM Incr. 2 - Baseline Capability Requirements Definition Package (RDP) IOC	4	2015	4	2015
JEM Incr. 2 - Analyst Support Requirements Definition Package (RDP) Build Decision	1	2016	1	2016
JEM Incr. 2 - Analyst Support Development Test	3	2016	1	2017
JEM Incr. 2 - LOG DEMO	2	2015	2	2015
JEM Incr. 2 - First Baseline Capability Drop Fielding Decision	4	2015	4	2015

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JEM Incr. 2 - Baseline Capability Multi-Service Operational Test and Evaluation (MOT&E)	3	2015	3	2017
** JWARN Incr. 2 - Analysis of Alternatives (Sensor Connectivity Capability)	1	2013	3	2013
JWARN Incr. 2 - Information System Initial Capability Document	2	2014	2	2014
JWARN Incr. 2 - Test and Evaluation Master Plan (Software)	3	2014	3	2014
JWARN Incr. 2 - Baseline Preliminary Design Review (Software)	3	2014	3	2014
JWARN Incr. 2 - Baseline Requirements Definition Package (RDP) 1	4	2014	4	2014
JWARN Incr. 2 - Build Decision (BD) 1	1	2015	1	2015
JWARN Incr. 2 - Baseline Critical Design Review (Software)	3	2014	1	2015
JWARN Incr. 2 - Baseline Requirements Definition Package (RDP) 2	3	2015	3	2015
JWARN Incr. 2 - Build Decision (BD) 2	4	2015	4	2015
JWARN Incr. 2 - Baseline Requirements Definition Package (RDP) 3	2	2016	2	2016
JWARN Incr. 2 - Build Decision (BD) 3	3	2016	3	2016
JWARN Incr. 2 - Initial Multi-Service Operational Testing (MOT&E)	4	2015	2	2016
JWARN Incr. 2 - Government Development Testing (DT)	2	2014	3	2018
JWARN Incr. 2 - Initial Full-Rate Production/Full Deployment Decision	2	2016	4	2016
JWARN Incr. 2 - Initial Operational Capability (JWARN Standalone Web)	4	2016	2	2017
JWARN Incr. 2 - Full Operational Capability (C2 Host System Dependent)	3	2018	4	2019
** SSA - Provide Data Model Implementation Guidance	1	2013	4	2018
SSA - Sustain Common Components products, process and services	1	2013	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program												Date: March 2014
Appropriation/Budget Activity 0400 / 4					**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*				**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*	-	111.415	122.328	102.080	-	102.080	101.019	60.981	32.683	48.277	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

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

The Advanced Development and Manufacturing (ADM) capability 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) ADM capability for the Department of Defense (DoD).

The ADM effort is being executed in two phases. Phase 1 is for the establishment, commissioning, and validation of the ADM capability. This project funds the establishment of a capability to be located in Alachua, Florida. Two ADM cGMP suites, capable of operating at Bio Surety Level (BSL) 3 will be established during the base contract period. There are contract options to incrementally increase capacity, if needed. Upon attainment of cGMP capability Phase 2 begins. During Phase 2, the contractor team will support and maintain the capability in a state of readiness to support MCM development (to include cGMP manufacturing) and assist in training personnel in its use. The second phase includes transition and integration of new technologies to support MCM development activities, from pre-Investigational New Drug Application phase through FDA licensure. Phase 1 and 2 contract was awarded in March 2013 to Nanotherapeutics, Inc., Alachua, FL. The ADM capability sustainment costs during Phase 2 will originate from MCM programs.

Biosurveillance (BSV) actively gathers, analyzes, and interprets collected information that includes biosphere data that relate to disease activity and threats to human or animal health in order to achieve early warning of health threats, early detection of health events, and overall situational awareness of disease activity. BSV will align the biosurveillance efforts across DoD and national strategies. BSV will scope and influence BSV capabilities as products to meet Warfighter requirements through innovative management of key BSV initiatives. BSV requirements address medical and physical CBRN mission needs spanned in over 11 requirements documents and through Combatant Commander (COCOM) identified needs. BSV funds will support Joint US Forces Korea (USFK) Portal and Integrated Threat recognition (JUPITR) ATD/BSV ATD which will find, demonstrate, transition, and transfer the best operational concepts and technology solutions in support of a holistic approach to countering biological threats from the laboratory to operational use and theater confirmation of a Biological Event. JUPITR ATD will consist of four legs; Early Warning (EW), Biological Identification Capabilities Sets (BICS), Assessment of Environmental Detectors (AED), and Biosurveillance Portal (BSP). The JUPITR ATD will provide the USFK with a holistic Biosurveillance capability to provide early warning, detection, collection, identification, and theater confirmation of a Biological event. The JUPITR ATD consists of filling capability gaps through information sharing and communication systems and detection/diagnostic systems for the USFK. Outputs will focus on proving component, CONOPS, and subsystem transition into programs of record (PORs) and/or integration into existing PORs.

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Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

The Countermeasures for Multi-Drug Resistance-Bacterial (CMDR-B) program develops medical countermeasures (MCMs) for Service members for protection against multi-drug resistant (MDR) bacteria, including Biological Warfare Agents (BWAs) and organisms that are genetically modified to be MDR. The resulting product(s) will be US Food and Drug Administration (FDA)-approved to prevent or minimize effects of MDR bacterial exposures. Leveraging collaborative Department of Defense (DoD), United States Government, and industry efforts will reduce program risk, lower program cost, and accelerate delivery of therapeutics to the Warfighter. The program will advance MCM candidates against MDR bacterial diseases such as anthrax and plague through the Technology Development phase.

The Emerging Infectious Diseases Therapeutics (EID Tx) program is developing and will deliver a Food and Drug Administration (FDA) approved, broad-spectrum medical countermeasure to the Warfighter for protection against naturally occurring or biologically engineered viruses. EID Tx is pursuing influenza indication, EID-Flu MCM, as the first step in the development of a broad spectrum antiviral drug due to a clear and established FDA regulatory approval pathway. The drug in development is highly efficacious against multiple influenza viruses, including the 2009 H1N1 pandemic virus, H5N1 avian influenza virus, the most recently identified H7N9 virus from the outbreak in China, and drug resistant strains of influenza viruses. This drug has also demonstrated efficacy against other viruses of concern to the DoD's biodefense program. Ongoing EID Tx drug development will be leveraged to demonstrate additional broad-spectrum MCM's against naturally occurring and/or engineered biowarfare threats. Initial testing to support FY15 down-select for follow-on label extension programs has begun. FDA approval for an influenza treatment is anticipated in FY16 following completion of the SDD phase.

The Hemorrhagic Fever Virus (HFV) medical countermeasure acquisition program develops medical countermeasures (MCMs), using high threat, extremely lethal Biological Warfare Agents (BWAs) of the Filoviridae family agents (Ebola and Marburg) as model systems. Medical countermeasures will be advanced through the Food and Drug Administration (FDA) licensure/approval via the FDA 'Animal Rule', which allows for the demonstration of efficacy in relevant animal model(s) when human testing is not ethically feasible. HFV will also conduct animal model development and refinement as needed to support the pivotal animal efficacy testing required under the FDA 'Animal Rule'. Completion of Phase I trials, animal model development, and manufacturing scale up are the focus of the ACD&P phase. FDA approval for HFV therapeutics are expected in FY18 following completion of the SDD phase.

The NGDS is an evolutionary acquisition family of systems to provide increments of capability over time across many echelons of the Combat Health Support System. The mission of the NGDS is to provide CBRN threat identification and FDA-cleared diagnostics to inform individual patient treatment and CBRN situational awareness and disease surveillance. NGDS Increment 1 Deployable Component will significantly improve diagnostic capabilities for deployable combat health support units (role 3) while also improving operational suitability and affordability. The term "Role" is used to describe the stratification of the four tiers in which medical support is organized, on a progressive basis, to conduct treatment, evacuation, resupply, and functions essential to the maintenance of the health of the force. Role 3 support is normally provided at Division or Service equivalent level and includes specialist laboratory resources. NGDS Increment 2 is intended to provide advanced diagnostics for biological pathogens and toxins, diagnostics for chemical and radiological exposures, and to provide capability to lower echelons of care.

The Department of Defense (DoD) 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 biological warfare (BW) agents are urgently needed. Vaccines have been identified as the most efficient countermeasure against the validated threat of BW weapons. The Trivalent Filovirus Vaccine (VAC FILO) Program will offer protection against the threat of Ebola and Marburg viruses. The current budget supports development of two prototypes through the Technology Development Phase. The DoD anticipates that the Food Drug Administration (FDA) will approve this vaccine using the 'Animal Rule', which allows for the demonstration of efficacy

on relevant animal model(s). During this phase a scalable manufacturing process is developed. This process will be used to develop current Good Manufacturing Practices (cGMP) lots suitable for a Phase 1 clinical trial. In addition, animal safety and efficacy studies will be conducted to support an Investigational New Drug (IND) submission to the FDA. These efforts will support a Milestone B decision and entry into the Engineering, Manufacturing, and Development (EMD) phase. The DoD is the Public Health Emergency Countermeasures lead for the advanced development of the Filovirus Vaccine.

The Ricin toxin is a validated bioweapon threat due to its availability and efficiency of production. The program supports one DoD vaccine candidate including manufacturing cGMP lots; proof of concept nonclinical efficacy studies and assay development. These efforts also include a Phase 1b clinical trial and regulatory integration. These efforts will support a Milestone B decision and entry into the EMD Phase. The DoD is the Public Health Emergency Countermeasures lead for the advanced development of the Ricin Vaccine.

The DoD initiated the Western, Eastern, and Venezuelan Equine Encephalitis (VAC WEVEE) Vaccine program in FY13. To satisfy the competitive prototyping requirement and to reduce program risk, the DoD will develop two prototypes through the Technology Development Phase. The efforts to be conducted during this period include: develop pilot scale manufacturing processes and manufacture of cGMP lots to support nonclinical and clinical studies; develop vaccine formulation that meets the logistical requirements of the DoD; conduct non-clinical GLP safety studies; submit Investigational New Drug (IND) applications; and conduct Phase 1 clinical human safety studies.

The DoD anticipates that the FDA will approve these products using the 'Animal Rule', which allows for the demonstration of efficacy in relevant animal model(s). These efforts will support a Milestone B decision and entry into the EMD phase. The DoD is the Public Health Emergency Countermeasures lead for the advanced development of the WEVEE Vaccine.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) ADM - Bridging Studies ***FY 2013 Accomplishments:*** Continued studies and manufacturing to support single use, flexible, and modular manufacturing technologies. Performed advanced process development activities for selected medical countermeasures to be manufactured in the ADM.	2.905	-	-
Title: 2) ADM - Program Management and Contract Administration ***FY 2013 Accomplishments:*** Maintained a Government Program Management Office that includes Government and contractor personnel with expertise in flexible, modular, single use system technologies. Identified, hired, and retained Government personnel to oversee the MCM ADM. Initiated and maintained contract support to oversee the MCM ADM capability.	0.458	-	-
Title: 3) BSL-4 GLP T&E ***FY 2014 Plans:***	-	5.899	5.899

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Maintain a Bio-Safety Level BSL-4 Test and Evaluation (T&E) capability to develop medical countermeasures in a safe environment. ***FY 2015 Plans:*** Continue to maintain a Bio-Safety Level BSL-4 Test and Evaluation (T&E) capability to develop medical countermeasures in a safe environment.			
Title: 4) BSV ***FY 2013 Accomplishments:*** Initiated and completed table top exercise (TTX) planning efforts for the Early Warning leg of the JUPITR ATD. ***FY 2014 Plans:*** Integrate/Fuse sensors required for Early Warning capability. ***FY 2015 Plans:*** Finalize fusion and integration development for the Early Warning leg.	2.848	8.033	5.215
Title: 5) BSV ***FY 2013 Accomplishments:*** Defined technologies for the Assessment of Environmental Detector (AED) leg of JUPITR ATD. ***FY 2014 Plans:*** Award contracts to acquire candidate systems for the Assessment of Environmental Detector leg of JUPITR ATD. ***FY 2015 Plans:*** Conduct down-select of the Assessment of Environmental Detector technologies using data from the demonstrations scheduled for Dugway Proving Ground.	8.525	6.838	2.154
Title: 6) BSV ***FY 2013 Accomplishments:*** Released Biosurveillance Portal (BSP) software version Beta 1.0. ***FY 2014 Plans:*** Release Biosurveillance Portal software version 2.0. ***FY 2015 Plans:***	7.051	7.606	9.580

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Release Biosurveillance Portal Software version 3.0 and initiate CENTCOM and National Capital Region Biosurveillance Portal efforts.			
Title: 7) BSV ***FY 2013 Accomplishments:*** Planned exercises utilizing Biological Identification Capability Sets (BICS) deliverables. ***FY 2014 Plans:*** Conduct exercises utilizing BICS deliverables. ***FY 2015 Plans:*** Transition BICS items to programs of record.	6.359	3.910	2.270
Title: 8) BSV ***FY 2013 Accomplishments:*** Initiated special studies and initiatives to address biosurveillance capability needs across the CBRNE program in alignment with DoD and National Strategies. ***FY 2014 Plans:*** Initiate and conduct overarching JUPITR ATD table top exercise (TTX) ***FY 2015 Plans:*** Execute special studies and initiatives to address biosurveillance capability needs across the CBRNE program in alignment with DoD and National Strategies.	3.288	1.243	3.716
Title: 9) CMDR-B ***FY 2015 Plans:*** Support Milestone A Decision to issue Request for Proposal (RFP), award a MCM advanced development contract, initiate a six month Integrated Baseline Review (IBR) and initiate Phase 1 work in MCM development.	-	-	4.098
Title: 10) EID Tx ***FY 2013 Accomplishments:*** Completed activities supporting a successful Milestone B decision and conducted a Phase 2 Bridging Safety Study required by the FDA for transition to Phase 3 Clinical Trials. ***FY 2015 Plans:***	0.554	-	2.286

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Initiate an EID Label Extension (EID LE) program against a high priority DOD biothreat viral agent. Target agent selection and down-select will be based on broad-spectrum efficacy data.			
Title: 11) HFV ***FY 2013 Accomplishments:*** Completed Phase 1 Trials for MCMs against the Marburg Virus. Conducted Alternate Route feasibility studies. Continued activities required to exit the ACD&P phase for the MCM against the Marburg Virus, in preparation for entry into the SDD Phase in 1QFY14.	8.576	-	-
Title: 12) HFV ***FY 2013 Accomplishments:*** Supported Special Operations Command (SOCOM) hand held detection capabilities for high priority biological Threats.	1.396	-	-
Title: 13) HFV ***FY 2013 Accomplishments:*** Continue pre-clinical efficacy and safety testing for the MCM against Ebola Zaire Virus, and initiated Phase 1 Clinical Trial.	15.837	-	-
Title: 14) HFV ***FY 2013 Accomplishments:*** Continued non-human primate animal model development for aerosolized HFV.	3.959	-	-
Title: 15) NGDS - Increment 1 Deployable Component ***FY 2013 Accomplishments:*** Conducted Competitive Prototyping to include procurement of 18 prototype systems from each of the three Competitive prototyping vendors, contractor studies and Government Early Operational assessment and Development testing (i.e., Mil-Std 810, Mil-Std 461, etc.).	6.391	-	-
Title: 16) NGDS - Increment 1 Deployable Component ***FY 2013 Accomplishments:*** Initiated Anthrax Environmental surveillance assay development and completed environmental assay configuration studies for three Competitive Prototyping vendors.	2.500	-	-
Title: 17) NGDS - Increment 1 Deployable Component ***FY 2013 Accomplishments:***	4.000	11.110	1.000

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Initiated Anthrax and Viral Hemorrhagic Fever (VHF) In Vitro Diagnostic (IVD) assay development and completed IVD assay configuration studies for three Competitive Prototyping vendors to include optimization and FDA pre-submission application submittal. ***FY 2014 Plans:*** Continue development of the Anthrax and Viral Hemorrhagic Fever in-vitro diagnostic (IVD) assays and clinical trials and prepare and submit FDA clearance 510(k) package. Initiate development of 22 environmental screening assays required to be on NGDS Incr. 1 as the replacement to joint Biological Agent Identification and Diagnostic System (JBAIDS) and to support the Common Analytical Laboratory System (CALS). ***FY 2015 Plans:*** Continue development of the IVD assays and clinical trials and prepare and submit FDA clearance 510(k) package. Continue development of 22 environmental screening assays required to be on NGDS Incr. 1 as the replacement to JBAIDS and to support the CALS.			
Title: 18) NGDS - Increment 1 Deployable Component ***FY 2014 Plans:*** Conduct Multi Service Operational Test and Evaluation under DOT&E oversight for NGDS Incr. 1 land-based diagnostic users. Initiate development of remaining threshold BWA IVD assays (Plague, Tularemia, Q-Fever). ***FY 2015 Plans:*** Continue Multi Service Operational Test and Evaluation under DOT&E oversight for NGDS Incr. 1 land-based diagnostic users. Initiate development of remaining threshold BWA IVD assays (Plague, Tularemia, Q-Fever).	-	7.200	1.110
Title: 19) NGDS Increment 2 ***FY 2014 Plans:*** Prepare for and Conduct MS A for NGDS Increment 2. Assemble Program IPT and participating Service/interagency Reps.	-	1.012	-
Title: 20) NGDS - Increment 2 ***FY 2015 Plans:*** Award initial CBRN diagnostic capability development contracts and conduct Early Operational Assessments.	-	-	5.390
Title: 21) VAC FILO ***FY 2013 Accomplishments:*** Continued non-clinical efficacy studies. ***FY 2014 Plans:***	8.343	12.817	8.000

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Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue non-clinical efficacy studies. ***FY 2015 Plans:*** Complete non-clinical efficacy studies and initiate non-clinical safety studies.			
Title: 22) VAC FILO ***FY 2013 Accomplishments:*** Continued small-scale manufacturing process development for two prototypes. ***FY 2014 Plans:*** Continue small-scale manufacturing process development and initiate cGMP Pilot Scale Production for one prototype. ***FY 2015 Plans:*** Complete small-scale manufacturing process development. Initiate cGMP Pilot Scale Production for second prototype.	3.699	5.964	7.407
Title: 23) VAC FILO ***FY 2013 Accomplishments:*** Initiated manufacturing process development/cGMP manufacturing to include assay development and qualification for two prototypes. ***FY 2014 Plans:*** Continue manufacturing process development/cGMP manufacturing to include assay development and qualification for two prototypes. ***FY 2015 Plans:*** Complete manufacturing process development/cGMP manufacturing to include assay development and qualification for two prototypes.	3.000	6.854	6.000
Title: 24) VAC FILO ***FY 2013 Accomplishments:*** Initiated manufacturing process development/cGMP manufacturing to include drug product formulation for two prototypes. ***FY 2014 Plans:*** Continue manufacturing process development/cGMP manufacturing to include drug product formulation for two prototypes. ***FY 2015 Plans:*** Complete final drug product formulation for two prototypes.	1.200	3.004	2.000
Title: 25) VAC FILO	5.245	5.098	5.200

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Continued to provide strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. ***FY 2014 Plans:*** Continue to provide strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. ***FY 2015 Plans:*** Continue to provide strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support.			
Title: 26) VAC FILO ***FY 2013 Accomplishments:*** Continued preparation for pre-IND meeting with the FDA for two vaccine prototypes. Conducted quality audits of manufacturing facilities. ***FY 2014 Plans:*** Conduct one pre-IND meeting with the FDA on first prototype. Initiate the preparation of Chemistry Manufacturing & Controls (CMC) section for IND submission for one prototype. ***FY 2015 Plans:*** Conduct pre-IND meeting with the FDA on second prototype. Initiate the preparation of Chemistry Manufacturing & Controls (CMC) section for IND submission for second prototype.	1.997	5.923	4.000
Title: 27) VAC RIC ***FY 2013 Accomplishments:*** Conducted Milestone A. ***FY 2014 Plans:*** Initiated manufacturing process development. Conduct cGMP Pilot Lot Production.	0.500	1.020	-
Title: 28) VAC RIC ***FY 2013 Accomplishments:*** Initiated non-clinical safety and efficacy studies. ***FY 2014 Plans:***	3.522	3.500	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue non-clinical safety and efficacy studies.			
Title: 29) VAC RIC ***FY 2013 Accomplishments:*** Initiated non-clinical assay development. ***FY 2014 Plans:*** Continued assay development,and development of serum test samples. Initiated cGMP manufacturing and Phase I Human Clinical Trial.	1.008	1.474	-
Title: 30) VAC RIC ***FY 2013 Accomplishments:*** Initiated strategic/tactical planning, government system engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. ***FY 2014 Plans:*** Continue to conduct strategic/tactical planning, government system engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support.	0.500	0.800	-
Title: 31) VAC WEVEE ***FY 2013 Accomplishments:*** Conducted Milestone A. Initiated non-clinical safety and efficacy studies for competitive prototypes. ***FY 2014 Plans:*** Continue non-clinical safety and efficacy studies for competitive prototypes. ***FY 2015 Plans:*** Continue non-clinical safety and efficacy studies for competitive prototypes.	1.801	3.500	6.955
Title: 32) VAC WEVEE ***FY 2013 Accomplishments:*** Initiated small-scale manufacturing process development and assay development for competitive prototypes. ***FY 2014 Plans:*** Continue small-scale manufacturing process development, assay development, and initiate GMP manufacturing for competitive prototypes. ***FY 2015 Plans:***	5.672	16.051	14.761

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue small-scale manufacturing process development, assay development, and GMP manufacturing for competitive prototypes.			
Title: 33) VAC WEVEE ***FY 2013 Accomplishments:*** Initiated strategic/tactical planning, government system engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, regulatory and technical support. ***FY 2014 Plans:*** Continue strategic/tactical planning, government system engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, regulatory and technical support. ***FY 2015 Plans:*** Continue strategic/tactical planning, government system engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, regulatory and technical support.	0.281	3.472	4.139
Title: 34) VAC WEVEE ***FY 2015 Plans:*** Conduct one pre-IND meeting with the FDA.	-	-	0.900
Accomplishments/Planned Programs Subtotals	111.415	122.328	102.080

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• MB5: *MEDICAL BIOLOGICAL DEFENSE (EMD)*	173.505	246.436	169.497	-	169.497	138.224	154.851	179.989	168.644	Continuing	Continuing
• MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*	0.490	0.499	13.414	-	13.414	14.551	9.816	7.277	16.496	Continuing	Continuing
• JM2222: *BIOSCAVENGER (BSCAV)*	-	-	-	-	-	-	-	9.354	14.522	Continuing	Continuing
• JM5597: *HEMORRHAGIC FEVER VIRUS (HFV)*	-	-	-	-	-	-	-	2.725	5.400	Continuing	Continuing
• JM6677: *ADVANCED ANTICONVULSANT SYSTEM (AAS)*	1.566	-	2.500	-	2.500	-	-	-	-	-	4.066

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Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• JM8788: *NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)*	14.999	-	3.861	-	3.861	4.632	8.593	8.495	13.900	Continuing	Continuing
• JX0005: *DOD BIOLOGICAL VACCINE PROCUREMENT*	0.185	0.185	6.412	-	6.412	6.606	12.108	3.406	6.801	Continuing	Continuing
• JX0210: *CRITICAL REAGENTS PROGRAM (CRP)*	1.012	1.011	1.011	-	1.011	-	-	-	-	-	3.034
• JX0300: *BIOSURVEILLANCE (BSV)*	-	1.000	-	-	-	-	-	-	-	-	1.000

Remarks

D. Acquisition Strategy

ADVANCED DEVELOPMENT & MANUFACTURING (ADM)

The ADM capability awarded a competitive ten (10) year [two base years with four 2 year options] Cost Plus Fixed fee (CPFF) contract to Nanotherapeutics, Inc., Alachua, FL.

BIOSURVEILLANCE (BSV)

BSV is the delivery of a set of capabilities to acquire, integrate, and analyze medical, environmental, and incident management data using existing and next generation systems, medical and non-medical sample collection tools and identifiers/diagnostics; and transition hardware/software tools and devices as residuals from the Biosurveillance Joint USFK Portal and Integrated Threat Recognition (JUPITR) Advanced Technology Demonstration (ATD). Lessons learned from the ATD will be transitioned to the programs of record associated with the CBDP. The acquisition strategy will address the materiel solutions identified out of the multiple Biosurveillance (BSV) related Analysis of Alternatives (AoA's).

COUNTERMEASURES FOR DRUG RESISTANT BACTERIA (CMDR-B)

The CMDR-B program develops MCMs for MDR bacteria, including BWAs and organisms that are genetically modified to be MDR. The resulting product(s) will be US FDA-approved to prevent or minimize effects of MDR bacterial exposures. The CMDR-B Program acquisition strategy is to employ a full and open competition approach with an anticipated Cost Plus Incentive Fee (CPIF) contract. CMDR-B will follow an integrated acquisition and regulatory pathway to achieve FDA approval for drug candidates. The CMDR-B Program intends to fund multiple candidates to address competitive prototyping and mitigate drug development risk. In FY13, a Market Survey and RFI were completed assessing current anti-bacterial countermeasure technologies. Results confirmed technologies exist that are of sufficient maturity to enter advanced development. CMDR-B is establishing collaborative relationships with DoD, other USG entities and international partners to reduce program risk, lower

program cost, and accelerate delivery of MCMs to the Warfighter. Milestone A is anticipated in FY15. Upon Milestone A approval, the program will advance MCM candidates against MDR bacterial diseases (e.g., anthrax and plague) through the Technology Development phase. In FY16-17 CMDR-B will initiate and complete Phase I clinical studies. CMDR-B anticipates an FY17 Milestone B decision to continue toward a New Drug Application (NDA) and FDA approval/licensure.

EMERGING INFECTIOUS DISEASES - THERAPUTIC (EID TX)

The goal of the EID Tx program is to develop a safe and effective MCM against biothreats of interest to the DoD. The first step of the acquisition strategy is to develop an MCM for influenza due to a clear and established FDA regulatory approval pathway. The Phase 2 clinical trial is complete, demonstrating both safety and efficacy in humans. Program was authorized by FDA to move forward at End of Phase 2 meeting on 3 SEP 13. Phase 3 clinical trials for EID Tx against influenza began during 1QFY14. Following successful FDA approval of the drug against influenza, EID Tx will utilize an incremental approach to label extensions of this broad spectrum therapeutic. The development strategy for additional label extensions of the antiviral drug consists of detailed characterization of antiviral activities of the broad-spectrum compound against multiple virus families using cell-based and animal model systems. Using the results of the cell-based assays efficacy assessment of the drug against high-priority viruses of biodefense concern will be performed using small animal studies. The results of the small animal testing will determine the best candidate to move forward for the Label Extension starting in FY15.

HEMORRHAGIC FEVER VIRUS (HFV)

The acquisition strategy uses a parallel evaluation of drug candidates against the lethal Ebola Zaire and Marburg viruses. Following a successful Milestone B and entry into SDD phase, the program will conduct expanded human clinical safety studies, definitive animal efficacy, and toxicology studies, required for FDA approval. The performer(s) will submit a New Drug Application(s) for the Ebola Zaire and Marburg therapeutics during the SDD 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.

NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)

The Next Generation Diagnostics System (NGDS) will develop and field a family of enhanced CBRN analytical and diagnostic systems to the Joint force through an evolutionary acquisition strategy. NGDS Increment 1 Deployable Component will develop FDA cleared Biological Warfare Agent (BWA) in vitro diagnostic (IVD) assays for an existing Commercial diagnostic device with a well established FDA regulatory history and a pipeline of commercial non-BWA infectious disease diagnostic tests. Additional DoD-unique BWA diagnostic and environmental surveillance capabilities will be added to the downselected instrument after MS C. BA4 funds are used for NGDS Incr 1 throughout the FY12-15 Technology Development phase in accordance with the streamlined MS A to MS C acquisition strategy. Specifically, NGDS Incr 1 BA4 funds are used to conduct competitive prototyping, early operational assessments, development of 6 BWA IVD assays (Anthrax, Ebola, Marburg, Plague, Tularemia and Q-Fever), 22 BWA surveillance assays and multiservice operational test prior to MS C.

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Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

NGDS Increment 2 will use BA4 funds FY14-16 to conduct technology development prior to MS B. The acquisition strategy and capability to be developed will be determined by the results of the Analysis of Alternatives to be completed 2QFY14. NGDS Incr 2 is intended to be complementary to NGDS Incr 1 to expand the breath of diagnostics to CBRN threats, pre-symptomatic diagnostics and far forward echelons of care.

FILOVIRUS (VAC FILO)

The Government will develop two Filovirus vaccine candidates through a Phase 1 clinical trial. The Government 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 Development (EMD) Phase with delivery of a FDA licensed Filovirus Vaccine. The development contracts will be a mix of Cost Plus and Firm Fixed Price. In addition, the Program Office will partner with DoD agencies and laboratories to include U.S. Army Medical Research Institute of Infectious Diseases. 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.

RICIN VACCINE (VAC RIC)

A ricin vaccine will protect against exposure to the ricin toxin, an identified BW threat. The Government will serve as the integrator during this phase by managing and coordinating the various vaccine development efforts. Additionally, the Program Office will partner with DoD agencies and laboratories to include U.S. Army Medical Research Institute of Infectious Diseases. FY13-FY14 funding will allow the completion of essential efforts needed to support a Milestone B decision. These efforts include manufacturing of cGMP lots, proof of concept efficacy studies, and assay development. These efforts also include a Phase I Clinical Trial to measure the safety and effectiveness of the vaccine in humans. IND submission and Phase 1b Clinical Trial are the final requirements for a Milestone B

WESTERN EASTERN VENEZUELAN EQUINE ENCEPH VACCINE (VAC WEVEE)

The WEVEE acquisition strategy uses a parallel evaluation of two vaccine candidates through a Phase 1 clinical trial to achieve competitive prototyping in the Technology Development phase. The Government will serve as the integrator during this phase by managing and coordinating the various vaccine development efforts. At MS B, the best prototype will be selected through a full and open competition to transition to the Engineering and Manufacturing Development (EMD) phase, with delivery of a FDA-licensed WEVEE vaccine. The development efforts will be a Cost Plus and Firm Fixed Price CLINs. Additionally, the Program Office will partner Health and Human Services/National Institute of Allergies and Infectious Diseases (HHS/NIAID), DoD agencies, and laboratories to include U.S. Army Medical Research Institute of Infectious Diseases (USMRIID). 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.

E. Performance Metrics

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

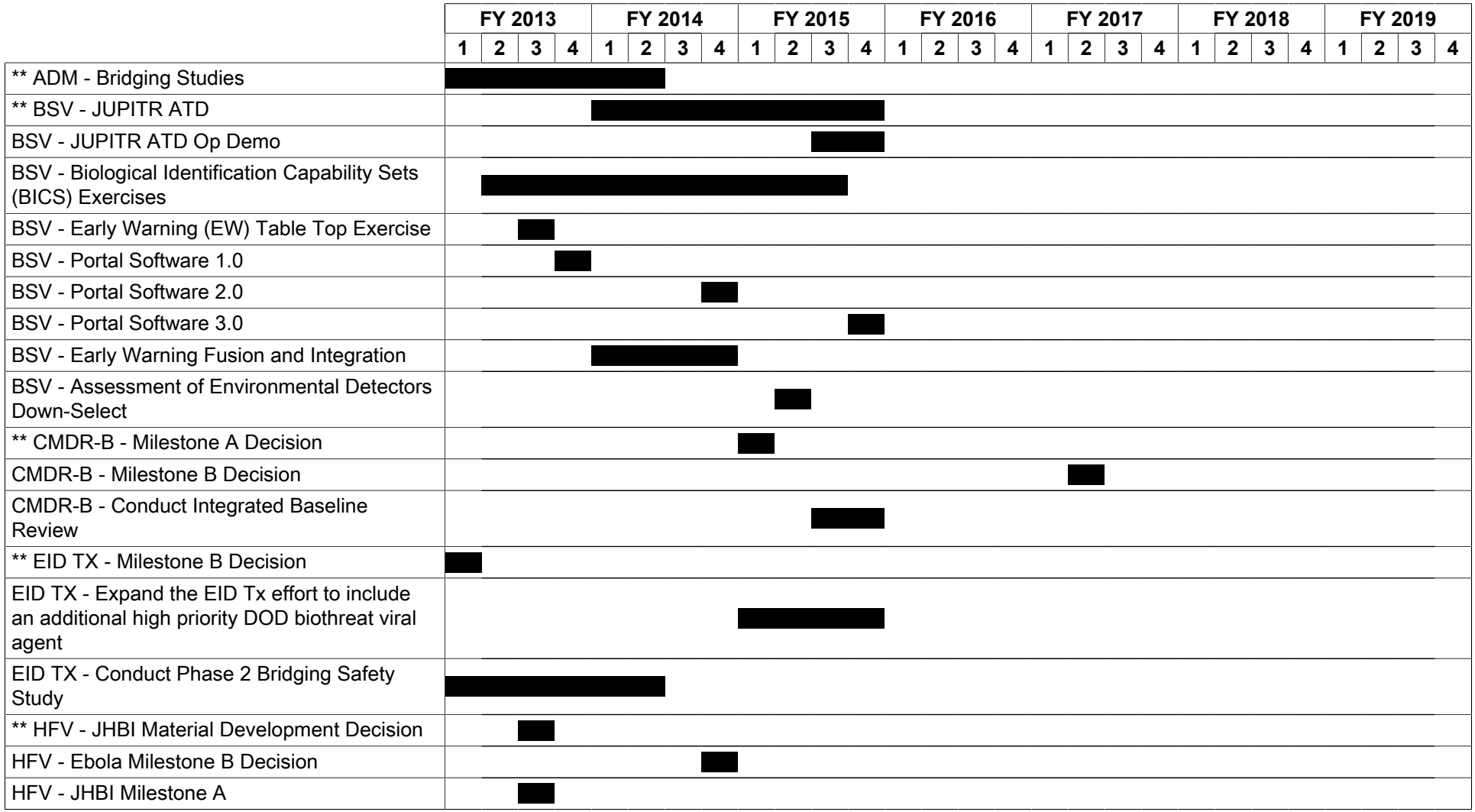

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

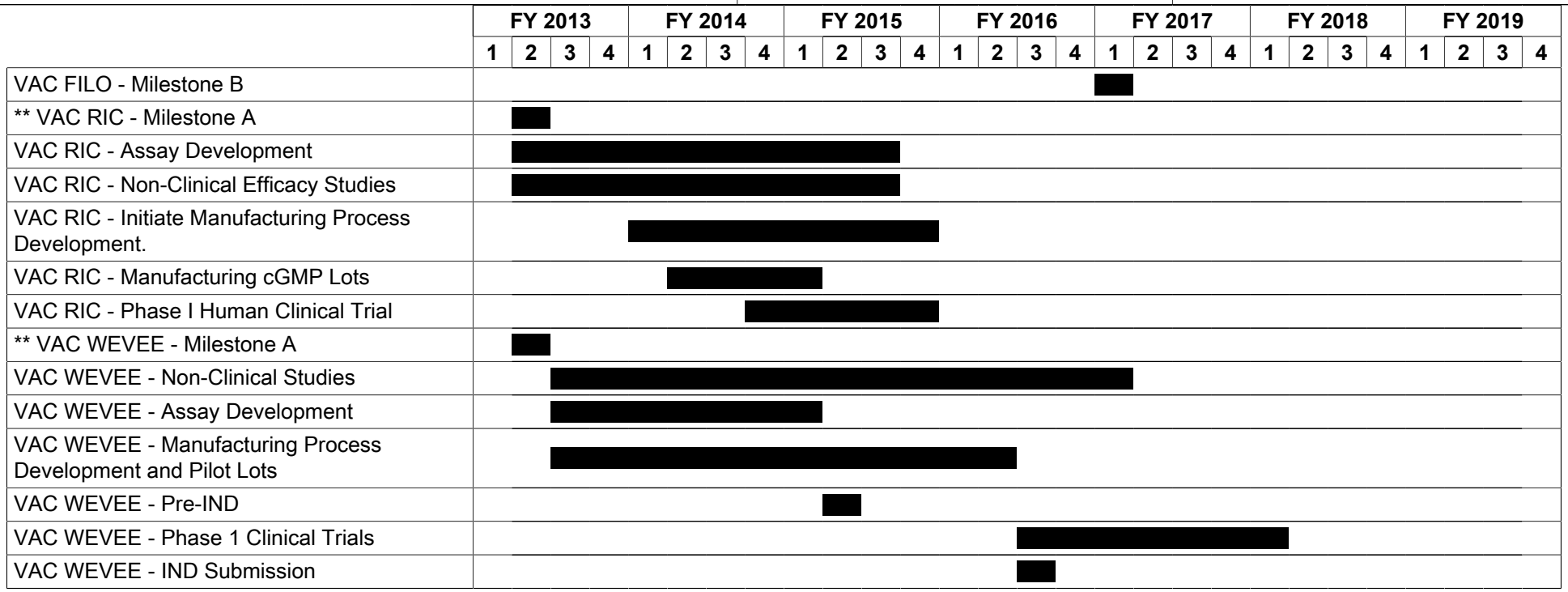

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** ADM - Bridging Studies	1	2013	2	2014
** BSV - JUPITR ATD	1	2014	4	2015
BSV - JUPITR ATD Op Demo	3	2015	4	2015
BSV - Biological Identification Capability Sets (BICS) Exercises	2	2013	3	2015
BSV - Early Warning (EW) Table Top Exercise	3	2013	3	2013
BSV - Portal Software 1.0	4	2013	4	2013
BSV - Portal Software 2.0	4	2014	4	2014
BSV - Portal Software 3.0	4	2015	4	2015
BSV - Early Warning Fusion and Integration	1	2014	4	2014
BSV - Assessment of Environmental Detectors Down-Select	2	2015	2	2015
** CMDR-B - Milestone A Decision	1	2015	1	2015
CMDR-B - Milestone B Decision	2	2017	2	2017
CMDR-B - Conduct Integrated Baseline Review	3	2015	4	2015
** EID TX - Milestone B Decision	1	2013	1	2013
EID TX - Expand the EID Tx effort to include an additional high priority DOD biothreat viral agent	1	2015	4	2015
EID TX - Conduct Phase 2 Bridging Safety Study	1	2013	2	2014
** HFV - JHBI Material Development Decision	3	2013	3	2013
HFV - Ebola Milestone B Decision	4	2014	4	2014
HFV - JHBI Milestone A	3	2013	3	2013
HFV - Complete Pre-Clinical Efficacy and Safety Testing for Ebola MCM	2	2014	2	2014
** NGDS - Increment 1 Competitive Prototyping Phase	2	2013	1	2014

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NGDS - Anthrax/Viral Hemorrhagic Fever IVD Development and clearance	2	2013	2	2015
NGDS - Increment 1 Tularemia, Plague and Q-Fever assay development	2	2014	2	2016
NGDS - Increment 1 MS C	3	2015	3	2015
NGDS - Increment 1 IOC	1	2017	1	2017
NGDS - Increment 1 FOC	4	2018	4	2018
NGDS - Increment 1 Environmental Assay Development	2	2013	4	2016
NGDS - Increment 1 Multi Service Operational Test	1	2015	3	2016
NGDS - Increment 2 - MS A	4	2014	4	2014
NGDS - Increment 2 Contract Award & Early Operational Assessment	3	2015	1	2016
** VAC FILO - Non-clinical studies	1	2013	4	2015
VAC FILO - Manufacturing process development/cGMP Manufacturing	1	2013	4	2015
VAC FILO - Planned for Pre-IND application meeting	4	2013	3	2014
VAC FILO - Pre-IND meetings with FDA (2 prototypes)	4	2014	4	2014
VAC FILO - IND Submissions (2 prototypes)	1	2016	2	2016
VAC FILO - Phase 1 Clinical Trials (2 prototypes)	2	2016	3	2017
VAC FILO - Milestone B	1	2017	1	2017
** VAC RIC - Milestone A	2	2013	2	2013
VAC RIC - Assay Development	2	2013	3	2015
VAC RIC - Non-Clinical Efficacy Studies	2	2013	3	2015
VAC RIC - Initiate Manufacturing Process Development.	1	2014	4	2015
VAC RIC - Manufacturing cGMP Lots	2	2014	1	2015
VAC RIC - Phase I Human Clinical Trial	4	2014	4	2015
** VAC WEVEE - Milestone A	2	2013	2	2013
VAC WEVEE - Non-Clinical Studies	3	2013	1	2017
VAC WEVEE - Assay Development	3	2013	1	2015

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
VAC WEVEE - Manufacturing Process Development and Pilot Lots	3	2013	2	2016
VAC WEVEE - Pre-IND	2	2015	2	2015
VAC WEVEE - Phase 1 Clinical Trials	3	2016	1	2018
VAC WEVEE - IND Submission	3	2016	3	2016

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program			Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MC4 / *MEDICAL CHEMICAL DEFENSE (ACD&P)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)*	-	-	2.000	-	-	-	-	3.750	10.692	25.089	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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 warfare 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 warfare 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: Improved Nerve Agent Treatment System (INATS) an enhanced nerve agent treatment regimen consisting of an improved oxime to replace the current fielded oxime 2-pralidoxime chloride (2-PAM), product formulation enhancements to increase survival, and expanded pretreatment indications for the use of pyridostigmine bromide (PB), the active component of Soman Nerve Agent Pretreatment Pyridostigmine (SNAPP).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) INATS ***FY 2014 Plans:*** Continue non-clinical toxicology studies.	-	1.189	-
Title: 2) INATS ***FY 2014 Plans:*** Complete enhanced formulation stability studies and process optimization efforts.	-	0.541	-
Title: 3) INATS ***FY 2014 Plans:*** Continue and complete Phase 1 clinical trial.	-	0.270	-
Accomplishments/Planned Programs Subtotals	-	2.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MC4 / *MEDICAL CHEMICAL DEFENSE (ACD&P)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• MC5: *MEDICAL CHEMICAL DEFENSE (EMD)*	17.396	55.087	58.529	-	58.529	65.966	40.880	33.205	1.550	Continuing	Continuing
• JM6677: *ADVANCED ANTICONVULSANT SYSTEM (AAS)*	1.566	-	2.500	-	2.500	-	-	-	-	-	4.066

Remarks

D. Acquisition Strategy

IMPROVED NERVE AGENT TREATMENT SYSTEM (INATS)

Improved Nerve Agent Treatment Systems (INATS) is an enhanced nerve agent treatment regimen designed to replace and provide improved product performance over the Antidote Treatment Nerve Agent Auto-injector (ATNAA). The components of the INATS program include: 1) development of a broad spectrum oxime that is effective against emerging threats to replace the fielded currently fielded oxime 2-pralidoxime chloride (2-PAM); 2) product formulation enhancements to increase survival; and 3) expanded pretreatment indications for pyridostigmine bromide (PB). During the Technology Development Phase, the system integrator will oversee conduct of formulation development efforts, nonclinical toxicology and efficacy studies, Phase 1 human clinical safety studies as well as nonclinical studies to obtain FDA approval for expanding the indications for PB. Following a successful Milestone B and entry in to the Engineering and Manufacturing (EMD) Phase, the system integrator will continue to exercise management oversight with system integration support from a commercial partner or partners to ensure that the development and manufacture of the INATS is in accordance with Food and Drug Administration (FDA) regulations and guidelines. Prior to FDA licensure, the commercial partner(s) will perform a Phase 2 human clinical safety study, nonclinical toxicology studies and definitive animal efficacy studies. The system integrator will also manufacture an improved oxime 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 Production and Deployment Phase, the system integrator, in conjunction with a commercial partner, will pursue full rate and stockpile production and will conduct any FDA mandated post-marketing surveillance studies. The system integrator will transfer contracting and logistical responsibilities to the Defense Logistics Agency during the Operations and Support Phase however, as the total life-cycle manager the system integrator will monitor program performance through disposal.

E. Performance Metrics

N/A

Exhibit R-4, **RDT&E Schedule Profile:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MC4 / *MEDICAL CHEMICAL DEFENSE (ACD&P)*

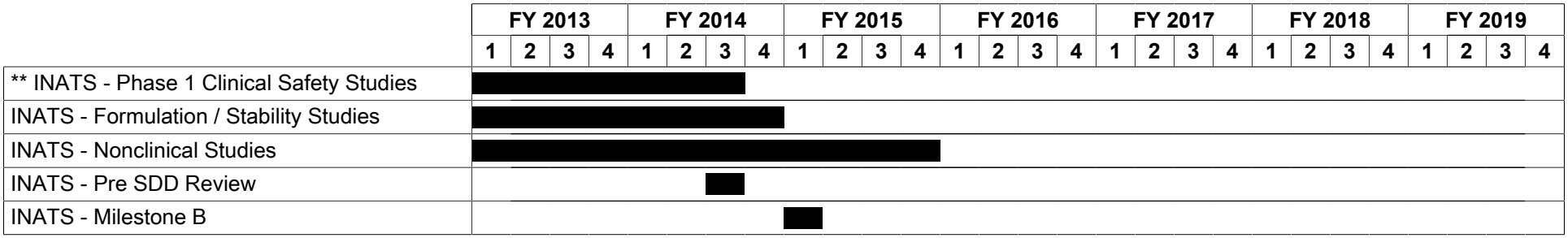

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MC4 / *MEDICAL CHEMICAL DEFENSE (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** INATS - Phase 1 Clinical Safety Studies	1	2013	3	2014
INATS - Formulation / Stability Studies	1	2013	4	2014
INATS - Nonclinical Studies	1	2013	4	2015
INATS - Pre SDD Review	3	2014	3	2014
INATS - Milestone B	1	2015	1	2015

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program			Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MR4 / *MEDICAL RADIOLOGICAL DEFENSE (ACD&P)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
MR4: *MEDICAL RADIOLOGICAL DEFENSE (ACD&P)*	-	2.736	-	-	-	-	-	-	-	-	-	2.736
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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.

Exposure to ionizing radiation causes acute radiation syndrome (ARS) which includes damage to blood-forming cells (hematopoietic system), gastrointestinal system, and central nervous system. Treatment of R/N casualties depends on effective use of multiple medical capabilities in an integrated manner. There are currently no FDA-approved prophylactic, therapeutic, or biodosimetry capabilities against ARS. Thus, this program supports the development of medical radiological countermeasures (MRADC) using a family-of-systems approach to provide a full spectrum medical capability including prophylactics, therapeutics, and biodosimetry to protect Warfighters against the radiation threat and to mitigate the medical consequences of exposure to ionizing radiation.

MRADC efforts include development of multiple countermeasures to prevent, limit, or reverse the myriad of injuries caused by exposure to radiation resulting in increased survival, decreased incapacity, and sustained operational effectiveness of U.S. Forces. In addition, MRADC will be effective against a broad range of ionizing radiation sources and types and will be useable throughout the full spectrum of healthcare operations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) MRADC ***FY 2013 Accomplishments:*** Conducted development of Department of Health and Human Services (HHS) prototypes for DoD requirements.	1.750	-	-
Title: 2) MRADC ***FY 2013 Accomplishments:*** Conducted preliminary PK studies to test HHS prototypes for DoD requirements.	0.986	-	-
Accomplishments/Planned Programs Subtotals	2.736	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MR4 / *MEDICAL RADIOLOGICAL DEFENSE (ACD&P)*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

MEDICAL RADIOLOGICAL COUNTERMEASURES (MRADC)

The DoD is synchronizing its investments and harmonizing its portfolio with the Department of Health and Human Services (HHS) which also has a radiation countermeasure program. DoD investments will focus on DoD-unique requirements. 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 DoD has entered into Interagency Agreements (IAAs) with the Biomedical Advanced Research and Development Authority (BARDA), HHS's advanced developer, to promote the development of MRADC and the Strategic National Medical Radiation Countermeasures Portfolio. Each contract performer whose work is supported through these IAAs will sponsor its drug to the FDA and hold all approvals and or licenses. In accordance with the MRADC revised acquisition strategy, the DoD will harmonize DoD investments with HHS investments. The DoD will invest via IAAs in HHS prototypes focusing on DoD-unique requirements as HHS, in its role as the lead developer for the Technology Development phase in a whole-of-government approach, matures the prototypes to support a DoD down-select at Milestone B.

E. Performance Metrics

N/A

Exhibit R-4, **RDT&E Schedule Profile:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MR4 / *MEDICAL RADIOLOGICAL DEFENSE (ACD&P)*

	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
** MRADC - Preliminary PK Studies																												
MRADC - Testing of HHS Prototypes																												

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MR4 / *MEDICAL RADIOLOGICAL DEFENSE (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** MRADC - Preliminary PK Studies	3	2013	4	2013
MRADC - Testing of HHS Prototypes	3	2013	4	2013

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TE4 / *TEST & EVALUATION (ACD&P)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
TE4: *TEST & EVALUATION (ACD&P)*	-	5.164	15.671	21.188	-	21.188	23.334	18.386	18.933	18.933	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This funding supports the Chemical Biological Defense Portfolio (CBDP) Test Equipment, Strategy, and Support (TESS) efforts. 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 (MDA), Joint Project Managers, and the Test and Evaluation (T&E) community. TESS test infrastructure products are aligned in three groups to include: (1) Sense Laboratory (Chemical); (2) Sense Laboratory (Biological); (3) Individual Protection, Collective Protection and Decontamination (Shield and Sustain); and (4) Field Simulant (Sense).

(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 chemical defense testing using new, emerging threat agents. The NTADTS supports testing of decontamination, collective protection, individual protection, and contamination avoidance products. The CBD acquisition programs supported are Dismounted Reconnaissance Sets Kits and Outfits (DR SKO), Next Generation Chemical Detector (NGCD), Decon Family of Systems (DFoS), and Common Analytical Laboratory System (CALS). Future efforts will include the development of test methods and methodologies for additional classes of agents.

(2) Sense Laboratory (Biological): The product for this area is the Joint Ambient Breeze Tunnel (JABT) and the Active Standoff Chamber (ASC). The JABT and ASC improvements will provide a tech refresh to existing infrastructure and allow for test results to be integrated into the Test Grid data management system.

(3) Individual Protection, Collective Protection and Decontamination (Shield and Sustain): The product for this area is the Chemical Biological Agent Resistance Test Fixture (CBART). Defense Threat Reduction Agency is continuing to mature this technology prior to transition to the T&E community. Projected location for this T&E capability is Dugway Proving Ground (DPG), Utah. CBART provides a state of the art material swatch test fixture for individual and collective protection systems.

(4) Field Simulant (Sense): The product for this area is the Test Grid. The Test Grid capability demonstrates test methodologies for chem and bio aerosols and advanced technologies. 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 acquisition programs supported are the Joint Expeditionary Collective Protection (JECP), Next Generation Chemical Detector (NGCD), Joint Biological Point Detection System (JBPDS) and the Joint Biological Tactical Detection System (JBTDS).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) TESS - Non-Traditional Agent Defense Test System (NTADTS)	3.190	5.387	5.669

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TE4 / *TEST & EVALUATION (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Initiated methodologies to safely, repeatedly and accurately test against future threats. ***FY 2014 Plans:*** Continue to develop methodologies and assessments for additional classes of agent. ***FY 2015 Plans:*** Complete methodology development for additional classes of agent.			
Title: 2) TESS - Joint Ambient Breeze Tunnel (JABT) ***FY 2015 Plans:*** Transition mature technology from the Chemical Biological community into existing Joint Ambient Breeze Tunnel (JABT). Initiate component upgrades to dissemination and referee systems for integration with the Test Grid Data Management System (DMS).	-	-	1.886
Title: 3) TESS - Active Standoff Chamber ***FY 2015 Plans:*** Transition mature technology from the Chemical Biological community into existing Active Standoff Chamber. Initiate component upgrades for integration into the Test Grid Data Management System.	-	-	1.418
Title: 4) TESS - Chemical Biological Agent Resistance Test Fixture (CBART) ***FY 2013 Accomplishments:*** Conducted BCA for transition of technology from Tech Base efforts for integration into CBART fixture and conducted studies. ***FY 2014 Plans:*** Initiate laboratory revitalization and design test fixture. ***FY 2015 Plans:*** Complete laboratory revitalization. Complete test fixture design and integrate into laboratory.	0.397	7.279	7.276
Title: 5) TESS - Test Grid ***FY 2013 Accomplishments:*** Conducted component level demonstration to reduce verification risk and operator training. ***FY 2014 Plans:*** Finalize system design and integration of system components for Initial Operational Capability. Complete specification update for reflex and design. Conduct verification test planning. ***FY 2015 Plans:***	1.577	3.005	4.939

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TE4 / *TEST & EVALUATION (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Initiate capability upgrade to include expansion to 5 km by 5 km grid and safari capability. Integration of Joint Ambient Breeze Tunnel (JABT) and Active Standoff Chamber (ASC) upgraded capabilities. Transition of full operational capability to Dugway Proving Ground.			
Accomplishments/Planned Programs Subtotals	5.164	15.671	21.188

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• TE5: *TEST & EVALUATION (EMD)*	6.726	26.202	9.176	-	9.176	2.753	5.978	6.311	6.311	Continuing	Continuing
• TE7: *TEST & EVALUATION (OP SYS DEV)*	3.730	3.690	5.984	-	5.984	4.881	5.118	5.174	5.381	Continuing	Continuing

Remarks

D. Acquisition Strategy

TEST EQUIPMENT, STRATEGY & SUPPORT (PD TESS)

TESS 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-4, **RDT&E Schedule Profile:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TE4 / *TEST & EVALUATION (ACD&P)*

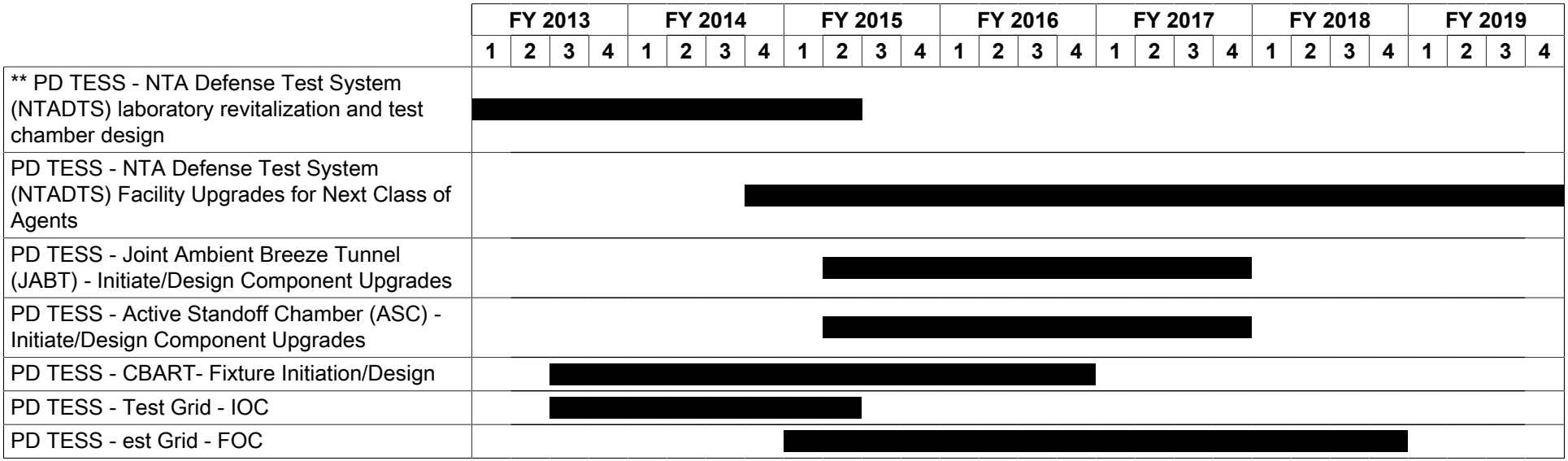

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TE4 / *TEST & EVALUATION (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** PD TESS - NTA Defense Test System (NTADTS) laboratory revitalization and test chamber design	1	2013	2	2015
PD TESS - NTA Defense Test System (NTADTS) Facility Upgrades for Next Class of Agents	4	2014	4	2019
PD TESS - Joint Ambient Breeze Tunnel (JABT) - Initiate/Design Component Upgrades	2	2015	4	2017
PD TESS - Active Standoff Chamber (ASC) - Initiate/Design Component Upgrades	2	2015	4	2017
PD TESS - CBART- Fixture Initiation/Design	3	2013	4	2016
PD TESS - Test Grid - IOC	3	2013	2	2015
PD TESS - est Grid - FOC	1	2015	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program			Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TT4 / *TECHBASE TECHNOLOGY TRANSITION (ACD&P)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
TT4: *TECHBASE TECHNOLOGY TRANSITION (ACD&P)*	-	3.205	-	-	-	-	-	-	-	-	-	3.205
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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 demonstrations and programs seek to demonstrate the potential for enhanced military operational capability and/or cost effectiveness. Upon conclusion of the technical and operational demonstrations, the user or sponsor provides a determination of the military utility and operational impact of the technology and capability demonstrated. Successfully demonstrated technologies with proven military utility can either be left in place for extended user evaluations, accepted into advanced stages of the formal acquisition process, proceed directly into limited or full-scale production or be returned to the technical base for further development. This project funds three family of products 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, and Biological Resiliency. Hazard Mitigation 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 family of products achieve 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. Biological Resiliency efforts are 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) TECHTRAN - TaCBRD	3.205	-	-
Description: Transatlantic Collaborative Biological Recovery Demonstration (TaCBRD)			
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TT4 / *TECHBASE TECHNOLOGY TRANSITION (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Initiated Coalition Warfare Program S&T efforts with international partner in EUCOM Area Of Responsibility (AOR). Conducted persistent agent fate and contagious bio agent information systems studies, technical demonstrations and exercises. Initiated bio-resiliency planning efforts in a second AOR.			
Accomplishments/Planned Programs Subtotals	3.205	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• TT3: *TECHBASE TECHNOLOGY TRANSITION*	-	5.917	5.768	-	5.768	7.358	8.225	7.858	7.662	Continuing	Continuing

Remarks

D. Acquisition Strategy

TECHBASE TECH TRANSITION (TECHTRAN)

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 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-4, **RDT&E Schedule Profile:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TT4 / *TECHBASE TECHNOLOGY TRANSITION (ACD&P)*

	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	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
** TECHTRAN - TT DEMO TaCBRD ATD	[redacted]																											

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TT4 / *TECHBASE TECHNOLOGY TRANSITION (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** TECHTRAN - TT DEMO TaCBRD ATD	1	2013	4	2014

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Chemical and Biological Defense Program	Date: March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	-	268.360	426.299	345.883	-	345.883	334.784	319.186	342.238	242.801	Continuing	Continuing
CA5: *CONTAMINATION AVOIDANCE (EMD)*	-	21.825	32.766	50.582	-	50.582	76.595	64.248	61.660	18.598	Continuing	Continuing
CM5: *HOMELAND DEFENSE (EMD)*	-	5.193	14.533	16.508	-	16.508	8.910	8.365	15.484	9.344	Continuing	Continuing
CO5: *COLLECTIVE PROTECTION (EMD)*	-	10.487	13.300	4.670	-	4.670	-	-	-	-	-	28.457
DE5: *DECONTAMINATION SYSTEMS (EMD)*	-	7.407	2.412	11.146	-	11.146	16.296	19.151	19.559	7.655	Continuing	Continuing
IP5: *INDIVIDUAL PROTECTION (EMD)*	-	23.952	26.296	15.435	-	15.435	16.832	9.411	8.522	10.053	Continuing	Continuing
IS5: *INFORMATION SYSTEMS (EMD)*	-	1.869	9.267	10.340	-	10.340	9.208	16.302	17.508	20.646	Continuing	Continuing
MB5: *MEDICAL BIOLOGICAL DEFENSE (EMD)*	-	173.505	246.436	169.497	-	169.497	138.224	154.851	179.989	168.644	Continuing	Continuing
MC5: *MEDICAL CHEMICAL DEFENSE (EMD)*	-	17.396	55.087	58.529	-	58.529	65.966	40.880	33.205	1.550	Continuing	Continuing
TE5: *TEST & EVALUATION (EMD)*	-	6.726	26.202	9.176	-	9.176	2.753	5.978	6.311	6.311	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

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 physical 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 2015 Chemical and Biological Defense Program	Date: March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*

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 remote 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 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 the U.S. population, must support military commanders practical operational requirements and deployment strategies and must emphasize 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.

The Department of Defense coordinates its efforts with the Departments of Health and Human Services to promote synergy and minimize redundancy. The 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 accelerates 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 2015 Chemical and Biological Defense Program	**Date:** March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*

B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	311.071	451.306	408.758	-	408.758
Current President's Budget	268.360	426.299	345.883	-	345.883
Total Adjustments	-42.711	-25.007	-62.875	-	-62.875
• Congressional General Reductions	-0.410	-0.007			
• Congressional Directed Reductions	-32.457	-25.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-5.769	-			
• SBIR/STTR Transfer	-4.075	-			
• Other Adjustments	-	-	-62.875	-	-62.875

Change Summary Explanation

Funding: FY13: Reductions of $32.5M delayed medical, individual protection, detection, and toxin analysis efforts.

FY14: Reductions of $25.0M delay planned efforts and schedules for the Joint Biological Tactical Detection System (JBTDS), Common Analytical Laboratory System (CALS), therapeutics for Hemorrhagic Fever Virus (HFV), and the Botulinum Vaccine.

FY15: Reductions of $15.5M delay initiation of Stryker NBCRV biological recapitalization with the Joint Biological Tactical Detection System (JBTDS). Additional changes include an adjustment to the request for planned sustainment costs in FY15 for the MCM ADM, which will be funded from Government MCM programs using this facility.

Schedule: N/A

Technical: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program												Date: March 2014
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*				Project (Number/Name) CA5 / *CONTAMINATION AVOIDANCE (EMD)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
CA5: *CONTAMINATION AVOIDANCE (EMD)*	-	21.825	32.766	50.582	-	50.582	76.595	64.248	61.660	18.598	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This project supports System Development and Demonstration and Low Rate Initial Production (SDD/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) Non-Traditional Agent (NTA) Defense Support; (5) Non-Traditional Agent (NTA) Detection Support; and (6) Next Generation Chemical Detector (NGCD).

The CBRN Dismounted Reconnaissance Systems (CBRN DRS) consists of portable, commercial and government off-the-shelf equipment which provides personnel protection from current and emerging CBRN hazards through detection, identification, sample collection, decontamination, marking, and hazard reporting for CBRN threats. The system supports Dismounted Reconnaissance, Surveillance, and CBRN Site Assessment missions which enable more detailed and near real-time CBRN information flow for the Warfighter. The program will address emerging CBRN threat requirements in order to provide an enhanced capability for the future.

The Joint Biological Point Detection System (JBPDS) is a fully automated system that detects, warns, and provides presumptive identification and samples for follow-on confirmatory analysis. It is an ACAT II program in Full Rate Production (FRP). 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 several classes of ships such as Cruisers and Amphibious Transports. Engineering Changes to refresh the technology of the JBPDS consists 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 meet Information Assurance standards 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 significantly reduce false positives resulting in improved reliability, reduced consumable use, and reduction in operational and sustainment 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 samples 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

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

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. JBTDS will leverage potential common identification technology solutions to additional programs and will address modernization of NBCRV and other platforms.

The Non-Traditional Agent (NTA) Defense program supports the on-going chemical and biological (CB) defense efforts as acquisition programs address emerging threat requirements across the full spectrum of conflict. Dedicated initiatives and projects will transition information, technologies, and capability into acquisition strategies that account for the breadth and depth of emerging threats which span the full range of military missions. By leveraging previous work done on NTAs (NTA DETECT) within the DoD, interagency cooperation, and international partnerships, the NTA Defense program will provide essential enablers such as threat understanding; operational impacts of performance trades; and comprehensive, integrated, and layered defense concepts against current CB threats. The program will develop a balanced portfolio which will target capabilities to reduce risk from technology gaps inherent from emerging threats. Additional efforts in conducting systems engineering analysis will occur in order to identify and consolidate capability knowledge gaps and prioritize required investments.

The Non-Traditional Agent (NTA) Detect project will identify, evaluate and continue to transition advanced detection and identification system(s) through follow-on technology insertion efforts which enhance the Domestic Response Capability (DRC), Advanced Threat (AT) Box, CBRN DRS (Dismounted Reconnaissance Sets, Kits, and Outfits), and Next Generation Chemical Detector programs. These efforts will ensure that specialized units will maintain situational awareness and have the ability to respond to emerging and escalating threats. The systems provide a mid-term capability to detect emerging threat materials and afford the Warfighter the ability to support domestic response and force protection missions. These systems will leverage common core technologies to detect and identify threats that can be exploited for lab deployable, fixed site and handheld applications.

The Next Generation Chemical Detector (NGCD) is several detection system variants for multi phase of matter sampling, location of liquid solids on surfaces, and vapor and aerosol monitoring. NGCD will detect and identify non-traditional agents, chemical warfare agents (CWAs), toxic industrial chemicals (TICs) in the air and on surfaces. The NGCD will provide improved CWA/TIC selectivity and sensitivity on multiple platforms as well as multiple environments. This sensor will improve detection, consequence management and reconnaissance, and weapons of mass destruction (WMD) interdiction capabilities. The scope of the project includes detection of agent a few feet away from the detector as well as the sampling point of the detector.

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015**
Title: 1) CBRN DRS - Dismounted Reconnaissance Sets, Kits, and Outfits (DR SKO)	3.487	0.720	-
FY 2013 Accomplishments: Completed documentation, systems engineering, and design to support MS C LRIP. Continued IPT support.			
FY 2014 Plans: Complete documentation, systems engineering, and design to support FRP. Continue IPT support.			
Title: 2) CBRN DRS - DR SKO	5.556	0.950	-
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Initiated and completed Multi-Service Operational Test and Evaluation (MOT&E). Initiated Failure Mode, Effects, and Criticality Analysis (FMECA). ***FY 2014 Plans:*** Complete verification and assessment of Failure, Mode, Effects, and Criticality Analysis (FMECA).			
Title: 3) CBRN DRS - DR SKO ***FY 2013 Accomplishments:*** Completed technical manual (TM) development. Continued logistics products development. ***FY 2014 Plans:*** Complete TM verification and logistics products development.	3.450	0.330	-
Title: 4) CBRN DRS - DR SKO ***FY 2013 Accomplishments:*** Completed retrofit of System Development and Demonstration (SDD) systems.	1.975	-	-
Title: 5) JBPDS ***FY 2013 Accomplishments:*** Completed strategic and tactical planning, government system engineering, program/financial management, costing, contracting, scheduling, and technical support.	0.296	-	-
Title: 6) JBPDS ***FY 2013 Accomplishments:*** Completed development of a new detector for the JBPDS program.	2.630	-	-
Title: 7) JBTDS ***FY 2014 Plans:*** Initiate evaluation of potential technology solutions for inclusion in JBTDS solution set, and initiate live agent risk reduction measures.	-	5.084	-
Title: 8) JBTDS ***FY 2014 Plans:*** Initiate development of a tactical identifier in collaboration with efforts in Next Generation Diagnostic System (NGDS) and Common Analytical Laboratory System (CALS). ***FY 2015 Plans:***	-	5.185	2.089

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue development of a tactical identifier in collaboration with NGDS and CALS.			
Title: 9) JBTDS ***FY 2014 Plans:*** Provide government strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, and technical support. ***FY 2015 Plans:*** Continue to provide government strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, and technical support.	-	7.243	8.386
Title: 10) JBTDS ***FY 2014 Plans:*** Initiate Service representation (i.e. integrated product teams (IPT) and working groups). ***FY 2015 Plans:*** Continue Service representation (i.e. integrated product teams (IPT) and working groups).	-	2.657	2.200
Title: 11) JBTDS ***FY 2014 Plans:*** Initiate development of unique test fixtures and adapters required to use the specific JBTDS system under test into the test chamber. ***FY 2015 Plans:*** Complete development of unique test fixtures and adapters required to use the specific JBTDS system under test into the test chamber.	-	0.645	1.000
Title: 12) JBTDS ***FY 2015 Plans:*** Initiate developmental testing to include live agent, environmental and military standard testing.	-	-	5.050
Title: 13) JBTDS ***FY 2015 Plans:*** Initiate and complete user operational assessment of Engineering Manufacturing Development (EMD) systems.	-	-	2.150
Title: 14) JBTDS ***FY 2015 Plans:***	-	-	7.800

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Initiate the development effort for NBCRV platform design and integration.			
Title: 15) JBTDS ***FY 2015 Plans:*** Initiate and complete the verification and validation of military utility model.	-	-	1.200
Title: 16) JBTDS ***FY 2015 Plans:*** Initiate the Engineering Manufacturing Development (EMD) Contract (including 36 test articles at approximately $70,000 each).	-	-	7.614
Title: 17) Next Generation Chemical Detector (NGCD) ***FY 2015 Plans:*** Purchase 50 prototypes at $24,000 each.	-	-	1.200
Title: 18) Next Generation Chemical Detector (NGCD) ***FY 2015 Plans:*** Prepare and initiate Production Qualification Test (PQT).	-	-	2.203
Title: 19) Next Generation Chemical Detector (NGCD) ***FY 2015 Plans:*** Continue Government Program Management.	-	-	0.509
Title: 20) NTA Defense - Threat Understanding/Military Utility and Supportability ***FY 2014 Plans:*** Initiate analysis of threat understanding and combat developer provided operational analysis to ascertain technology and training gaps in multiple missions. Leverage previous work done under NTA Detect to fully challenge outputs of threat and operational phenomenology. Centralize the analysis outputs and extend threat phenomenology methodology to all commodities. ***FY 2015 Plans:*** Expand analysis of threat understanding to further emerging classes and provide information to combat developers to ascertain technology and training gaps in multiple missions. Leverage previous work to fully challenge outputs of threat and operational phenomenology. Centralize the analysis outputs and extend threat phenomenology methodology to expanded threat space.	-	1.840	1.787
Title: 21) NTA Defense - Systems Engineering ***FY 2014 Plans:***	-	1.440	1.398

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Initiate detection focused systems engineering modeling tools and update to reflect and account for protection, medical, and decontamination. Begin to refine model in preparation for verification. Integrate the threat understanding to ensure task oriented operationally relevant system performance is understood early in requirements development process. ***FY 2015 Plans:*** Verify and validate model for use in identifying system performance trade space prior to technology evaluation, system design or final requirements definition.			
Title: 22) NTA Defense - Test and Evaluation ***FY 2014 Plans:*** Initiate emerging threat test bed and methodologies to evaluate component technologies (detectors, decontaminants, individual protection ensembles, etc.) for the enterprise to inform technology development strategies and support competitive prototypes and technology insertions in acquisition programs across the evolving emerging threat space. ***FY 2015 Plans:*** Utilize emerging threat test bed facilities and methodologies to evaluate component technologies (detectors, decontaminants, individual protection ensembles, etc.) for the enterprise to inform technology development strategies and support competitive prototypes and technology insertions in acquisition programs against all emerging threats. Support assessments of fielded capabilities against new threats and assist risk assessments.	-	0.992	0.965
Title: 23) NTA Defense - Technology Assessments ***FY 2014 Plans:*** Initiate synchronization of acquisition strategies across the CBDP, Interagency, and International Community for all NTA initiatives. Conduct assessments and coordinate science and technology transition through Enterprise Wide IPT for whole of government. ***FY 2015 Plans:*** Update synchronized acquisition strategies across the CBDP, Interagency, and International Community for all NTA initiatives. Utilize assessments to generate targeted technology transition through Enterprise Wide IPT for whole of government.	-	4.140	4.021
Title: 24) NTA Defense - NTA Library ***FY 2014 Plans:*** Develop and update the NTA Library to provide a database for NTA knowledge. ***FY 2015 Plans:*** Expand capabilities of the NTA Library to accommodate emerging information and upgrade for use by whole of government.	-	1.040	1.010
Title: 25) NTA Detect - COTS/GOTS Mission Analysis	1.817	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Purchased 3 prototype Gas Chromatograph Mass Spectrometer (GCMS) systems at $150,000 each. Continued gap analyses to identify future needs to adequately test technology solutions. Continued refinement and update of source books for additional classes of emerging threats. Additional gap analysis, source book development, and testing of COTS/GOTS transitions to the NTA Defense funding line in FY14.			
Title: 26) NTA Detect - DESI Mass Spectrometer (MS) ***FY 2013 Accomplishments:*** Completed engineering and testing to support improved system health monitoring, sampling techniques, reliability and detection algorithm of the DESI-MS. Integrated and tested improved sampling techniques. Transition in FY14 to the NTA Defense program.	0.722	-	-
Title: 27) NTA Detect - Systems Engineering ***FY 2013 Accomplishments:*** Refined systems engineering methodology and incorporated into a model to verify detection technology investment strategies for SSA and CM missions, continued to update database sourcebooks and continued understanding of emerging threat impacts on current systems and missions in addition to consideration for future system designs. ***FY 2014 Plans:*** Complete systems engineering methodology. Complete database sourcebooks.	1.892	0.500	-
Accomplishments/Planned Programs Subtotals	21.825	32.766	50.582

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• CA4: *CONTAMINATION AVOIDANCE (ACD&P)*	5.713	24.853	40.088	-	40.088	34.229	29.355	-	-	-	134.238
• JC0100: *JOINT BIO POINT DETECTION SYSTEM (JBPDS)*	29.934	52.732	-	-	-	-	-	-	-	-	82.666
• JF0100: *JOINT CHEMICAL AGENT DETECTOR (JCAD)*	16.212	47.598	33.685	-	33.685	7.834	7.547	-	-	-	112.876
• JF0104: *NEXT GEN CHEMICAL DETECTOR (NGCD)*	-	-	-	-	-	3.000	3.000	4.356	17.208	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• JN0900: *NON TRADITIONAL AGENT DETECTION (NTAD)*	4.770	8.000	-	-	-	-	-	-	-	-	12.770
• MC0100: *JOINT NBC RECONNAISSANCE SYSTEM (JNBCRS)*	83.215	-	3.600	-	3.600	3.600	3.600	3.600	-	-	97.615
• MC0101: *CBRN DISMOUNTED RECONNAISSANCE SYSTEMS (CBRN DRS)*	15.080	34.998	113.333	-	113.333	97.399	98.453	95.333	144.289	Continuing	Continuing
• MX0001: *JOINT BIO TACTICAL DETECTION SYSTEM (JBTDS)*	-	-	-	-	-	-	7.530	65.385	69.379	Continuing	Continuing

Remarks

D. Acquisition Strategy

CBRN DISMOUNTED RECONNAISSANCE SYSTEMS

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. This strategy employs an NDI acquisition concept to establish a simplified management framework to translate mission needs and emerging technology capabilities into a stable, affordable, and well-managed acquisition program.

JOINT BIO POINT DETECTION SYSTEM (JBPDS)

The technology update for the detector focuses on the Rapid Agent Aerosol Detector (RAAD); being developed by MIT-LL with producibility and logistics support from Kansas City Plant (KCP). This technology update will be used to support the Joint US Forces Korea Portal and Integrated Threat Reduction (JUPITR) advanced technology demonstration (ATD).

JOINT BIO TACTICAL DETECTION SYSTEM (JBTDS)

The JBTDS is being developed using an evolutionary acquisition strategy. JBTDS will maximize the use of commercial off-the-shelf (COTS) and Government off-the-shelf (GOTS) technology. The awards for the Technology Development (TD) phase utilized a best value approach via the competitive CBRNE mission support contract to three contractor teams. Full and open competition will be utilized for the EMD contract with options for Low Rate Initial Production and Full Rate Production. Coordination with other programs (Common Analytical Laboratory System and Next Generation Diagnostic System) is occurring to share information and leverage potential common identification technology solutions to the three programs.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

NEXT GENERATION CHEMICAL DETECTOR (NGCD)

The NGCD analysis of alternatives will be used to generate performance specifications that will support contracting for competitive prototype development. The request for proposal was released July 2013. The goal for the initial stage of development will be to award multiple contracts for each variant of the NGCD. Full and open competition will be used to award one contract per variant at Milestone B. Mature technology will be accelerated as appropriate.

NON TRADITIONAL AGENT DEFENSE (NTA DEFENSE)

The Non-Traditional Agent Defense technology assessments, performance tradeoff analysis, and mission decomposition will provide acquisition information, technology, and evaluation testbeds to afford acquisition programs the ability to, more rapidly with less risk, develop capabilities for the Warfighter. The ability to attain situational awareness and respond to any unknown and emerging threat hazard will be attained through these incremental transitions to acquisition programs. By leveraging previous work done on NTAs within the DoD, the interagency, and internationally, the NTA Defense will provide essential enablers of a comprehensive, integrated, and layered defense against current CB threats and develop a balanced portfolio targeted at capabilities that preclude technological surprise from emerging threats.

NON TRADITIONAL AGENT DETECTION (NTA DETECT)

The Non-Traditional Agent (NTA) Detection technology assessments, performance tradeoff analyses, and mission decomposition transitioned a detection capability through incremental acquisition that afforded the Warfighter ability to attain situational awareness and respond to unknown and emerging hazards. COTS/GOTS assessments were used in order to lower program risks, reduce costs, and ensure a higher confidence in selected technologies. The project will address next priority mission areas and threats underneath the NTA Defense profile.

E. Performance Metrics

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

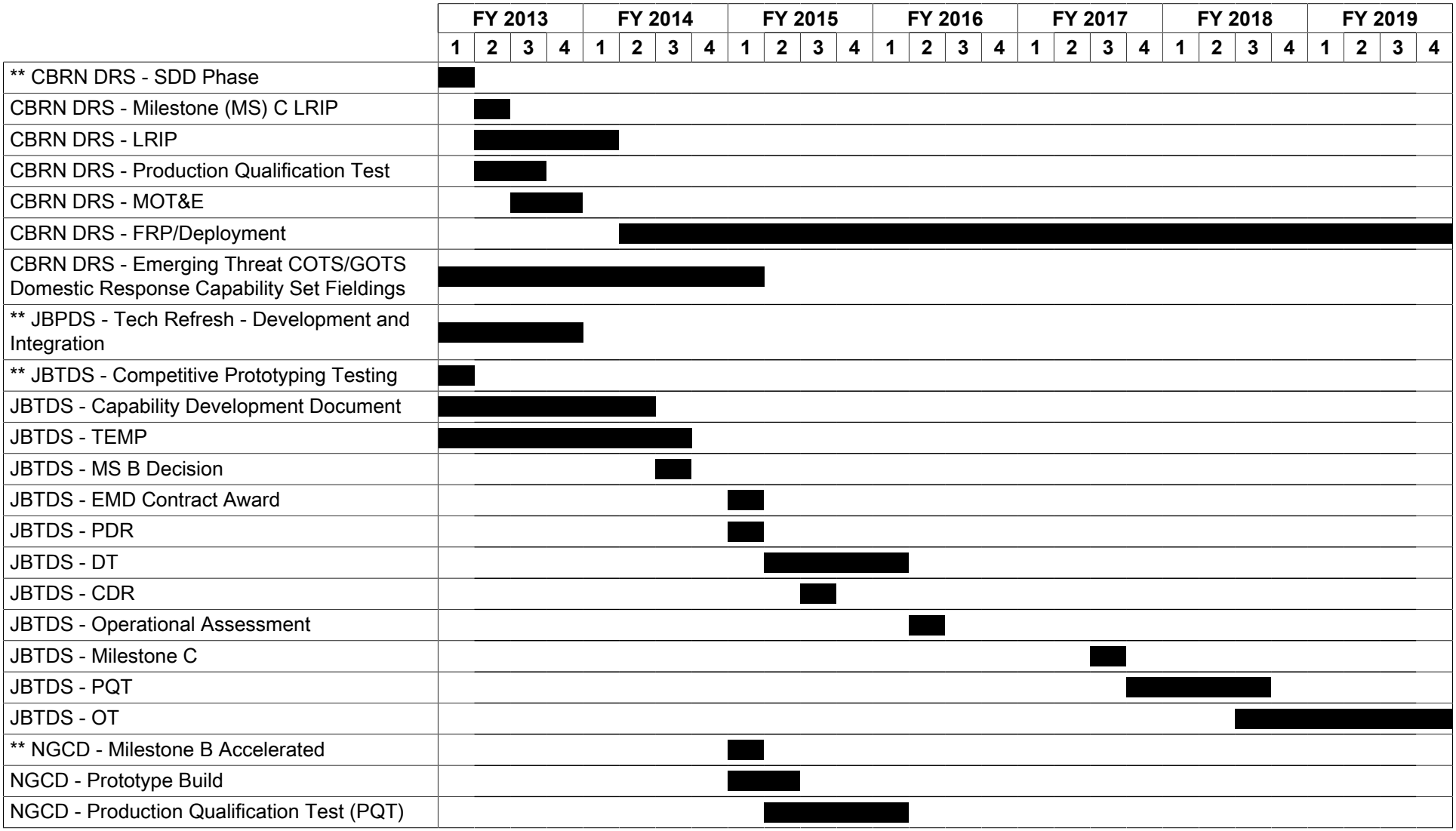

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

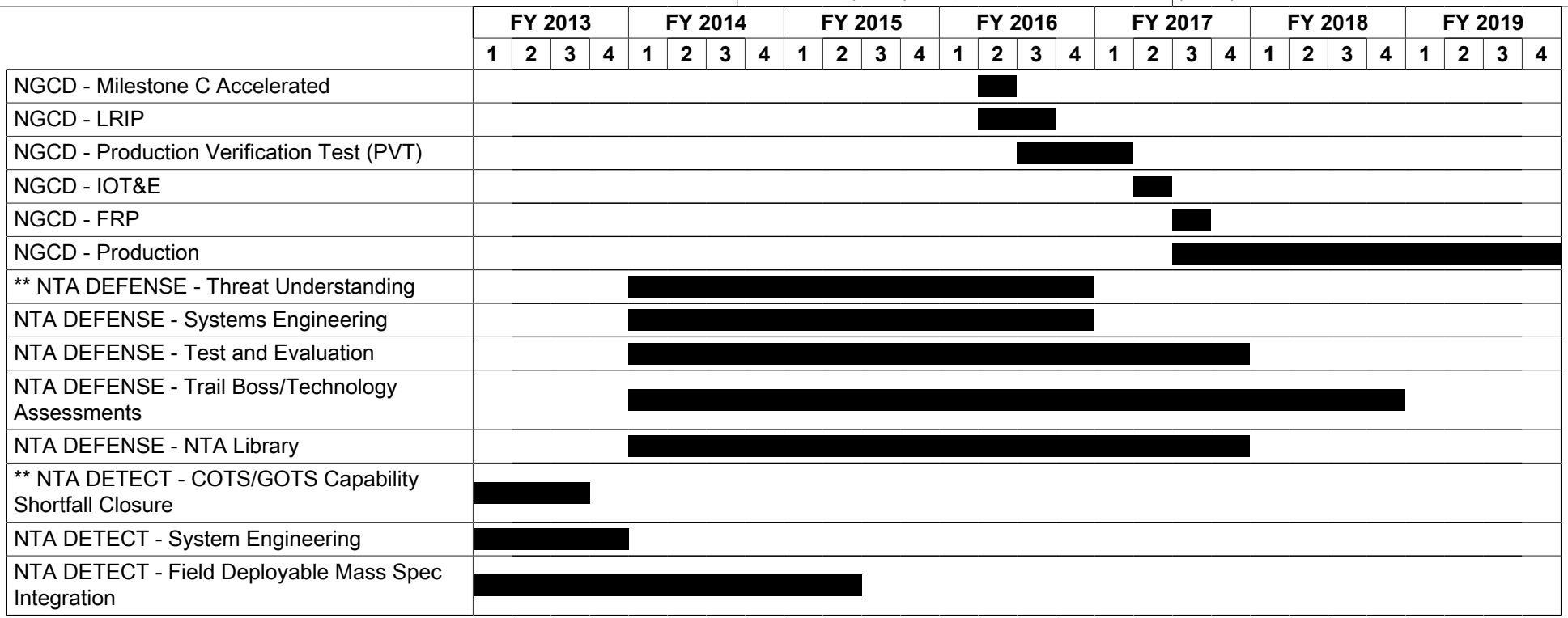

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** CBRN DRS - SDD Phase	1	2013	1	2013
CBRN DRS - Milestone (MS) C LRIP	2	2013	2	2013
CBRN DRS - LRIP	2	2013	1	2014
CBRN DRS - Production Qualification Test	2	2013	3	2013
CBRN DRS - MOT&E	3	2013	4	2013
CBRN DRS - FRP/Deployment	2	2014	4	2019
CBRN DRS - Emerging Threat COTS/GOTS Domestic Response Capability Set Fieldings	1	2013	1	2015
** JBPDS - Tech Refresh - Development and Integration	1	2013	4	2013
** JBTDS - Competitive Prototyping Testing	1	2013	1	2013
JBTDS - Capability Development Document	1	2013	2	2014
JBTDS - TEMP	1	2013	3	2014
JBTDS - MS B Decision	3	2014	3	2014
JBTDS - EMD Contract Award	1	2015	1	2015
JBTDS - PDR	1	2015	1	2015
JBTDS - DT	2	2015	1	2016
JBTDS - CDR	3	2015	3	2015
JBTDS - Operational Assessment	2	2016	2	2016
JBTDS - Milestone C	3	2017	3	2017
JBTDS - PQT	4	2017	3	2018
JBTDS - OT	3	2018	4	2019
** NGCD - Milestone B Accelerated	1	2015	1	2015

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NGCD - Prototype Build	1	2015	2	2015
NGCD - Production Qualification Test (PQT)	2	2015	1	2016
NGCD - Milestone C Accelerated	2	2016	2	2016
NGCD - LRIP	2	2016	3	2016
NGCD - Production Verification Test (PVT)	3	2016	1	2017
NGCD - IOT&E	2	2017	2	2017
NGCD - FRP	3	2017	3	2017
NGCD - Production	3	2017	4	2019
** NTA DEFENSE - Threat Understanding	1	2014	4	2016
NTA DEFENSE - Systems Engineering	1	2014	4	2016
NTA DEFENSE - Test and Evaluation	1	2014	4	2017
NTA DEFENSE - Trail Boss/Technology Assessments	1	2014	4	2018
NTA DEFENSE - NTA Library	1	2014	4	2017
** NTA DETECT - COTS/GOTS Capability Shortfall Closure	1	2013	3	2013
NTA DETECT - System Engineering	1	2013	4	2013
NTA DETECT - Field Deployable Mass Spec Integration	1	2013	2	2015

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program												Date: March 2014
Appropriation/Budget Activity 0400 / 5					**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*				**Project (Number/Name)** CM5 / *HOMELAND DEFENSE (EMD)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
CM5: *HOMELAND DEFENSE (EMD)*	-	5.193	14.533	16.508	-	16.508	8.910	8.365	15.484	9.344	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

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

Included in this project are the following developmental efforts:

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 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) and Biological Warfare Agents (BWAs). Users of the system will include the National Guard Bureau Civil Support Teams, the Army 20th Support Command, the Army Medical Laboratory, the Air Force, and the Navy.

The Special Purpose Units Chemical Biological Equipment program provides for the acquisition and ongoing assessment of Chemical, Biological, Radiological and Nuclear (CBRN) detection, protection and decontamination equipment for these units.

The Weapons of Mass Destruction Civil Support Team Program supports the ongoing assessment and acquisition of COTS and GOTS hand held analytical detection, protection, decontamination and sampling equipment for survey in order to expand/enhance the operational capabilities of the (57) WMD CST Teams. This includes modernization of detection capabilities inside the Analytical Laboratory System to maintain system viability until the CALS is fielded.

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015**
Title: 1) CALS - System Engineering and Program Management	-	3.960	3.970
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *HOMELAND DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue System and Program Management Support to provide management and engineering support, System Integration Laboratory efforts in preparation of Critical Design Review, manufacture of prototypes, and testing. ***FY 2015 Plans:*** Continue System and Program Management Support to provide management and engineering support, System Integration Laboratory efforts in preparation of Critical Design Review, manufacture of prototypes, and testing.			
Title: 2) CALS - Engineering and Planning and Design ***FY 2015 Plans:*** Prepare design package to include Quality Assurance plans for system level development and conduct logistics analysis.	-	-	0.540
Title: 3) CALS - System Integration Laboratory ***FY 2014 Plans:*** Continue to mitigate program risk through the use of a system integration laboratory tool set designed to facilitate system and subsystem level integration. ***FY 2015 Plans:*** Continue to mitigate program risk through the use of a system integration laboratory tool set designed to facilitate system and subsystem level integration.	-	0.375	0.200
Title: 4) CALS - Subsystem (Module) Prototype Manufacturing ***FY 2014 Plans:*** Initiate manufacturing of subsystem module prototypes. ***FY 2015 Plans:*** Complete manufacturing of subsystem module prototypes.	-	0.966	0.361
Title: 5) CALS - Subsystem Module Test and Evaluation ***FY 2014 Plans:*** Conduct subsystem module level testing. ***FY 2015 Plans:*** Conduct Development Test and Operational Test of subsystem modules.	-	2.179	4.935
Title: 6) CALS - System Level Prototype Variants ***FY 2014 Plans:***	-	4.568	6.502

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *HOMELAND DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Initiate the module buildout for Prototypes to be utilized during Engineering and Manufacturing Development. Conduct Developmental Test and Operational Test (DT/OT). ***FY 2015 Plans:*** Purchase System Level variant prototypes ensuring integration and connectivity between modules as a general system layout. Purchase 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 system prototype (Module).			
Title: 7) SPU CBE ***FY 2014 Plans:*** Provided CBRN Counter-Terrorism Commercial Off-The-Shelf (COTS) product/technology integration in support of the Special Operations (SOF) Community.	-	2.485	-
Title: 8) WMD CST - System Engineering and Program Management ***FY 2013 Accomplishments:*** Continued to provide for system engineering, technical control, and business management support of the next generation biological detection system.	1.466	-	-
Title: 9) WMD CST - Development Engineering ***FY 2013 Accomplishments:*** Completed development of method protocols for sampling with the next generation biological detection system for integration into the Analytical Laboratory System.	1.124	-	-
Title: 10) WMD CST - Component Test and Evaluation (ALS) ***FY 2013 Accomplishments:*** Continued Component Test and evaluation as a part of the modernization strategy for CBRN COTS technologies.	1.265	-	-
Title: 11) WMD CST - Component Integration and Test (ALS) ***FY 2013 Accomplishments:*** Completed integration of component detection system into the Analytical Laboratory System and validated connectivity of the component as a part of the general system.	1.338	-	-
Accomplishments/Planned Programs Subtotals	5.193	14.533	16.508

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *HOMELAND DEFENSE (EMD)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• JS0004: *WMD - CIVIL SUPPORT TEAMS (WMD CST)*	23.474	13.314	12.740	-	12.740	5.069	-	-	-	-	54.597
• JS0005: *COMMON ANALYTICAL LABORATORY SYSTEM (CALS)*	-	-	-	-	-	16.245	26.629	17.524	61.664	Continuing	Continuing

Remarks

D. Acquisition Strategy

COMMON ANALYTICAL LABORATORY SYSTEM (CALS)

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

SPU CB EQUIPMENT (SPUCBE)

Address legacy requirements gaps/deficiencies for SPU-CBE's where they exist through the streamlined acquisition of COTS/government-off-the-shelf (GOTS) capability upgrades that incorporate proven advancements in technology to satisfy mission performance standards.

WMD - CIVIL SUPPORT TEAMS (WMD CST)

The Weapons of Mass Destruction Civil Support Team Program (WMD-CST) is a COTS based program that supports the ongoing system engineering assessment, validation, and modernization of both CBRN COTS and GOTS analytical detection, protection, decontamination and sampling capabilities fielded to the (57) WMD CST Teams in order to optimize/enhance their operational capabilities.

E. Performance Metrics

N/A

Exhibit R-4, **RDT&E Schedule Profile:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *HOMELAND DEFENSE (EMD)*

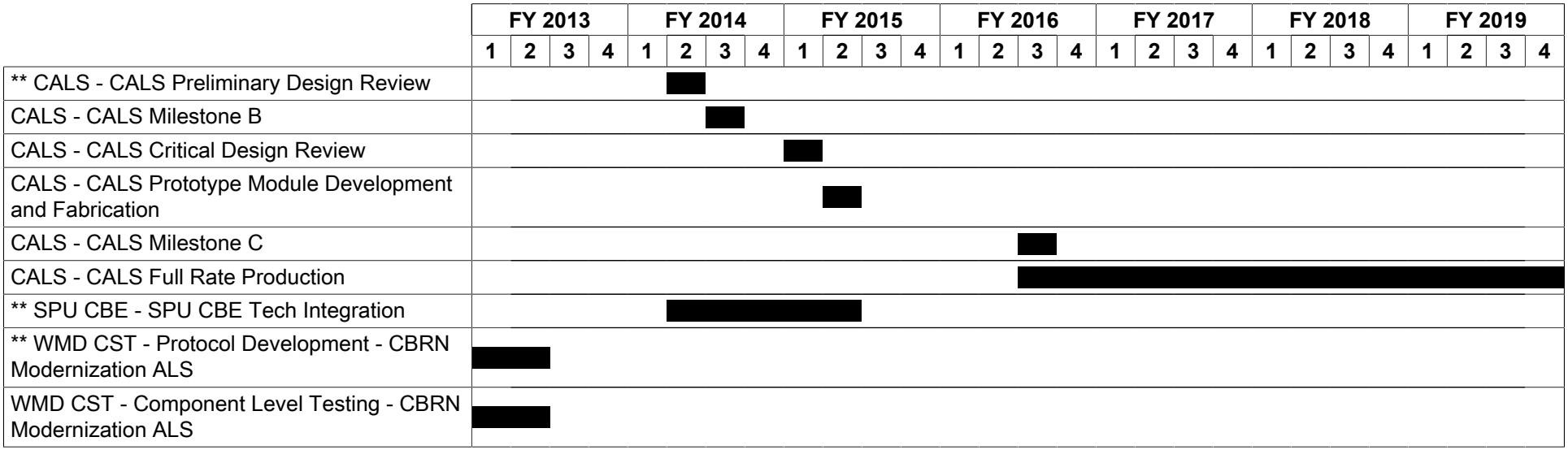

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *HOMELAND DEFENSE (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** CALS - CALS Preliminary Design Review	2	2014	2	2014
CALS - CALS Milestone B	3	2014	3	2014
CALS - CALS Critical Design Review	1	2015	1	2015
CALS - CALS Prototype Module Development and Fabrication	2	2015	2	2015
CALS - CALS Milestone C	3	2016	3	2016
CALS - CALS Full Rate Production	3	2016	4	2019
** SPU CBE - SPU CBE Tech Integration	2	2014	2	2015
** WMD CST - Protocol Development - CBRN Modernization ALS	1	2013	2	2013
WMD CST - Component Level Testing - CBRN Modernization ALS	1	2013	2	2013

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program			Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CO5 / *COLLECTIVE PROTECTION (EMD)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
CO5: *COLLECTIVE PROTECTION (EMD)*	-	10.487	13.300	4.670	-	4.670	-	-	-	-	-	28.457
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Funding supports System Development and Demonstration and Low Rate Initial Production (SDD/LRIP) of Joint Service Chemical, Biological, and Radiological (CBR) Collective Protection (CP) systems that are smaller, lighter, less costly to produce and maintain, and more logistically supportable enabling mission accomplishment in CBR environments. CP systems can be installed on any type of platform, such as, hard and soft shelters, vehicles, ships, aircraft, and buildings. CP systems provide spaces safe from the effects of CBR contamination.

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 2013	FY 2014	FY 2015
Title: 1) JECP - System Development and Demonstration (SDD) Contract ***FY 2013 Accomplishments:*** Continued development of logistic products for the JECP FoS. Supported a successful Milestone C decision review. Used the Failure, Analysis, and Corrective Action System process and Configuration Control Board to begin development of design changes for the FoS to address any failures from DT or observations from the OA. Supported the System Verification Review and Functional Configuration Audit.	1.853	-	-
Title: 2) JECP - Low Rate Initial Production (LRIP) Contract ***FY 2013 Accomplishments:*** Developed prototypes and tested design changes to ensure resolution of failures from DT or observations from the OA. Began the manufacture of Low Rate Initial Production (LRIP) systems for Government operational test and manufacturing readiness evaluation. LRIP consists of 6 tent kits at approximately $69,000 each, 6 improved structure kits at approximately $64,000 each,	3.058	3.730	0.600

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CO5 / *COLLECTIVE PROTECTION (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
6 stand alone larges (SAL) at approximately $185,000 each, 8 single person airlocks at approximately $34,000 each, and 9 multi-person airlocks at approximately $65,000 each. Estimated total FY13 cost of LRIP systems is $2,765,000. ***FY 2014 Plans:*** Continue manufacture of additional LRIP systems, 3 tent kits at approximately $69,000 each, 2 improved structure kits at approximately $64,000 each, 3 SALs at approximately $185,000 each, 4 single person airlocks at approximately $34,000 each, and 3 multi-person airlocks at approximately $65,000 each. Estimated total FY14 cost of LRIP systems is $1,221,000 million. Continue refinement of logistic products for the Family of Systems. Conduct Technical Manual Validation for the Family of Systems. Provide support to Government led production verification test and multi-service operational test and evaluation. ***FY 2015 Plans:*** Provide support to Government led production verification test and multi-service operational test and evaluation. Finalize logistics products in preparation for Full Rate Production/Material Release decision. Participate in a Logistics Demonstration. Support Technical Manual Verification, Provisioning Conference and Final JILA. Finalize Level III drawing package. Support Physical Configuration Audit and FRP Manufacturing Readiness Assessment.			
Title: 3) JECP - Government System Level Developmental Testing ***FY 2013 Accomplishments:*** Conducted testing on Environmental Control Units used by the services to evaluate capabilities to support collective protection. ***FY 2014 Plans:*** Conduct prototype/regression testing on any design changes resulting from failures during DT or observations from the OA. Begin Government system level DT on LRIP systems including CP verification, entry/exit, post-field CP verification and a RAM event. ***FY 2015 Plans:*** Conduct a combined DT/OT field challenge event on LRIP systems. Complete Government system level DT on LRIP systems.	0.110	3.188	0.547
Title: 4) JECP - Multi-Service Operational Test & Evaluation ***FY 2014 Plans:*** Begin detailed planning for MOT&E of Low Rate Initial Production units. ***FY 2015 Plans:*** Conduct MOT&E I combined DT/OT event on LRIP systems.	-	0.337	0.500
Title: 5) JECP - Systems Engineering Oversight ***FY 2014 Plans:***	-	0.753	0.296

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CO5 / *COLLECTIVE PROTECTION (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Focus on conduct of production verification testing and detailed planning for MOT&E. Begin preparation for full rate production decision (FRP). ***FY 2015 Plans:*** Focus on supporting MOT&E and continue preparation for FRP decision.			
Title: 6) JECP - Systems Engineering IPT ***FY 2013 Accomplishments:*** Updated the requirements traceability matrix (RTM) to reflect requirements that have been verified. Conducted a System Verification Review and Functional Configuration Audit. Established the LRIP product baseline. Chaired the Configuration Control Board as change approval authority. ***FY 2014 Plans:*** Provide engineering support for Government led DT. Conduct review of the technical data package with emphasis on the drawing package. Update and maintain the RTM to track when requirements have been verified as test results become available. Chair the Configuration Control Board maintaining configuration control of the LRIP product baseline. ***FY 2015 Plans:*** Conduct the Physical Configuration Audit and FRP Manufacturing Readiness Assessment. Provide engineering support to DT, MOT&E and the logistics demonstration. Transition contractor developed drawings to the Government for maintenance in the product development management system.	1.183	0.867	0.402
Title: 7) JECP - Test and Evaluation IPT ***FY 2013 Accomplishments:*** Participated in Government lead system level DT and operational assessment. Conducted test failure scoring conferences as necessary. Authenticated all data collected during DT. Performed analysis to support test report generation and determination of requirements compliance. Conducted accreditation of the System Performance Model that will be used to supplement test data. ***FY 2014 Plans:*** Complete detailed planning of DT for LRIP systems. Begin Government led system level DT using LRIP systems and participate in MOT&E. Conduct test failure scoring conferences and Data Authentication Group meetings as necessary. ***FY 2015 Plans:*** Provide T&E support to the Log Demo. Complete system level DT on LRIP systems. Conduct test failure scoring conferences and Data Authentication Group meetings as necessary. Perform analysis to support test report generation and determination of requirements compliance.	1.743	0.511	0.525
Title: 8) JECP - Integrated Logistics Support IPT	0.629	0.905	0.761

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CO5 / *COLLECTIVE PROTECTION (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Reported the results of the business case analysis and surge requirements analysis at MS C. Reviewed updated Technical Manuals and Training material. Participated in Configuration Control Board as necessary. Provided information to support the joint integrated logistics assessment (JILA). ***FY 2014 Plans:*** Validate Technical Manuals. ***FY 2015 Plans:*** Conduct a logistics demonstration on the FoS using Warfighters from the services. Conduct a Provisioning Conference and Technical Manual Verification. Provide information to support the final JILA.			
Title: 9) JECP - Program Management ***FY 2013 Accomplishments:*** Provided strategic planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. ***FY 2014 Plans:*** Provide strategic planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. ***FY 2015 Plans:*** Provide strategic planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support.	1.911	3.009	1.039
Accomplishments/Planned Programs Subtotals	10.487	13.300	4.670

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• JP1111: *JOINT EXPEDITIONARY COLLECTIVE PROTECTION (JECP)*	-	4.055	10.160	-	10.160	13.388	16.381	14.037	26.020	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CO5 / *COLLECTIVE PROTECTION (EMD)*

D. Acquisition Strategy

JOINT EXPEDITIONARY COLLECTIVE PROTECTION (JECP)

Strategy based on evolutionary development, based on a family of systems approach. After MS B, awarded competitive cost plus incentive fee contract to Science Applications International Corporation (now Leidos) in 2008 to build prototypes subjected to robust engineering developmental testing and Operational Assessment during the System Development and Demonstration (SDD) phase. After MS C, awarded a Firm Fixed Price (FFP) option to Leidos in September 2013 for Low Rate Initial Production (LRIP) systems to support formal Developmental Testing (DT) and Multi-Service Operational Test & Evaluation (MOT&E). In addition, a Fixed Price Incentive Successive Target (FPIS) option will be awarded to Leidos in 2QFY14 to perform non-recurring engineering (NRE) and logistic product development associated with the LRIP system configurations. Following a successful Full Rate Production (FRP) decision, award a FFP option with five one-year ordering periods. Full and open competition will be used with an updated SPS to award follow-on production contracts.

E. Performance Metrics

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CO5 / *COLLECTIVE PROTECTION (EMD)*

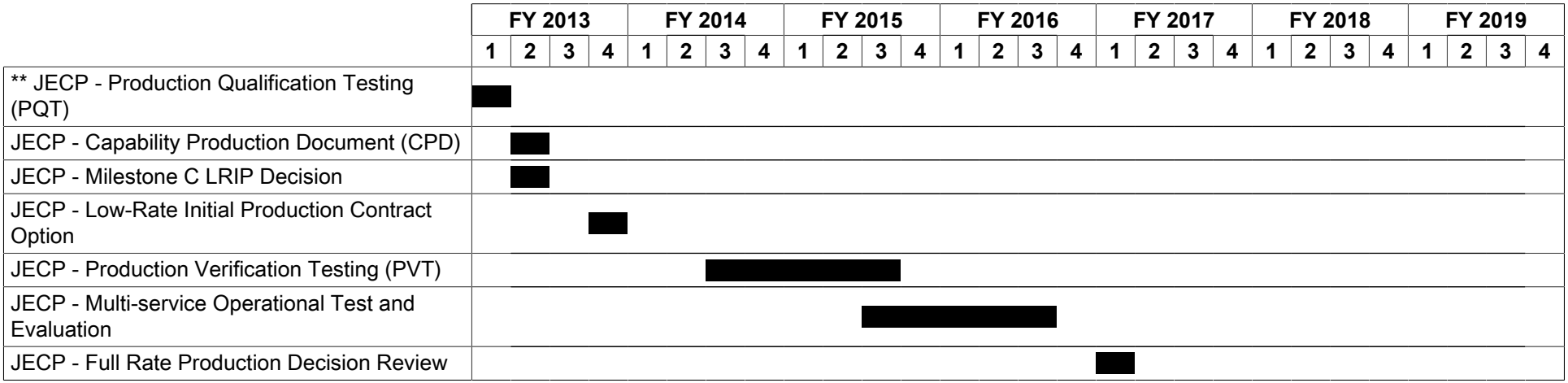

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CO5 / *COLLECTIVE PROTECTION (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** JECP - Production Qualification Testing (PQT)	1	2013	1	2013
JECP - Capability Production Document (CPD)	2	2013	2	2013
JECP - Milestone C LRIP Decision	2	2013	2	2013
JECP - Low-Rate Initial Production Contract Option	4	2013	4	2013
JECP - Production Verification Testing (PVT)	3	2014	3	2015
JECP - Multi-service Operational Test and Evaluation	3	2015	3	2016
JECP - Full Rate Production Decision Review	1	2017	1	2017

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program												Date: March 2014
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*				Project (Number/Name) DE5 / *DECONTAMINATION SYSTEMS (EMD)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
DE5: *DECONTAMINATION SYSTEMS (EMD)*	-	7.407	2.412	11.146	-	11.146	16.296	19.151	19.559	7.655	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This project provides System Development and Demonstration (SDD) for: (1) the Contaminated Human Remains Pouch (CHRP); (2) the Decontamination Family of Systems (DFoS); (3) Contamination Indicator Decontamination Assurance System (CIDAS); (4) General Purpose Decontaminant (GPD); (5) Joint Service Equipment Wipe (JSEW); and (6) Major Defense Acquisition Program (MDAP).

The Contaminated Human Remains Pouch (CHRP) program will provide the capability to protect personnel handling and processing human remains contaminated with Chemical, Biological, Radiological, or Nuclear (CBRN) contamination. The CHRP is a body bag designed to contain chemical, biological, or radiological contaminated fluids and gasses from contaminated remains. 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 CHR during recovery and transport from the point of fatality to the 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 and the environment. 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. DFoS will develop a Family of Systems (FoS), to include equipment, to improve decontamination processes, and decontaminant solutions to meet the capability gaps for decontaminating Non-Traditional Agents (NTA) and chemical and biological (CB) warfare agents from personnel, equipment, vehicle interiors/exteriors, terrain, and fixed facilities.

CIDAS will provide a contamination indicator/decontamination assurance technology; it will consist of an indicator and an applicator, for which there will be three configurations. The indicator will be sprayed on tactical vehicles, shipboard surfaces, crew-served and individual weapons in hostile and non-hostile environments that may have been exposed to traditional and non-traditional chemical contamination. CIDAS is a new capability for the Joint Forces that will reduce logistics burden of decontamination by indicating presence and location of traditional (Nerve and Blister) and non-traditional chemical agents on militarily relevant surfaces pre- and post-decontamination.

GPD is a liquid decontaminant that 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 traditional and non-traditional CB contamination.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** DE5 / *DECONTAMINATION SYSTEMS (EMD)*

JSEW is a decontamination wipe that will provide immediate/operational decontamination capabilities for sensitive and non-sensitive equipment in hostile and non-hostile environments that have been exposed to chemical agents/contamination and shall decontaminate Nerve and Blister agents from a starting liquid challenge of 10 g/m2 to less than or equal to 1g/m2 and non-traditional agents from a starting challenge of 5 g/m2 to less than or equal to 1g/m2. In addition, the JSEW is intended to be a replacement for the Individual Equipment Decontamination Kit (M295).

The Major Defense Acquisition Program (MDAP) Trail Boss provides a single access point to the full spectrum of CBRN expertise and support weapon system programs integration of CBRN Survivability into Department of Defense (DOD) programs designated as CBRN Mission Critical and those requiring CBRN capabilities. MDAP projects across the FYDP promote consistency of CBRN defense capabilities and systems' architectures across Services.

The F-35 Joint Strike Fighter (JSF) Decontamination System MDAP project will develop an integrated decontamination containment system and decontaminant delivery system to support the JSF Live Fire Test and Evaluation (LFT&E) to satisfy specific F-35 decontamination requirements through aircraft-unique interfaces and demonstrate the aircraft's ability to meet CB decontamination and survivability requirements.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) CHRP ***FY 2013 Accomplishments:*** Initiated engineering, testing, and logistics planning and documentation to support CHRP test and evaluation to include liquid and vapor live agent swatch, system permeation, durability, material compatibility, environmental effects, and Operational Testing (OT). ***FY 2014 Plans:*** Initiate and complete Developmental and Operational testing and reporting to support Capabilities Production Document (CPD). Finalize documentation and complete final technical reviews to support a Milestone C (MS C) Full Rate Production (FRP) decision.	1.149	1.412	-
Title: 2) CHRP ***FY 2013 Accomplishments:*** Designed and developed two prototype CHRP systems at Government activities. Awarded purchase orders to procure 70 CHRP prototypes (35 at $500 each and 35 at $2,000 each) for Developmental Testing (DT) and Multi-Service Operational Test and Evaluation (MOT&E).	0.161	-	-
Title: 3) DFoS - JSF Decon ***FY 2013 Accomplishments:*** Performed development, integration and technical support for the Joint Strike Fighter (JSF) Decontamination System Sub-assemblies to support the system functionality demonstration and provided MDAP Core personnel support.	6.097	-	-
Title: 4) DFoS CIDAS	-	-	2.272

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
FY 2015 Plans: Build large scale applicators for Developmental Testing (DT). Initiate DT to include indication level, decontaminant compatibility, detector compatibility, reliability, and natural environments testing. Conduct Preliminary and Critical Design Reviews.			
Title: 5) DFoS CIDAS ***FY 2015 Plans:*** Award EMD contract to purchase 50 CIDAS test assets (25 small scale at $1,000 each; 25 mid scale at $10,000 each; 250 gallons of indicator at $236 per gallon) for DT, engineering support for detailed designs and engineering changes, readiness assessments, technical reviews, training, test support, and development of integrated product support deliverables.	-	-	0.853
Title: 6) DFoS GPD ***FY 2015 Plans:*** Conduct and complete the final phase of Developmental Testing (DT), to include the Technology Readiness Assessment (TRA), Manufacturing Readiness Assessment (MRA), Joint Integrated Logistics Assessment (JILA), System Verification Review (SVR), Production Readiness Review (PRR), and Logistics Demonstration; initiate Multi-Service Operational Test and Evaluation (MOT&E) and complete Operational Assessment (OA).	-	-	3.851
Title: 7) DFoS GPD ***FY 2015 Plans:*** Award base contract to purchase 10,000 gallons of GPD test assets (at $30 per gallon) and data item deliverables for Multi-Service Operational Test and Evaluation (MOT&E).	-	-	0.500
Title: 8) DFoS JSEW ***FY 2014 Plans:*** Continue Developmental Testing (DT), to include Packaging, real-time shelf-life, efficacy on complex surfaces and Chemical, Biological, Radiological Contamination Survivability (CBRCS), and conduct Technical Reviews and Technology Readiness Assessment (TRA). ***FY 2015 Plans:*** Complete DT; conduct and complete Joint Integrated Logistics Assessment (JILA), System Verification Review (SVR), Production Readiness Review (PRR); and initiate Multi-Service Operational Test and Evaluation (MOT&E).	-	1.000	1.768
Title: 9) DFoS JSEW ***FY 2015 Plans:***	-	-	0.200

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Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** DE5 / *DECONTAMINATION SYSTEMS (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Award contract option to purchase 960 JSEW test assets (at $17 each) and data item deliverables for Multi-Service Operational Test and Evaluation (MOT&E), First Article Test (FAT), and Logistics Demonstration.			
Title: 10) MDAP - JSF DECON ***FY 2015 Plans:*** Conduct Joint Strike Fighter (JSF) Decontamination System Integration Demonstration and System modification and refurbishment in support of JSF Program Office Live Fire Test and Evaluation (LFT&E).	-	-	1.702
Accomplishments/Planned Programs Subtotals	7.407	2.412	11.146

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• JD0050: *DECONTAMINATION FAMILY OF SYSTEMS (DFoS)*	-	-	3.450	-	3.450	9.754	13.937	16.726	18.006	Continuing	Continuing
• JD0063: *CONTAMINATED HUMAN REMAINS POUCH (CHRP)*	-	-	2.865	-	2.865	1.542	-	-	-	-	4.407

Remarks

D. Acquisition Strategy

CONTAMINATED HUMAN REMAINS POUCH (CHRP)

The CHRP Government design and manufacture acquisition strategy will leverage current Mortuary Affairs (MA) equipment, such as the Human Remains Pouch (HRP), to identify metrics and performance specifications necessary for the handling of non-contaminated human remains, and expand the performance to fill the identified capability gap for safe handling of contaminated human remains (CHR). CHRP will develop two Government designed systems to meet performance specifications and provide a fielded capability for safe intra-theater handling and transport of CHR. At MS C, an effective and suitable system will be chosen for entry into the Production and Deployment Phase from two candidate systems based on testing results and a cost-benefit analysis. Manufacturing and production will occur at Government facilities. Follow-on phases of CHRP development may include efforts to incorporate the CHRP into a system designed to provide a transport capability to return CHR to Continental United States (CONUS).

The Government design strategy will emphasize meeting Key Performance Parameters (KPPs) using design attributes not offered by the commercial sector and materials with existing test data to provide Services two options at different cost and performance points. The CHRP will use EMD Phase testing to determine the capability of Government design candidates to meet the requirements outlined in the MA ICD and CHRP CDD, and the. At MS C, an effective and suitable system will

be chosen for entry into the Production and Deployment Phase from two candidate systems based on testing results and a cost-benefit analysis with input from the user community.

DECONTAMINATION FAMILY OF SYSTEMS (DFoS)

The DFoS is utilizing an incremental acquisition strategy to transition various developmental technology efforts (Commercial-Off-The-Shelf (COTS), and DoD technology efforts) 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.

DFoS CONTAMINATION INDICATOR DECONTAMINATION ASSURANCE SYSTEM (DFoS CIDAS)

The CIDAS program will follow an evolutionary acquisition strategy in consonance with the Joint Requirements Office (JRO)/User developed capability documents. Following MS A, collaborated with JSTO/DTRA efforts, including the Hazard Mitigation, Materiel and Equipment Restoration (HaMMER) Advanced Technology Development Operational Demonstration and Extended User Evaluations, and conducted technology demonstrations on candidate indicator and applicator technologies to mitigate risk and identify affordable mature technologies that meet requirements. Determined need for and initiated Government designed large scale applicator to meet specific User requirements. Following MS B, use full and open competition to award a performance based contract with options for LRIP and FRP for indicator and small and mid scale applicator systems. Integrate and test contractor and Government designs in DT and operational testing.

DFoS GENERAL PURPOSE DECONTAMINANT (DFoS GPD)

The GPD program employed a Competitive Prototyping (CP) effort to facilitate the evaluation of COTs technologies. Seven contracts were awarded for competing vendors to provide prototype GPDs in support of CP I. A down select occurred based on technical performance and cost and four contracts were awarded to vendors in support of CP II. As the GPD program enters the next acquisition phase, the program will continue following an evolutionary acquisition strategy; employing a verification/validation effort to facilitate the identification and evaluation of mature technologies that can meet the GPD Capabilities Development Document (CPD) requirements satisfying Chemical, Biological, Radiological and Nuclear (CBRN) user needs.

DFoS JOINT SENSITIVE EQUIPMENT WIPE (DFoS JSEW)

JSEW program employed competitive prototyping to facilitate the evaluation of Commercial Off The Shelf (COTS) Technologies during the Technology Development Phase. Candidates were evaluated from competing vendor prototypes to determine optimal JSEW systems. Four contracts were awarded to vendors in support of Competitive Prototyping Phase (CP) II. As the JSEW enters the next acquisition phase, the program will continue following an evolutionary acquisition strategy; employing a verification/validation effort to facilitate the identification and evaluation of mature technologies that can meet the JSEW Capabilities Development Document (CPD) requirements. Follow-on increments of JSEW may include biological agent capability and use on skin.

MAJOR DEFENSE ACQUISITION PROGRAM (MDAP)

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** DE5 / *DECONTAMINATION SYSTEMS (EMD)*

The JSF Decontamination System effort will utilize sole source contracting to leverage and integrate commercially available technologies to provide a decontamination delivery system for the Joint Strike Fighter program office in support of the JSF Live Fire Test and Evaluation (LFT&E).

E. Performance Metrics

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** DE5 / *DECONTAMINATION SYSTEMS (EMD)*

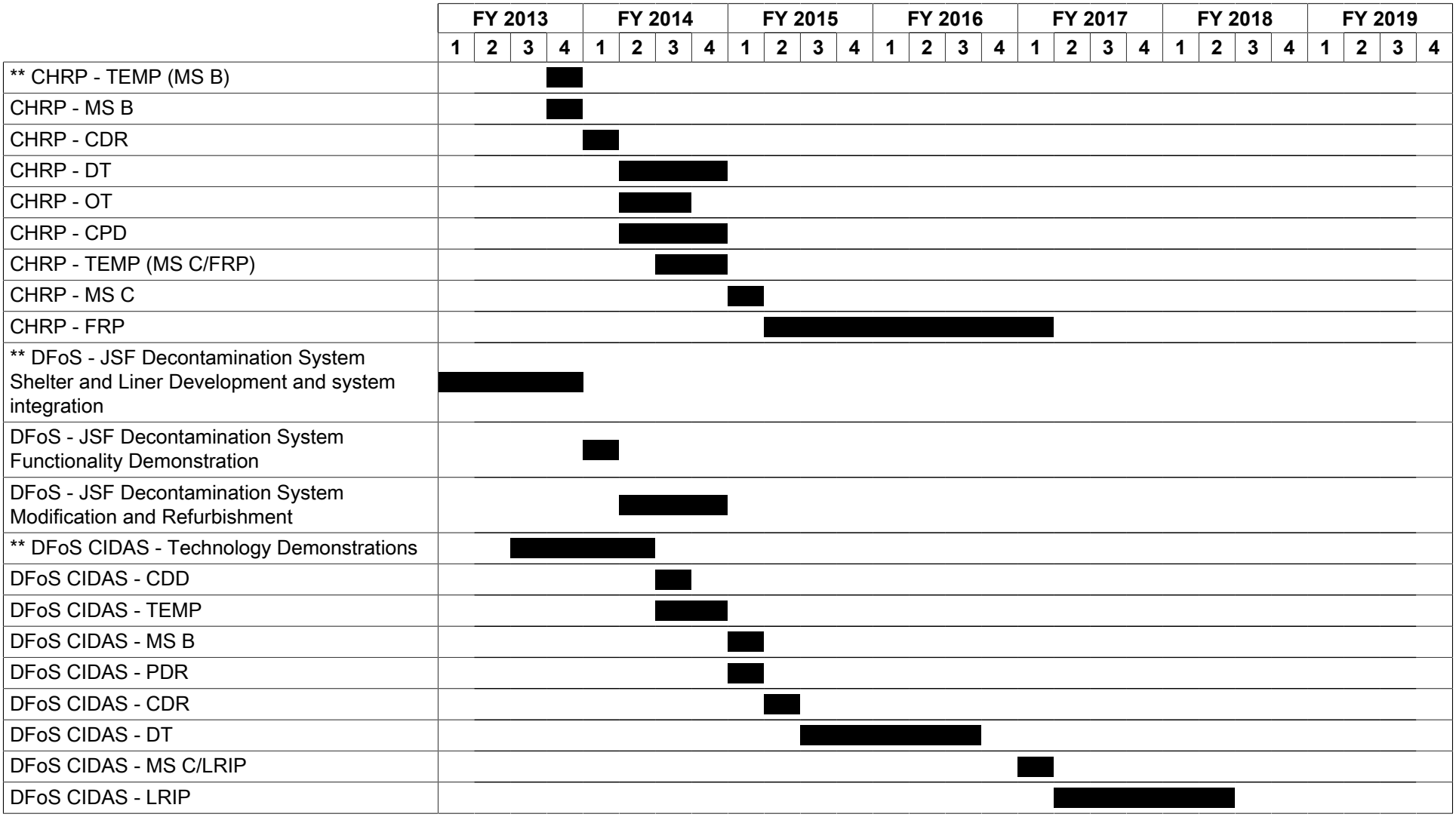

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** DE5 / *DECONTAMINATION SYSTEMS (EMD)*

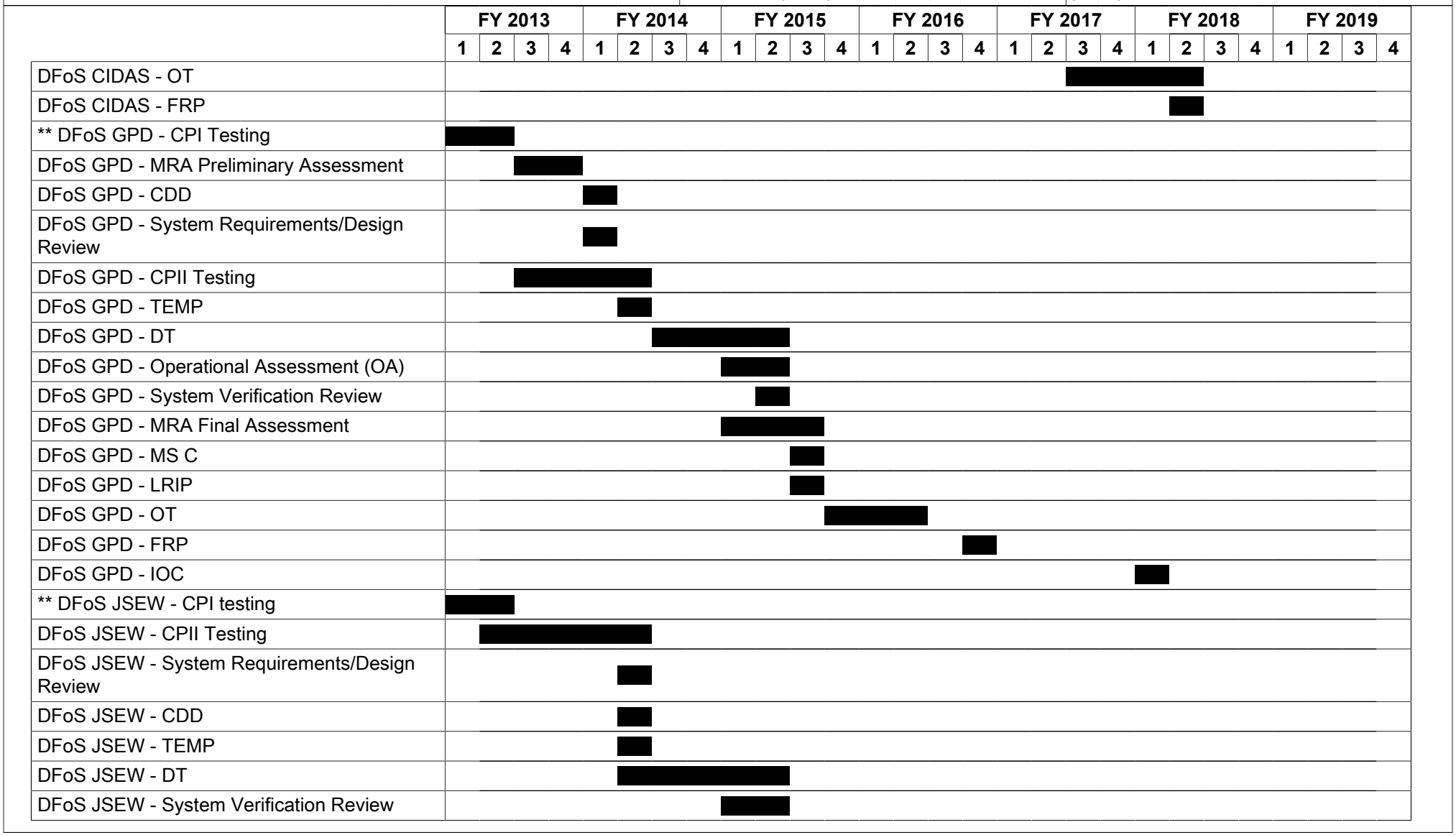

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** DE5 / *DECONTAMINATION SYSTEMS (EMD)*

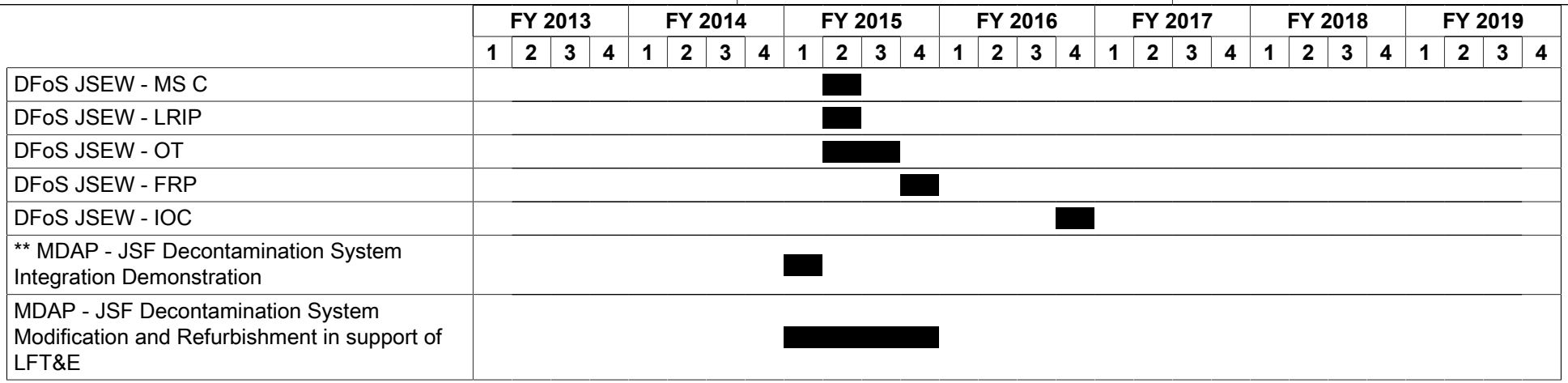

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** DE5 / *DECONTAMINATION SYSTEMS (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** CHRP - TEMP (MS B)	4	2013	4	2013
CHRP - MS B	4	2013	4	2013
CHRP - CDR	1	2014	1	2014
CHRP - DT	2	2014	4	2014
CHRP - OT	2	2014	3	2014
CHRP - CPD	2	2014	4	2014
CHRP - TEMP (MS C/FRP)	3	2014	4	2014
CHRP - MS C	1	2015	1	2015
CHRP - FRP	2	2015	1	2017
** DFoS - JSF Decontamination System Shelter and Liner Development and system integration	1	2013	4	2013
DFoS - JSF Decontamination System Functionality Demonstration	1	2014	1	2014
DFoS - JSF Decontamination System Modification and Refurbishment	2	2014	4	2014
** DFoS CIDAS - Technology Demonstrations	3	2013	2	2014
DFoS CIDAS - CDD	3	2014	3	2014
DFoS CIDAS - TEMP	3	2014	4	2014
DFoS CIDAS - MS B	1	2015	1	2015
DFoS CIDAS - PDR	1	2015	1	2015
DFoS CIDAS - CDR	2	2015	2	2015
DFoS CIDAS - DT	3	2015	3	2016
DFoS CIDAS - MS C/LRIP	1	2017	1	2017
DFoS CIDAS - LRIP	2	2017	2	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Chemical and Biological Defense Program		Date: March 2014
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
DFoS CIDAS - OT	3	2017	2	2018
DFoS CIDAS - FRP	2	2018	2	2018
** DFoS GPD - CPI Testing	1	2013	2	2013
DFoS GPD - MRA Preliminary Assessment	3	2013	4	2013
DFoS GPD - CDD	1	2014	1	2014
DFoS GPD - System Requirements/Design Review	1	2014	1	2014
DFoS GPD - CPII Testing	3	2013	2	2014
DFoS GPD - TEMP	2	2014	2	2014
DFoS GPD - DT	3	2014	2	2015
DFoS GPD - Operational Assessment (OA)	1	2015	2	2015
DFoS GPD - System Verification Review	2	2015	2	2015
DFoS GPD - MRA Final Assessment	1	2015	3	2015
DFoS GPD - MS C	3	2015	3	2015
DFoS GPD - LRIP	3	2015	3	2015
DFoS GPD - OT	4	2015	2	2016
DFoS GPD - FRP	4	2016	4	2016
DFoS GPD - IOC	1	2018	1	2018
** DFoS JSEW - CPI testing	1	2013	2	2013
DFoS JSEW - CPII Testing	2	2013	2	2014
DFoS JSEW - System Requirements/Design Review	2	2014	2	2014
DFoS JSEW - CDD	2	2014	2	2014
DFoS JSEW - TEMP	2	2014	2	2014
DFoS JSEW - DT	2	2014	2	2015
DFoS JSEW - System Verification Review	1	2015	2	2015
DFoS JSEW - MS C	2	2015	2	2015

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
DFoS JSEW - LRIP	2	2015	2	2015
DFoS JSEW - OT	2	2015	3	2015
DFoS JSEW - FRP	4	2015	4	2015
DFoS JSEW - IOC	4	2016	4	2016
** MDAP - JSF Decontamination System Integration Demonstration	1	2015	1	2015
MDAP - JSF Decontamination System Modification and Refurbishment in support of LFT&E	1	2015	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program												Date: March 2014
Appropriation/Budget Activity 0400 / 5					**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*				**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
IP5: *INDIVIDUAL PROTECTION (EMD)*	-	23.952	26.296	15.435	-	15.435	16.832	9.411	8.522	10.053	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This project provides Engineering & Manufacturing Development Phase 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) for Tactical (TA), Strategic (SA), and Rotary Wing (RW) aircraft are Acquisition Category (ACAT) III programs, incrementally developed with multiple variants for respiratory protection. The JSAM will be a lightweight chemical and biological (CB) protective mask that will be worn as CB protection for most Army, Air Force, Navy and Marine fixed wing (FW) and RW aircrew members. All JSAM variants will be compatible with most below-the-neck (BTN) CB protection ensembles and existing aircrew life support equipment (ALSE). 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. The goal of the JSAM programs is to develop, manufacture, field, and sustain an aircrew respirator systems that, in conjunction with BTN clothing ensembles, will provide the capability for all aircrew to fly throughout their full operating envelope in an actual or perceived CB warfare environment.
The JSAM TA and SA respirators are being developed for use in the majority of Department of Defense (DoD) FW aircraft except for the F-35 Joint Strike Fighter (JSF). The JSAM TA will provide CB and anti-G protection up to nine times the vertical force (Gz), for aircrew in high-performance aircraft. The JSAM SA will be used in aircrew positions that do not require anti-G protection and provide CB protection for positions that only need pressure breathing for altitude.
The JSAM-JSF is a CB respirator being specifically designed to support the F-35. It is designed to ensure that system integration and qualification of CB protection and survivability requirements are achieved as derived from the JSF operational requirements document. Prior to FY15, this project was funded under the JSAM funding line. When integrated with aircraft and pilot mounted equipment, the JSAM-JSF will provide combined CB, hypoxia and anti-G protection to all F-35 users, including the United States Air Force (USAF), Navy (USN), Marine Corps (USMC), and International Partners.

The JSAM MPU-5 RW mask is being developed for use by pilots and aircrew in the majority of DoD RW aircraft in the United States Army (USA) except AH-64 users, USAF, USN, USMC, and United States Coast Guard (USCG). The JSAM RW will integrate with most BTN CB ensembles, normal aircrew flight equipment, and rotary wing flight helmets. The system contains a removable face plate, allowing the user to fly "face free" in MOPP 2.5 when the threat level dictates, thereby reducing physiological burden and improving field of view. If threat level warrants, the user can install their face plate into an already donned hood and enter MOPP 4 without removing their flight helmet.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
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(2) The Joint Service General Purpose Mask (JSGPM) Advanced Respiratory Protection Initiative (ARPI) 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/Toxic Industrial Material (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.

(3) 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 Increment 1 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 Increment 1 achieved MS C approval in June 2013 and is now in the Production and Deployment (P&D) phase. The first increment of UIPE will provide CB protective equipment with improved operational capability to the U.S. Special Operations Command.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) JSAM FW - MBU-25 ***FY 2013 Accomplishments:*** Completed Critical Design Review (CDR), Business Case Analysis, and re-baselining IPR leading to the delivery order expiration for the MBU-25, leading to the termination of JSAM FW.	1.217	-	-
Title: 2) JSAM TA - A/P22P-14(A) ***FY 2013 Accomplishments:*** Decision made to pursue the engineering change proposal to the A/P22P-14(A) for U.S. Navy (USN) and U.S. Air Force (USAF) Tactical Aircraft (TA). Purchased initial test assets and testing equipment in support of the A/P22P-14(A) Engineering Change Proposal (ECP) to support access pass-through activities, oxygen crossover solution, and torso-mounted pockets integration. Initiated developmental testing (DT) by conducting altitude, centrifuge, and decompression testing. ***FY 2014 Plans:***	2.609	5.727	4.979

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Purchase 162 A/P22P-14(A) test assets at $13,000.00 each, conduct CDR, developmental and flame resistance testing, and begin Safe-to-Fly Certification activities for the F-22. Conduct performance envelope characterization, component level design review, and manufacturing readiness assessment (MRA). ***FY 2015 Plans:*** Purchase an additional 150 A/P22P-14(A) test assets at $13,000.00 each and begin operational testing (OT).			
Title: 3) JSAM SA - MM53 ***FY 2013 Accomplishments:*** Decision made to pursue the engineering change proposal to modify the M53 ground mask for use in majority of DoD Strategic Aircraft (SA) not requiring anti-G protection. Awarded the prime contract to fund the RDT&E effort until Milestone C. Purchased 70 M53 test assets at $1,720.06 each to initiate early Developmental Testing (DT). In order to reduce cost and schedule, certain MM53 requirements were verified early using M53 masks, during DT. Conducted protection factor tests to characterize the MM53 mask's performance when wearing various aircrew helmets. ***FY 2014 Plans:*** Draft, staff, and obtain approval for the Test and Evaluation Master Plan (TEMP) and conduct a design review to close-out the preliminary design phase. Initiate prototype tooling and build Design Verification Testing (DVT) assets. Continue early DT using the M53 to verify a limited set of MM53 requirements and initiate DVT. Conduct a study using current Service aircrew to determine comfort levels while wearing the MM53 mask with several aircrew helmets. Initiate the Joint Integrated Logistics Assessment (JILA) process and attain final approval of the JSAM FW for Strategic Aircraft Capabilities Development Document (CDD). Purchase 85 test assets at a unit cost of $1,900.00 each. ***FY 2015 Plans:*** Complete DVT. Continue early DT using the M53 mask and initiate DT using the MM53 mask. Conduct the Critical Design Review (CDR) and Manufacturing Assessment (MRA), and complete the final design phase and Production Readiness Review (PRR). Initiate production tooling and build 265 assets (200 for DT and 65 for other users) at a unit cost of $1,900.00 each. Complete draft Technical Manual.	4.536	10.527	5.690
Title: 4) JSAM-JSF ***FY 2013 Accomplishments:*** Continued DVT, MRA, and CDR preparation. Conducted program management, respirator system live agent challenge test (SMARTMAN), Fit and Accommodation of neckwear protection (Neckdam), Environmental, Carbon Tube, and other various test activities. ***FY 2014 Plans:***	4.276	2.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Conduct a CDR and CDR assessment, test readiness review (TRR), Joint Integrated Logistics Assessment (JILA), initiate DT and conduct a Logistics Demonstration.			
Title: 5) JSAM JSF ***FY 2015 Plans:*** Complete Developmental Testing (DT) and conduct System Verification and Production Readiness reviews leading to a Low Rate Initial Production (LRIP) Decision. Provide product development support to the Joint Strike Fighter (JSF) program office in support of the Chemical and Biological Live Fire Test and Evaluation (LFT&E).	-	-	1.763
Title: 6) JSAM RW ***FY 2013 Accomplishments:*** Conducted airworthiness testing on AH/MH-6M, MH-60M and MH-47G aircraft. Developed, prepared and coordinated test plans. Conducted developmental testing in chemical agent, SMARTMAN, simulant, and under environmental exposure. Prepared program documentation and managed program schedule around requirements and fiscal constraints. ***FY 2014 Plans:*** Continue airworthiness testing on OH-58D, LUH-72A, HH-60M, UH-60L, and CH-47F. Complete developmental testing on specific helmet sighting systems in USN/USMC and assessment of integration capabilities with Optimized Top Owl aircraft. Prepare documentation for LRIP contract award. Initiate Physical Configuration Audit of system technical data. ***FY 2015 Plans:*** Conduct and complete Multi Service Operational Test and Evaluation. Complete Airworthiness testing and obtain airworthiness releases. Conduct all technical reviews in advance of Full Rate Production decision. Prepare all documentation in support of full and open production contract award.	6.914	6.037	2.000
Title: 7) JSGPM ***FY 2013 Accomplishments:*** JSGPM (ARPI) - Began the SDD phase of ZZ-AT media (zirconium hydroxide) based filter transitioning from Tech Base that is applicable to replace or improve fielded protection. Prepared for SDD contract. ***FY 2014 Plans:*** JSGPM (M61 Filters) - Award task on M61 Filter contract for delivery of 700 pairs of filters with more robust TIC/CWA protection. Filters will be $100 per pair for a total cost of $70,000. ***FY 2015 Plans:***	1.571	2.005	1.003

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
JSGPM - Continue refinement of technical data and manufacturing process controls for the Tech 1 material (CoZZAT).			
Title: 8) UIPE	2.829	-	-
FY 2013 Accomplishments: UIPE Incr 1 - Conducted Production Readiness Review (PRR), System Verification Review (SVR), Manufacturing Readiness Assessment (MRA) and Technology Readiness Assessment (TRA). Completed Logistics Demonstration. Performed Physical Configuration Audit (PCA). Prepared for, and conducted MS C Low Rate Initial Production (LRIP) decision. Exercised LRIP contract option(s). Conducted Operational Test Readiness Review (OTRR) and First Article Test (FAT). Initiated and completed Operational Test and Evaluation (OT&E). Prepared for Full Rate Production (FRP) decision.			
Accomplishments/Planned Programs Subtotals	23.952	26.296	15.435

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• JI0002: *JS AIRCREW MASK (JSAM)*	5.742	10.552	11.526	-	11.526	31.500	54.050	68.924	38.343	Continuing	Continuing
• MA0401: *CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE (UIPE)*	10.376	13.772	6.948	-	6.948	11.101	11.101	11.101	11.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

JS AIRCREW MASK FIXED WING (JSAM FW)

The overall JSAM acquisition approach is phased due to the complexity of interfacing with almost 200 aircraft types and models with different mission sets, Aviation Life Support Equipment (ALSE), cockpit layouts, priorities, etc. JSAM will pursue two materiel solutions for fixed wing aircraft; the JSAM Tactical (TA) and JSAM Strategic (SA) programs. JSAM TA and SA must be compatible with current CB ensembles and provide flame protection and will replace all existing Pressure Breathing for Gravity (PBG) and non-PBG CB aircrew respirators. Both solutions are being pursued via Engineering Change Proposal (ECP) and integration efforts applied to already fielded items. The JSAM TA (A/P22P-14A) utilizes a phased acquisition strategy to provide aircrew of all Services with individual head-eye-respiratory protection against Chemical-Biological (CB) warfare agents. The JSAM TA effort will test the Pressure Breathing for Gravity (PBG) Mask to aircraft platforms. The ECP will be accomplished through leveraging a Sole Source (SS)/Firm Fixed Price (FFP) contract and fielded via Competitive/FFP contract. The JSAM SA (Modified M53 (MM53)) effort will test and field a mask for aircrew positions not requiring PBG capabilities. This contract was awarded via sole source to Avon Protection Systems, Cadillac, Michigan to modify and field a commercially available mask (M53).

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*

JS AIRCREW MASK JOINT STRIKE FIGHTER (JSAM JSF)

JSAM-JSF is specifically designed for the F-35 (Joint Strike Fighter) to be incorporated within the JSF platform and fielded to US Services and international partners. JSAM-JSF is being developed concurrently with other JSF equipment including life support and pilot flight equipment. JSAM-JSF initially leveraged a JSAM-FW design and shared the same base contract with a Cost Plus Incentive Fee delivery order.

JS AIRCREW MASK ROTARY WING (JSAM RW)

JSAM RW is being developed under a competitive Cost Plus Fixed Fee contract, which is also used by JSAM Apache and Apache Block III. A sole source J&A will be utilized to award LRIP to Avox Systems, with a small quantity FRP option, thereby verification of Technical Data prior to delivery to the Government. Ultimately, a competitive solicitation will be made for Full Rate Production under Firm Fixed Price terms.

JS GENERAL PURPOSE MASK (JSGPM)

The JSGPM ARPI effort is using the M61 filter contracts awarded to 3M and Avon to develop improved filters for the JSGPM. There is a continual technology refreshment CLIN that allows for filter development tasks to be awarded under this contract. The tasks can be competed between the two awardees.

CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE (UIPE)

The UIPE Increment 2 will enhance fielded and emerging individual protective equipment as part of a Family of Systems that enables the Warfighter to operate in a contaminated Chemical and Biological (CB) environment with no or minimal degradation in performance. UIPE is supported by an approved Initial Capabilities Document (ICD). UIPE increment 2 will build on and enhance capabilities attained in Increment 1. In addition, Increment 2 will seek to address the broader scope of ICD requirements to include the capability to protect warfighters from operationally relevant traditional, non-traditional, and advanced CBRN/TIM threats likely to be encountered during joint force operations. UIPE Increment 2 acquisition strategy will be defined to address material requirements identified in CDD utilizing both COTS and Government-owned design to attain increased capabilities.

E. Performance Metrics

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*

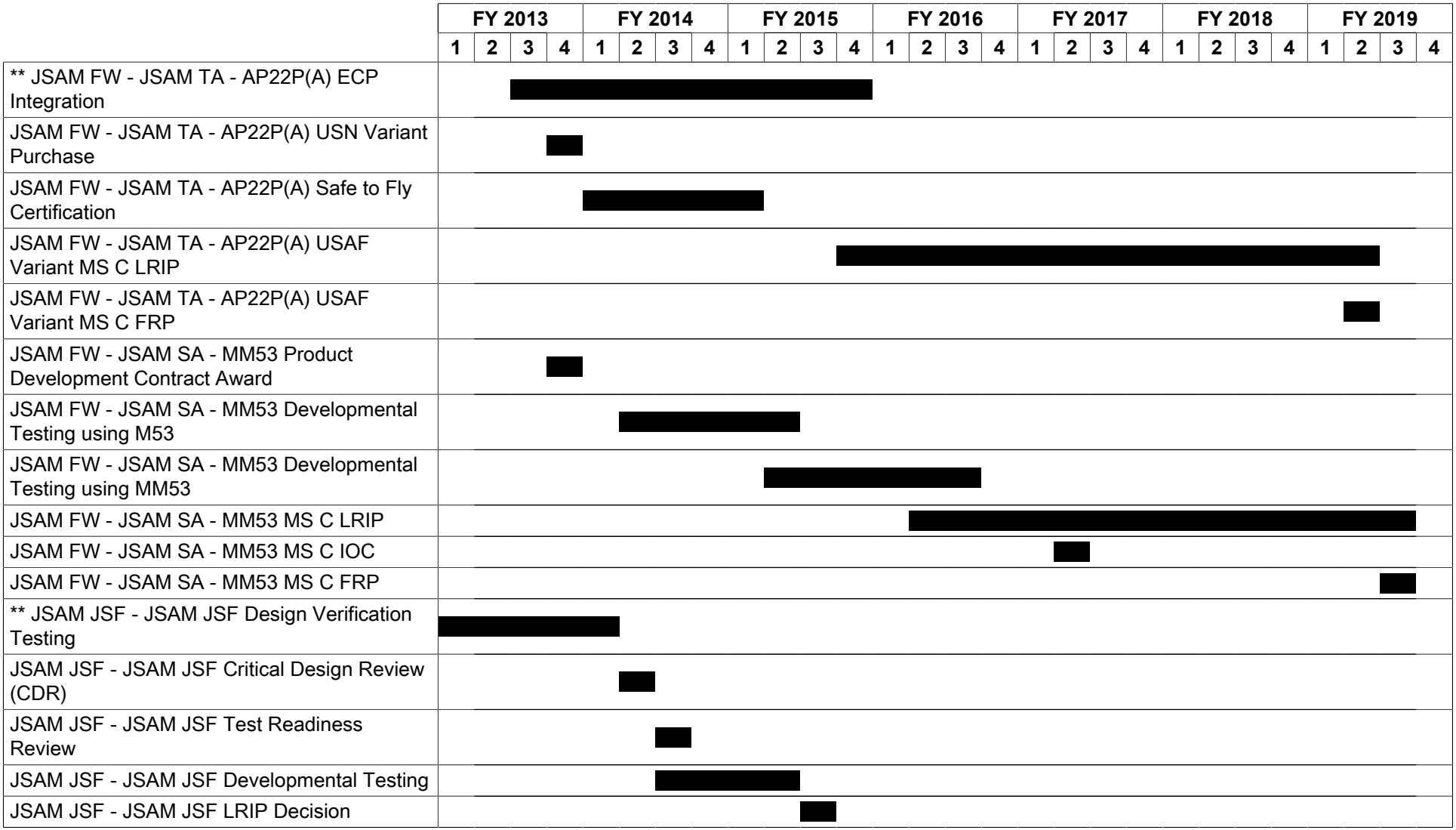

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*

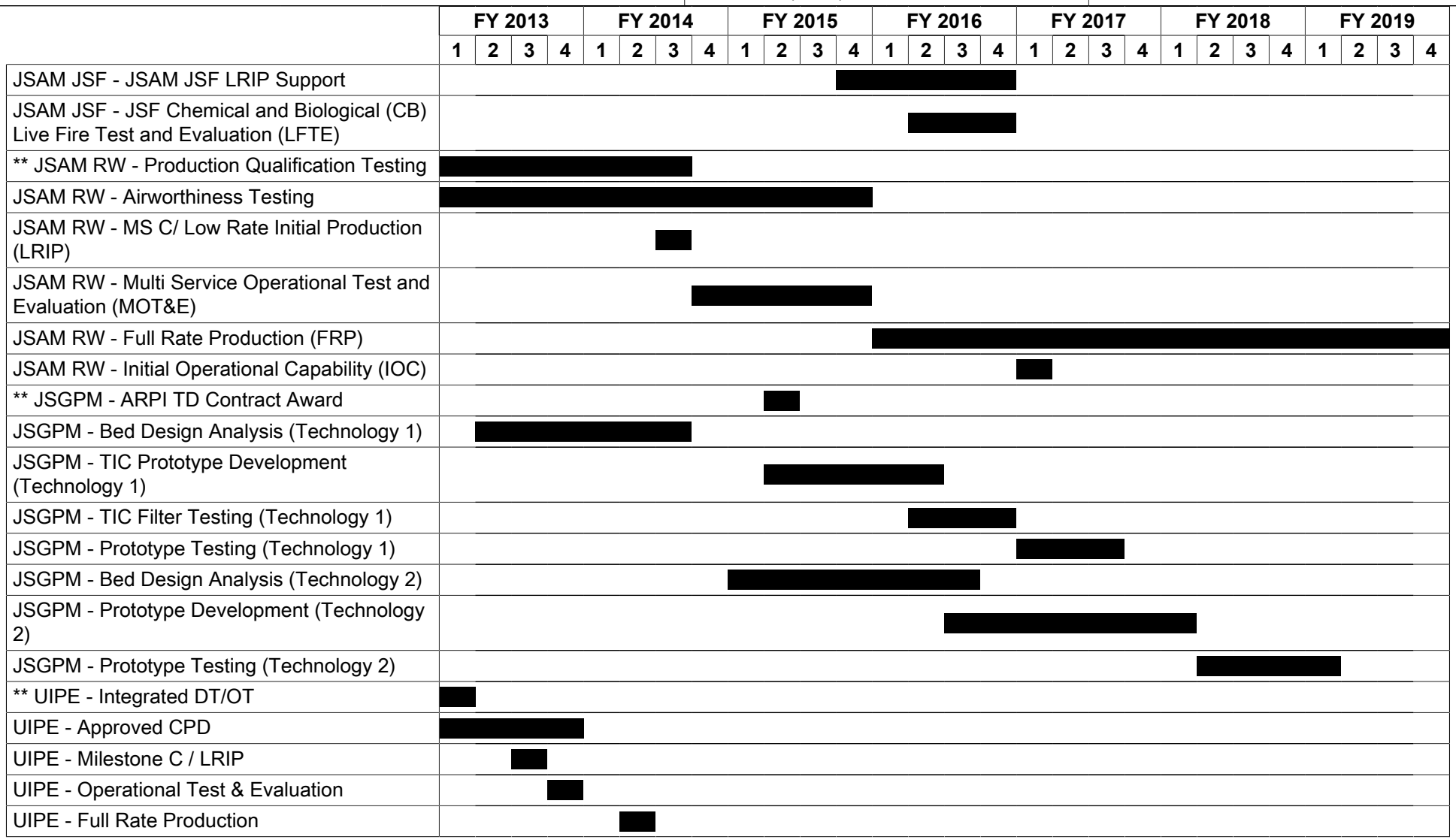

Exhibit R-4, **RDT&E Schedule Profile:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*

	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	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
UIPE - SOCOM IOC																												

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** JSAM FW - JSAM TA - AP22P(A) ECP Integration	3	2013	4	2015
JSAM FW - JSAM TA - AP22P(A) USN Variant Purchase	4	2013	4	2013
JSAM FW - JSAM TA - AP22P(A) Safe to Fly Certification	1	2014	1	2015
JSAM FW - JSAM TA - AP22P(A) USAF Variant MS C LRIP	4	2015	2	2019
JSAM FW - JSAM TA - AP22P(A) USAF Variant MS C FRP	2	2019	2	2019
JSAM FW - JSAM SA - MM53 Product Development Contract Award	4	2013	4	2013
JSAM FW - JSAM SA - MM53 Developmental Testing using M53	2	2014	2	2015
JSAM FW - JSAM SA - MM53 Developmental Testing using MM53	2	2015	3	2016
JSAM FW - JSAM SA - MM53 MS C LRIP	2	2016	3	2019
JSAM FW - JSAM SA - MM53 MS C IOC	2	2017	2	2017
JSAM FW - JSAM SA - MM53 MS C FRP	3	2019	3	2019
** JSAM JSF - JSAM JSF Design Verification Testing	1	2013	1	2014
JSAM JSF - JSAM JSF Critical Design Review (CDR)	2	2014	2	2014
JSAM JSF - JSAM JSF Test Readiness Review	3	2014	3	2014
JSAM JSF - JSAM JSF Developmental Testing	3	2014	2	2015
JSAM JSF - JSAM JSF LRIP Decision	3	2015	3	2015
JSAM JSF - JSAM JSF LRIP Support	4	2015	4	2016
JSAM JSF - JSF Chemical and Biological (CB) Live Fire Test and Evaluation (LFTE)	2	2016	4	2016
** JSAM RW - Production Qualification Testing	1	2013	3	2014
JSAM RW - Airworthiness Testing	1	2013	4	2015
JSAM RW - MS C/ Low Rate Initial Production (LRIP)	3	2014	3	2014
JSAM RW - Multi Service Operational Test and Evaluation (MOT&E)	4	2014	4	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JSAM RW - Full Rate Production (FRP)	1	2016	4	2019
JSAM RW - Initial Operational Capability (IOC)	1	2017	1	2017
** JSGPM - ARPI TD Contract Award	2	2015	2	2015
JSGPM - Bed Design Analysis (Technology 1)	2	2013	3	2014
JSGPM - TIC Prototype Development (Technology 1)	2	2015	2	2016
JSGPM - TIC Filter Testing (Technology 1)	2	2016	4	2016
JSGPM - Prototype Testing (Technology 1)	1	2017	3	2017
JSGPM - Bed Design Analysis (Technology 2)	1	2015	3	2016
JSGPM - Prototype Development (Technology 2)	3	2016	1	2018
JSGPM - Prototype Testing (Technology 2)	2	2018	1	2019
** UIPE - Integrated DT/OT	1	2013	1	2013
UIPE - Approved CPD	1	2013	4	2013
UIPE - Milestone C / LRIP	3	2013	3	2013
UIPE - Operational Test & Evaluation	4	2013	4	2013
UIPE - Full Rate Production	2	2014	2	2014
UIPE - SOCOM IOC	4	2015	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program												Date: March 2014
Appropriation/Budget Activity 0400 / 5					**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*				**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
IS5: *INFORMATION SYSTEMS (EMD)*	-	1.869	9.267	10.340	-	10.340	9.208	16.302	17.508	20.646	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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) Software Support Activity (SSA).

JEM and JWARN will utilize the Joint Capabilities Integration and Development System (JCIDS) Manual prescribed Agile Information Technology Box "IT Box" construct for managing requirements for the follow-on increments of capability development. Use of the "IT Box" acquisition approach increases flexibility and will expedite fielding of Information System products through a series of Build Decisions (BDs) versus less frequent traditional DoD Milestone B and C decisions. Each program will use an Information Systems Initial Capabilities Document (IS ICD) to describe the required operational capabilities for the development effort. JEM's IS ICD was approved by the Joint Staff J8 Joint Requirements Office for Chemical, Biological, Radiological and Nuclear Defense (JRO-CBRND) in September 2013 and JWARN's IS ICD will be reviewed for approval in 2QFY14. After the IS ICD is approved, more detailed requirements will be captured in Requirements Definition Packages (RDP) and will be approved at the Functional Capability Board (FCB) level. In order to support an agile incremental approach, each program will ensure that the "IT Box" describes the entire IT program and not just a single increment. The supporting BDs will ensure incorporation of mature technology and development efforts culminating in incremental deliveries of capability to Joint and Service Command and Control (C2) architectures. These limited fielding efforts are based on providing capabilities with the most value to the operators based on Warfighter priorities/needs, maturation of the technology being incorporated and available resources supporting the effort. As software-intensive systems both JEM and JWARN have no separately identifiable unit production components. Both are designated ACAT III programs and unit cost calculations including Program Acquisition Unit Cost/Average Procurement Unit Cost (PAUC/APUC) and Operations and Sustainment (O&S) average annual per unit costs are not applicable.

JEM Increment 2, using IT Box Acquisition Strategy, adds capability to JEM Increment 1 including modeling of missile intercepts and improved modeling of hazard events in urban and littoral terrain. It also includes improved architecture called Common CBRN Modeling Interface (CCMI). Together, CCMI and IT Box enable more rapid and less costly integration of Science and Technology updates, aligning with the S&T provider to provide the most current capability to the warfighter. 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.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

JWARN Increment 2 will provide an expansion of sensors that will connect to JWARN, increased automation of message handling, improved false alarm filtering, integration of route-planning calculator, and interoperability with additional Command and Control (C2), medical information and evolving Bio-Surveillance 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 to improve the efficiency of limited CBRN personnel assets. This employment will transfer data automatically from existing sensors and to and from the future sensors to provide commanders with the capability to support operational decision making in a CBRN environment. JWARN will 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. JWARN will transition from a Command and Control (C2) platform specific implementation to a Web-based Service Oriented Architecture (SOA) meeting the DoD's evolution to a more comprehensive Common Operating Environment (COE) and will operate as a standalone capability. Activities include: logistical elements, support equipment, manuals and training required to operate and support the system.

The Software Support Activity (SSA) is a Chem-Bio Defense user developmental support and service organization to facilitate net-centric interoperability of systems in acquisition for the Warfighter. The SSA provides the CBRN Warfighter with Joint Service solutions for Integrated Architectures, Data Management/Modeling, Information Assurance (IA), Interoperability Certifications, Verification, Validation and Accreditation (VV&A) to support interoperable and integrated net-centric, service-oriented solutions for CBRN systems. The SSA emphasizes development of reference implementations to guide Government and industry system and software developers to ensure that their products meet common interoperability standards. The latest technologies/products include the definition of a Common CBRN Sensor Integration Standard (CCSI) and the CBRN Data Model. These technologies and direct enablers for the development of CBRN integrated sensor networks and the dissemination of CBRN information across all users. The SSA directly supports Chemical and Biological Defense Program (CBDP) initiatives by providing common service oriented architectures and frameworks for the collection and dissemination of Bio-Surveillance and other critical CBRN information.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) JEM Increment 2 Developmental Test and Evaluation ***FY 2014 Plans:*** Perform Government assessment of competitive prototypes to assist in contracting technical assessment and down select decision. Perform Government Development Test of JEM Increment 2 capabilities to support Operational Test and Milestone C (MS C) decision. ***FY 2015 Plans:*** Continue Government evaluation of the software deliveries to complete Multiservice Operational Test and Evaluation (MOT&E) which will allow for Initial Operational Capability of JEM Increment 2 to be deployed to the services.	-	0.547	1.305
Title: 2) JEM Increment 2 Program Development ***FY 2014 Plans:*** Award competitive prototyping down-select option and develop JEM Increment 2 software baseline. ***FY 2015 Plans:***	-	6.012	3.801

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Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue JEM Increment 2 software development and perform integration into Command and Control (C2) systems.			
Title: 3) JEM Increment 2 Program Management ***FY 2014 Plans:*** Perform program/financial management, costing, contracting, scheduling and acquisition oversight support for JEM Increment 2. Initiate development of Requirements Definition Package (RDP) and Build Decisions (BD) for JEM Increment 2. ***FY 2015 Plans:*** Continue to perform program/financial management, costing, contracting, scheduling and acquisition oversight support for JEM Increment 2. Continue development and execution of Build Decisions (BD) for JEM Increment 2 while working within the Agile development process, to include performing a Joint Integrated Logistics Assessment (JILA) and Logistics' Demonstration (LOG DEMO) in order to deploy JEM Increment 2 to the services.	-	0.721	1.642
Title: 4) JEM Increment 2 Operational Test and Evaluation ***FY 2015 Plans:*** Complete Multiservice Operational Test and Evaluation (MOT&E) which will allow for Initial Operational Capability (IOC) of JEM Increment 2 to be deployed to the services.	-	-	1.050
Title: 5) JWARN IT BOX Program Management Support ***FY 2015 Plans:*** Perform program/financial management, costing, contracting, scheduling and acquisition oversight support for JWARN within IT BOX construct and Agile Software development processes.	-	-	0.574
Title: 6) SSA Policies, Standards and Guidelines ***FY 2013 Accomplishments:*** Conducted acquisition documentation for CBRN IT systems based on changes in policy, procedures, and guidelines. Continued surveillance of Federal Information Security Management Act (FISMA) and DoD Acquisition policies necessary to maintain certification on deployed service platforms. Provided Modeling and Simulation (M&S) strategic and accreditation support. ***FY 2014 Plans:*** 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. ***FY 2015 Plans:***	0.198	0.208	0.203

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue updates to acquisition documentation for CBRN IT systems based on changes in policy, procedures, and guidelines. Perform 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: 7) SSA Integrated Architecture ***FY 2013 Accomplishments:*** Conducted required modifications to the Integrated Architecture on host platforms and documented the infrastructure and technical standards. Conducted Net-Centric Assessments for programs. Reviewed and updated the Common CBRN Interface standards on operational systems, including a Common CBRN Sensor Interface (CCSI). ***FY 2014 Plans:*** Continue required modifications to the Integrated Architecture 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. ***FY 2015 Plans:*** Perform required modifications to the Integrated Architecture 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.	0.239	0.251	0.266
Title: 8) SSA Enterprise Support and Services ***FY 2013 Accomplishments:*** Supported processes and services for Architectures, Data, Information Assurance, Modeling and Simulation, Science and Technology, and Standards and Policy. ***FY 2014 Plans:*** 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. ***FY 2015 Plans:*** Continue to 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.	0.156	0.163	0.147
Title: 9) SSA Chemical, Biological, Radiological, Nuclear (CBRN) Data Model ***FY 2013 Accomplishments:***	0.154	0.183	0.167

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Refined CBRN Data Model to maintain relevancy for Community of Interest. ***FY 2014 Plans:*** Develop CBRN data model and define the structure and content of information exchange (XML schemas) that support interoperability between CBD programs. ***FY 2015 Plans:*** Continue to develop and update CBRN data model and define the structure and content of information exchange "Extensible Markup Language"(XML) schemas that support interoperability between CBD programs.			
Title: 10) SSA Information Assurance ***FY 2013 Accomplishments:*** Maintained situational awareness and initiated actions to improve or restore IA posture to keep systems certified in accordance with DoD standards for information system programs. ***FY 2014 Plans:*** Employ Information Systems Security Engineering efforts to develop or modify the IA component of a system architecture to ensure it is in compliance with the IA component of the Global Information Grid architecture, and makes maximum use of enterprise IA capabilities and services. ***FY 2015 Plans:*** Continue to employ Information Systems Security Engineering efforts to develop or modify the IA component of a system architecture to ensure it is in compliance with the IA component of the Global Information Grid architecture, and makes maximum use of enterprise IA capabilities and services.	0.445	0.471	0.477
Title: 11) SSA Policy and Standards Repository ***FY 2013 Accomplishments:*** Maintained the repository for applicable policies, standards, and guidelines. ***FY 2014 Plans:*** Provide standards, formats, templates, training, and best practices to support practical compliance with laws, regulations, and policy for acquisition, certification, and sustainment of net-centric, interoperable, and spectrum dependent systems and devices. ***FY 2015 Plans:***	0.349	0.366	0.357

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Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue to provide standards, formats, templates, training, and best practices to support practical compliance with laws, regulations, and policy for acquisition, certification, and sustainment of net-centric, interoperable, and spectrum dependent systems and devices.			
Title: 12) SSA Technology Transition Support ***FY 2013 Accomplishments:*** Provided Technology Transition support services (common components and services) for CBD programs. ***FY 2014 Plans:*** Provide Technology Transition support services (common components and services) for CBD programs. ***FY 2015 Plans:*** Perform Technology Transition support services (common components and services) for CBD programs.	0.328	0.345	0.351
Accomplishments/Planned Programs Subtotals	1.869	9.267	10.340

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• IS7: *INFORMATION SYSTEMS (OP SYS DEV)*	9.590	6.518	4.091	-	4.091	7.835	11.995	13.034	11.019	Continuing	Continuing
• G47101: *JOINT WARNING & REPORTING NETWORK (JWARN)*	2.646	1.112	0.766	-	0.766	-	4.589	1.522	0.533	Continuing	Continuing
• JC0208: *JOINT EFFECTS MODEL (JEM)*	-	-	1.141	-	1.141	3.316	5.069	3.086	3.031	Continuing	Continuing
• JS5230: *SOFTWARE SUPPORT ACTIVITY (SSA)*	-	0.100	-	-	-	0.100	0.100	0.100	0.100	Continuing	Continuing

Remarks

D. Acquisition Strategy

JOINT EFFECTS MODEL (JEM)

JEM Increment 2 acquisition will utilize the JROC's "IT Box" construct for software development. The intent is to provide the next generation of capability with current and future technologies, as stated in the IS ICD, in less time and away from an incremental delivery approach. This effort is being acquired through a Request for Proposal (RFP) to Industry under full and open competition. The program plans to award multiple development contracts in a competitive prototyping phase prior to downselecting a single JEM developer and integrator.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

JOINT WARNING & REPORTING NETWORK (JWARN)

JWARN Increment 2 acquisition will utilize the JROC's "IT Box" construct for software requirements management and development. The intent is to provide the next generation of capability with current and future technologies, as stated in the IS ICD, in less time and away from an incremental delivery approach. This effort is being executed under a Cost-Plus-Award Term Incentive structure to gain maximum benefit to the Government in maintaining the fielded baseline and future software capability development and was awarded under a full and open competition Request for Proposal (RFP). The JWARN Program will procure a Sensor Connectivity Capability (SCC) (hardware materiel solution) in order to facilitate the transfer of CBRN sensor information from legacy CBRN sensors to DoD networks. This solution will be external to the CBRN Sensors and Service-identified network transmission device(s).

SOFTWARE SUPPORT ACTIVITY (SSA)

The SSA provides enterprise-wide services and coordination across all CBDP programs 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). Phase 1a identifies CBDP programs that deal with data or software, and have an IT component. This will be followed by coordination 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 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-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

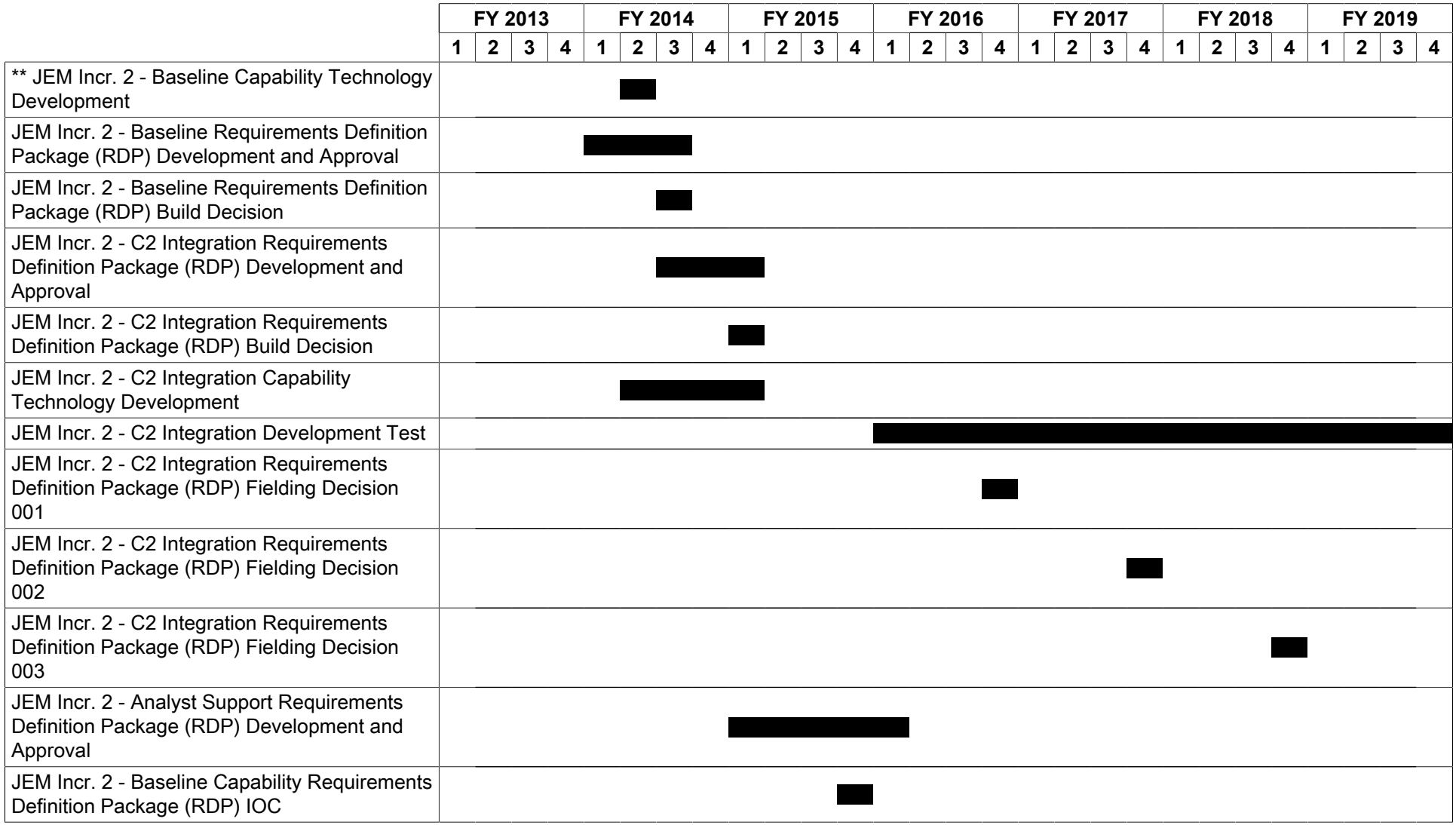

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

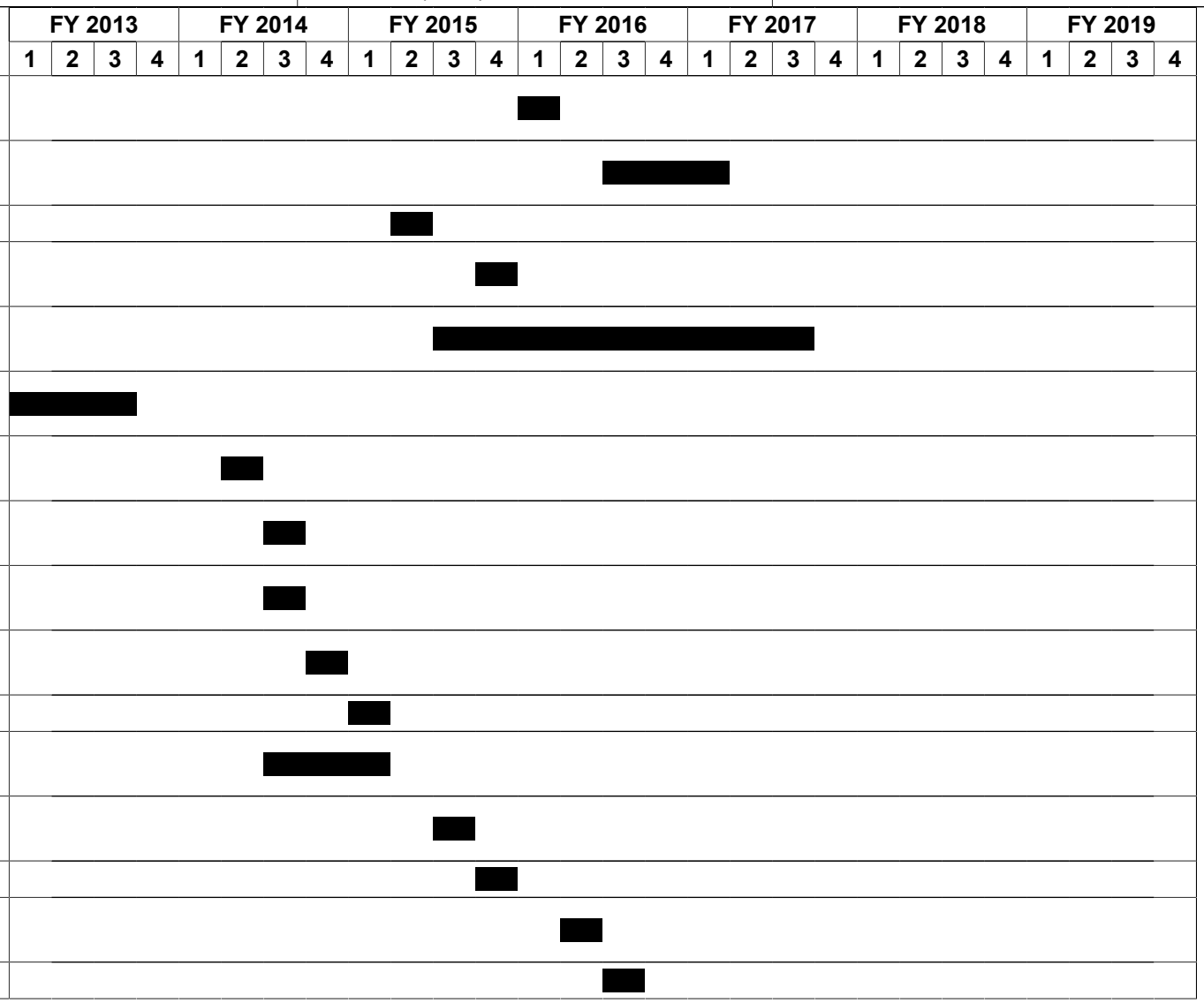

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

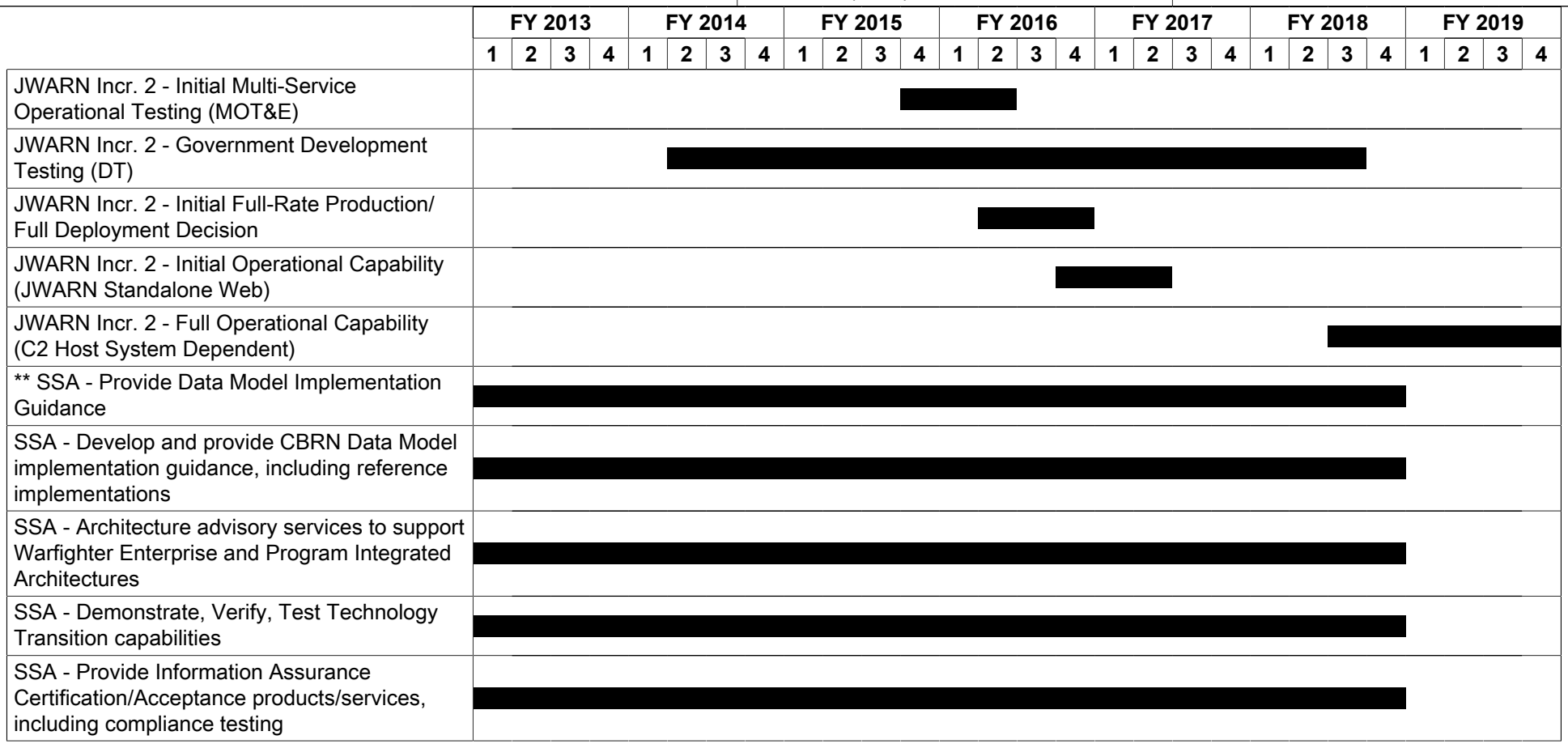

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** JEM Incr. 2 - Baseline Capability Technology Development	2	2014	2	2014
JEM Incr. 2 - Baseline Requirements Definition Package (RDP) Development and Approval	1	2014	3	2014
JEM Incr. 2 - Baseline Requirements Definition Package (RDP) Build Decision	3	2014	3	2014
JEM Incr. 2 - C2 Integration Requirements Definition Package (RDP) Development and Approval	3	2014	1	2015
JEM Incr. 2 - C2 Integration Requirements Definition Package (RDP) Build Decision	1	2015	1	2015
JEM Incr. 2 - C2 Integration Capability Technology Development	2	2014	1	2015
JEM Incr. 2 - C2 Integration Development Test	1	2016	4	2019
JEM Incr. 2 - C2 Integration Requirements Definition Package (RDP) Fielding Decision 001	4	2016	4	2016
JEM Incr. 2 - C2 Integration Requirements Definition Package (RDP) Fielding Decision 002	4	2017	4	2017
JEM Incr. 2 - C2 Integration Requirements Definition Package (RDP) Fielding Decision 003	4	2018	4	2018
JEM Incr. 2 - Analyst Support Requirements Definition Package (RDP) Development and Approval	1	2015	1	2016
JEM Incr. 2 - Baseline Capability Requirements Definition Package (RDP) IOC	4	2015	4	2015
JEM Incr. 2 - Analyst Support Requirements Definition Package (RDP) Build Decision	1	2016	1	2016
JEM Incr. 2 - Analyst Support Development Test	3	2016	1	2017
JEM Incr. 2 - LOG DEMO	2	2015	2	2015
JEM Incr. 2 - First Baseline Capability Drop Fielding Decision	4	2015	4	2015
JEM Incr. 2 - Baseline Capability Multi-Service Operational Test and Evaluation (MOT&E)	3	2015	3	2017

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** JWARN Incr. 2 - Analysis of Alternatives (Sensor Connectivity Capability)	1	2013	3	2013
JWARN Incr. 2 - Information System Initial Capability Document	2	2014	2	2014
JWARN Incr. 2 - Test and Evaluation Master Plan (Software)	3	2014	3	2014
JWARN Incr. 2 - Baseline Preliminary Design Review (Software)	3	2014	3	2014
JWARN Incr. 2 - Baseline Requirements Definition Package (RDP) 1	4	2014	4	2014
JWARN Incr. 2 - Build Decision (BD) 1	1	2015	1	2015
JWARN Incr. 2 - Baseline Critical Design Review (Software)	3	2014	1	2015
JWARN Incr. 2 - Baseline Requirements Definition Package (RDP) 2	3	2015	3	2015
JWARN Incr. 2 - Build Decision (BD) 2	4	2015	4	2015
JWARN Incr. 2 - Baseline Requirements Definition Package (RDP) 3	2	2016	2	2016
JWARN Incr. 2 - Build Decision (BD) 3	3	2016	3	2016
JWARN Incr. 2 - Initial Multi-Service Operational Testing (MOT&E)	4	2015	2	2016
JWARN Incr. 2 - Government Development Testing (DT)	2	2014	3	2018
JWARN Incr. 2 - Initial Full-Rate Production/Full Deployment Decision	2	2016	4	2016
JWARN Incr. 2 - Initial Operational Capability (JWARN Standalone Web)	4	2016	2	2017
JWARN Incr. 2 - Full Operational Capability (C2 Host System Dependent)	3	2018	4	2019
** SSA - Provide Data Model Implementation Guidance	1	2013	4	2018
SSA - Develop and provide CBRN Data Model implementation guidance, including reference implementations	1	2013	4	2018
SSA - Architecture advisory services to support Warfighter Enterprise and Program Integrated Architectures	1	2013	4	2018
SSA - Demonstrate, Verify, Test Technology Transition capabilities	1	2013	4	2018
SSA - Provide Information Assurance Certification/Acceptance products/services, including compliance testing	1	2013	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program												Date: March 2014
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*				Project (Number/Name) MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
MB5: *MEDICAL BIOLOGICAL DEFENSE (EMD)*	-	173.505	246.436	169.497	-	169.497	138.224	154.851	179.989	168.644	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This project funds medical countermeasures, development of reagents, assays, diagnostic equipment, biosurveillance and supporting efforts.

The Advanced Development and Manufacturing (ADM) capability (formerly the Medical Countermeasures Advanced Development and Manufacturing (MCMI) program) 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 MCM ADM capability for the Department of Defense (DoD).

The ADM effort is being executed in two phases. Phase 1 is for the establishment, commissioning, and validation of the ADM capability. This project funds the establishment of a capability to be located in Alachua, Florida. Two ADM cGMP suites, capable of operating at Bio Surety Level (BSL) 3 will be established during the base contract period. There are contract options to incrementally increase capacity. Upon attainment of cGMP capability Phase 2 begins. During Phase 2, the contractor team will support and maintain the capability in a state of readiness to support MCM development (to include cGMP manufacturing) and assist in training personnel in its use. The second phase includes transition and integration of new technologies to support MCM FDA required development activities. Phase 1 and 2 contract was awarded in March 2013 to Nanotherapeutics, Inc., Alachua, FL. The ADM capability sustainment costs during Phase 2 will originate from Government MCM programs using this capability.

The Critical Reagents Program's (CRP) strategy establishes a core research and development capability by developing biological threat agent reference materials (strains, antigens, antibodies and nucleic acids) and detection/diagnostic assays for biothreat agent detection. These reagents/assays are leveraged across multiple programs to meet the requirements of the Warfighter and Joint biological defense systems and support the biological defense community. Through the Targeted Acquisition of Reference Materials Augmenting Capabilities (TARMAC) initiative, the CRP will use a systematic approach to the introduction of materials and information into MCM development.

BSV programs align the Biosurveillance efforts across the DoD and national strategies. The BSV program will scope and influence BSV capabilities as products to meet Warfighter requirements through innovative management of key BSV initiative. BSV will also support the Joint US Forces Korea (USFK) Portal and Integrated Threat Recognition (JUPITR) ATD which will find, demonstrate, transition, and transfer the best operational concepts and technology solutions in support of a holistic approach to countering biological threats from laboratory to operational use. Depending on the maturity, outputs will focus on providing component, CONOPS, and subsystem transition into programs of record (PORs) and/or integration into existing PORs. Technologies identified from the JUPITR ATD will be fielded in FY16 to Pacific Command (PACOM). Future ATD developments will continue to bridge communication gaps between US Forces across other Combatant Command (COCOMs).

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

The Emerging Infectious Diseases Therapeutics (EID Tx, formerly called EID FLU) Acquisition Program is developing and will deliver a FDA-approved, broad-spectrum medical countermeasure to the Warfighter for protection against naturally occurring or biologically engineered viruses. EID Tx is pursuing influenza indication, EID-Flu MCM, as the first step in the development of a broad spectrum antiviral drug due to a clear and established FDA regulatory approval pathway. The drug in development is highly efficacious against multiple influenza viruses, including the 2009 H1N1 pandemic virus, H5N1 avian influenza virus, the most recently identified H7N9 influenza virus from the outbreak in China, and drug resistant strains of influenza viruses. This drug has also demonstrated efficacy against other viruses of concern to the DoD's biodefense program. Ongoing EID Tx drug development will be leveraged to demonstrate additional broad-spectrum MCM's against naturally occurring and/or engineered biowarfare threats. Initial testing to support FY15 down-select for follow-on label extension programs has begun. FDA approval for an influenza treatment is anticipated in FY16 following completion of the SDD phase.

The Hemorrhagic Fever Virus (HFV) Medical Countermeasure Acquisition Program develops medical countermeasures (MCMs), using high threat, extremely lethal Biological Warfare Agents (BWAs) of the Filoviridae family agents (Ebola and Marburg) as model systems. Medical countermeasures will be advanced through the Food and Drug Administration (FDA) licensure/approval via the FDA 'Animal Rule', which allows for the demonstration of efficacy in relevant animal model(s) when human testing is not ethically feasible. HFV will also conduct animal model development and refinement as needed to support the pivotal animal efficacy testing required under the FDA 'Animal Rule'. Completion of Phase I trials, animal model development, and manufacturing scale up are the focus of the ACD&P phase. FDA approval for Filovirus therapeutics are expected in FY18 following completion of the SDD phase.

The DoD funds the development of vaccines that are directed against validated biological warfare (BW) weapons to include bacteria, viruses, and toxins of biological origin. Effective medical countermeasures to negate the threat of these BW agents are urgently needed. Vaccines have been identified as the most efficient countermeasure against the validated threat of BW weapons. Products under development in this budget item include Recombinant Botulinum A/B and Plague vaccines. Efforts to be conducted during the Engineering Manufacturing Development (EMD) Phase include the development of large scale manufacturing process and validation of that process, nonclinical studies, demonstration of manufacturing consistency, 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". The DoD anticipates that the FDA will approve these products using the Animal Rule, which allows for the demonstration of efficacy in relevant animal model(s). Upon FDA licensure, the product will transition to full-scale licensed production.

The DoD also has the mission to maintain Investigational New Drug (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 2013**	**FY 2014**	**FY 2015**
Title: 1) ADM - Establish Manufacturing Suites & Capability	15.075	13.990	-
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continued the establishment of two modular manufacturing suites to biosurety level three (3) standards. Started verification and validation planning for the manufacturing suites to include process equipment. Continued ADM capability staffing with Contractor personnel. ***FY 2014 Plans:*** Finalize the establishment of two modular manufacturing suites to biosurety level three (3) standards. Conduct verification and validation of the manufacturing suites to include process equipment. Continue ADM capability staffing with Contractor personnel. Contractor personnel will have core competencies to manage the ADM capability in a state of readiness. Finalize the procurement, installation and testing of equipment.			
Title: 2) ADM - Equipment Procurement and Installation. ***FY 2013 Accomplishments:*** Continued the procurement, installation and testing of equipment. ***FY 2014 Plans:*** Finalize the procurement, installation and testing of equipment.	3.702	6.000	-
Title: 3) ADM - Commissioning and Validation ***FY 2013 Accomplishments:*** Prepared for testing and commissioning. Prepared for independent validation and attainment of Food and Drug Administration (FDA) Current Good Manufacturing Practice (cGMP) and Current Good Laboratory Practice (cGLP) certification. Validated processes to include Design Qualification, Installation Qualification, Operational Qualification, Performance Qualification.	10.210	-	-
Title: 4) ADM - Program Management ***FY 2013 Accomplishments:*** Maintained strategic planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. ***FY 2014 Plans:*** Provide strategic planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support.	2.357	6.618	-
Title: 5) BSV ***FY 2014 Plans:***	-	6.700	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Initiate and complete purchase of Commercial Off the Shelf Detectors for the Assessment of Environmental Detectors (AED) Leg of the JUPITR ATD.			
Title: 6) BSV ***FY 2014 Plans:*** Initiate management and Logistic Support to AED leg of JUPITR ATD.	-	2.300	-
Title: 7) CRP ***FY 2013 Accomplishments:*** Continued development/expansion of biological select agents reference materials to known and emerging threats. ***FY 2014 Plans:*** Continue development/expansion/scale-up of biological select agents reference materials to known and emerging threats. ***FY 2015 Plans:*** Continue development/expansion of biological select agents reference materials to known and emerging threats.	2.470	2.960	2.859
Title: 8) CRP ***FY 2013 Accomplishments:*** Continued development of immunoassays and nucleic acid based genomic assays to support fielded and developmental systems. ***FY 2014 Plans:*** Continue development of immunoassays and nucleic acid based genomic assays to support fielded and developmental systems. ***FY 2015 Plans:*** Continue development of immunoassays and nucleic acid based genomic assays to support fielded and developmental systems.	1.200	2.170	1.590
Title: 9) CRP ***FY 2013 Accomplishments:*** Continued QA/QC testing to encompass the transition and fielding of biological detection assays. ***FY 2014 Plans:*** Continue Quality Assurance/Quality Control testing to encompass the transition and fielding of biological detection assays. ***FY 2015 Plans:*** Continue QA/QC testing to encompass the transition and fielding of biological detection assays.	0.680	1.111	1.070
Title: 10) CRP	0.900	0.870	1.290

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Continued to maintain ISO 9001; 17025 and Guide 34 certifications. ***FY 2014 Plans:*** Continue to maintain ISO 9001; 17025 and Guide 34 certifications. ***FY 2015 Plans:*** Continue to maintain ISO 9001; 17025 and Guide 34 certifications.			
Title: 11) CRP ***FY 2013 Accomplishments:*** Developed strain dossier and comprehensive microbial resource application for strains contained in Unified Culture Collection. ***FY 2014 Plans:*** Continue development of prototypes/information for strains contained in Unified Culture Collection. ***FY 2015 Plans:*** Continue development of prototypes/information for strains contained in Unified Culture Collection.	2.000	1.525	2.384
Title: 12) EID-Tx ***FY 2013 Accomplishments:*** Initiated preparations for FDA required Phase 3 clinical trials that began in Dec 2013. Successful Phase 3 clinical trials preparations require the enrollment of at least 1500 patients and are conducted globally at over 400 clinical trial sites to capture both Northern and Southern Hemisphere flu seasons. ***FY 2014 Plans:*** Initiate two global Phase 3 clinical trials required by the FDA for approval against influenza. Conduct any additional safety clinical trials required by the FDA. Conduct studies to identify and prioritize MCM development against DOD priority viral agents. Target agent selection will be completed for further development under the FY15 EID Label Extension (LE) effort. ***FY 2015 Plans:*** Complete two global Phase 3 clinical trials as required by the FDA for approval against influenza. Conduct any additional safety clinical trials required by the FDA. Conduct studies to identify and prioritize MCM development against DOD priority viral agents. Down-select and initiate the first FY15 EID Label Extension (LE) effort.	67.396	69.847	28.894
Title: 13) HFV ***FY 2014 Plans:***	-	28.478	39.640

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Initiate activities to scale up manufacturing of the HFV MCMs to meet commercial scale. Initiate pivotal animal efficacy studies via the aerosol and parenteral routes of challenge under Good Laboratory Practices (GLP) conditions in a Bio Safety Level (BSL) 4. Initiate preparatory activities to support pilot aerosol efficacy studies in a BSL 4, under GLP conditions. Complete development of the non-human primate models for filovirus required to support the pivotal animal efficacy studies. ***FY 2015 Plans:*** Continue activities to scale up manufacturing of the HFV MCMs to meet commercial scale. Continue pivotal animal efficacy studies via the aerosol and parenteral routes of challenge under Good Laboratory Practices (GLP) conditions in a Bio Safety Level (BSL) 4. Initiate pilot aerosol efficacy studies in a BSL 4, under GLP conditions. Initiate preparatory activities to support pilot aerosol efficacy studies for the MCM against the Ebola Zaire Virus.			
Title: 14) VAC BOT - Recombinant Botulinum Vaccine ***FY 2013 Accomplishments:*** Prepared for and initiated the technology transfer of the manufacturing process for serotypes A & B. ***FY 2014 Plans:*** Continue technology transfer of the manufacturing process and initiate the production of consistency lots for serotypes A & B. ***FY 2015 Plans:*** Complete technology transfer of the manufacturing process and continue the production of consistency lots for serotypes A & B.	13.267	32.098	36.447
Title: 15) VAC BOT - Recombinant Botulinum Vaccine ***FY 2013 Accomplishments:*** Initiated pivotal non human primate efficacy study. Continued requirements for safeguarding biological select agents and toxins. Conducted initiation efforts for the Phase 3 clinical trial. These efforts included submission of protocol to FDA, identification of clinical sites, development of clinical database, and labeling and shipping of clinical material. ***FY 2014 Plans:*** Continue pivotal non human primate efficacy study. Execute technology transfer to a new vaccine manufacturer. Continued requirements for safeguarding biological select agents and toxins. ***FY 2015 Plans:*** Initiate non-clinical reproductive toxicity testing. Continue requirements for safeguarding biological select agents and toxins. Initiate non-clinical comparability studies to bridge newly manufactured drug substance that was made at the previous Contractor Manufacturing Organization (CMO) prior to technology transfer.	22.463	15.812	16.915
Title: 16) VAC PLG	9.196	10.125	11.200

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Continued non clinical studies to include additional FDA required passive transfer studies. Continued requirement for safeguarding biological select agents and toxins. ***FY 2014 Plans:*** Complete non-clinical, FDA-required passive transfer studies. Initiate animal efficacy studies to demonstrate vaccine effectiveness according to the Capability Development Document (CDD) requirement levels. Continue requirement for safeguarding select agents and toxins. ***FY 2015 Plans:*** Continue Animal efficacy studies. Initiate pivotal animal efficacy and duration studies. Initiate reproductive toxicity testing. Continue requirements for safeguarding biological select agents and toxins.			
Title: 17) VAC PLG ***FY 2013 Accomplishments:*** Completed Phase 2b clinical trial. ***FY 2014 Plans:*** Initiate preparation for Phase 3 clinical trial to evaluate expanded safety and efficacy in thousands of volunteers. Conduct Milestone C/LRIP. ***FY 2015 Plans:*** Initiate in-life portion of Phase 3 clinical trial to evaluate expanded safety and efficacy. Initiate Protective Capacity Assay using pooled human sera from Phase 3 clinical trial.	13.418	35.901	17.461
Title: 18) VAC PLG ***FY 2013 Accomplishments:*** Initiated consistency lot production and testing. ***FY 2014 Plans:*** Complete consistency lot production and testing. ***FY 2015 Plans:*** Prepare and submit IND for consistency lot production and testing and Protective Capacity Assay (PCA) results to the FDA for approval or guidance.	1.362	1.450	2.000
Title: 19) VAC PLG	5.449	6.012	6.150

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Continued to provide strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, and technical support. ***FY 2014 Plans:*** Continue to provide strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, and technical support. ***FY 2015 Plans:*** Continue to provide strategic/tactical planning, government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, and technical support.			
Title: 20) VAC SIP ***FY 2013 Accomplishments:*** Continued storage, distribution, potency testing, and biosurety compliance activities in support of the Special Immunization Program. ***FY 2014 Plans:*** Continue storage, distribution, potency testing, and biosurety compliance activities in support of the Special Immunization Program. ***FY 2015 Plans:*** Continue storage, distribution, potency testing, and biosurety compliance activities in support of the Special Immunization Program.	2.360	2.469	1.597
Accomplishments/Planned Programs Subtotals	173.505	246.436	169.497

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*	0.490	0.499	13.414	-	13.414	14.551	9.816	7.277	16.496	Continuing	Continuing
• JM8788: *NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)*	14.999	-	3.861	-	3.861	4.632	8.593	8.495	13.900	Continuing	Continuing
• JX0005: *DOD BIOLOGICAL VACCINE PROCUREMENT*	0.185	0.185	6.412	-	6.412	6.606	12.108	3.406	6.801	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• JX0210: *CRITICAL REAGENTS PROGRAM (CRP)*	1.012	1.011	1.011	-	1.011	-	-	-	-	-	3.034

Remarks

D. Acquisition Strategy

ADVANCED DEVELOPMENT & MANUFACTURING (ADM)

The ADM capability awarded a competitive ten (10) year [two base years with four 2 year options] Cost Plus Fixed fee (CPFF) contract to Nanotherapeutics, Inc., Alachua, FL.

BIOSURVEILLANCE (BSV)

BSV is the delivery of a set of capabilities to acquire, integrate, and analyze medical, environmental, and incident management data using existing and next generation systems, medical and non-medical sample collection tools and identifiers/diagnostics; and transition hardware/software tools and devices as residuals from the Biosurveillance Joint USFK Portal and Integrated Threat Recognition (JUPITR) Advanced Technology Demonstration (ATD). Lessons learned from the ATD will be transitioned to the programs of record associated with the CBDP. The acquisition strategy will address the materiel solutions identified out of the multiple Biosurveillance (BSV) related Analysis of Alternatives (AoA's).

CRITICAL REAGENTS PROGRAM (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.

EMERGING INFECTIOUS DISEASES - THERAPUTIC (EID TX)

The goal of the EID Tx program is to develop a safe and effective MCM against biothreats of interest to the DoD. The first step of the acquisition strategy is to develop an MCM for influenza due to a clear and established FDA regulatory approval pathway. The Phase 2 clinical trial is complete, demonstrating both safety and efficacy in humans. Program was authorized by FDA to move forward at End of Phase 2 meeting on 3 SEP 13. Phase 3 clinical trials for EID Tx against influenza began during 1QFY14. Following successful FDA approval of the drug against influenza, EID Tx will utilize an incremental approach to label extensions of this broad spectrum therapeutic. The development strategy for additional label extensions of the antiviral drug consists of detailed characterization of antiviral activities of the broad-spectrum

compound against multiple virus families using cell-based and animal model systems. Using the results of the cell-based assays efficacy assessment of the drug against high-priority viruses of biodefense concern will be performed using small animal studies. The results of the small animal testing will determine the best candidate to move forward for the Label Extension starting in FY15.

HEMORRHAGIC FEVER VIRUS (HFV)

The acquisition strategy uses a parallel evaluation of drug candidates against the lethal Ebola Zaire and Marburg viruses. Following a successful Milestone B and entry into SDD phase, the program will conduct expanded human clinical safety studies, definitive animal efficacy, and toxicology studies, required for FDA approval. The performer(s) will submit a New Drug Application(s) for the Ebola Zaire and Marburg therapeutics during the SDD 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.

BOTULINUM VACCINE (VAC BOT)

The Prime System Contractor (Dynport Vaccine Company/DVC LLC, Frederick MD) will function as the FDA regulatory sponsor 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 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 clinical trial (Phase 1). During the Engineering Manufacturing Development (EMD) Phase, the prime contractor stabilized the vaccine formulation, validated the manufacturing process and testing protocols, optimized the delivery systems and manufactured consistency lots. Phase 2 clinical trials were performed and provided additional safety data. The remaining efforts to be conducted during the SDD phase include the Phase 3 clinical trial to demonstrate safety in an expanded volunteer population and evaluation of efficacy in pivotal animal studies to satisfy FDA requirements for the Animal Rule . The Low rate Initial Production (LRIP) decision will be conducted after the manufacturing process has been validated and consistency lots have been produced. A Biologics License Application is submitted to the FDA will all clinical, nonclinical, and manufacturing data. The FDA grants licensure to products that are determined to be safe and efficacious.

PLAGUE VACCINE (VAC PLG)

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 clinical trial (Phase 1). In order to reduce technical program risk in the Plague vaccine program, the program office conducted competitive prototyping between 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 a Prime System Contract. The Prime System Contractor (Dynport Vaccine Company/DVC LLC, Frederick MD) currently functions as the FDA regulatory sponsor and performs all ancillary, regulatory, quality assurance, and data management as required by the FDA. A Project Arrangement is in place with the United Kingdom and Canada. During the Engineering Manufacturing Development (EMD) Phase, the prime contractor stabilized the vaccine formulation, validated the manufacturing

process and testing protocols, optimized the delivery systems and manufactured consistency lots. Phase 2 clinical trials were performed and provided additional safety data. The remaining efforts to be conducted during the EMD phase include the Phase 3 clinical trial to demonstrate safety in an expanded volunteer population and evaluation of efficacy and duration of protection in pivotal animal studies to satisfy FDA requirements for the Animal Rule . The Low Rate Initial Production (LRIP) decision will be conducted after the manufacturing process has been validated and consistency lots have been produced. A Biologics License Application will be 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.

SPECIAL IMMUNIZATION PROGRAM (VAC SIP)

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

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

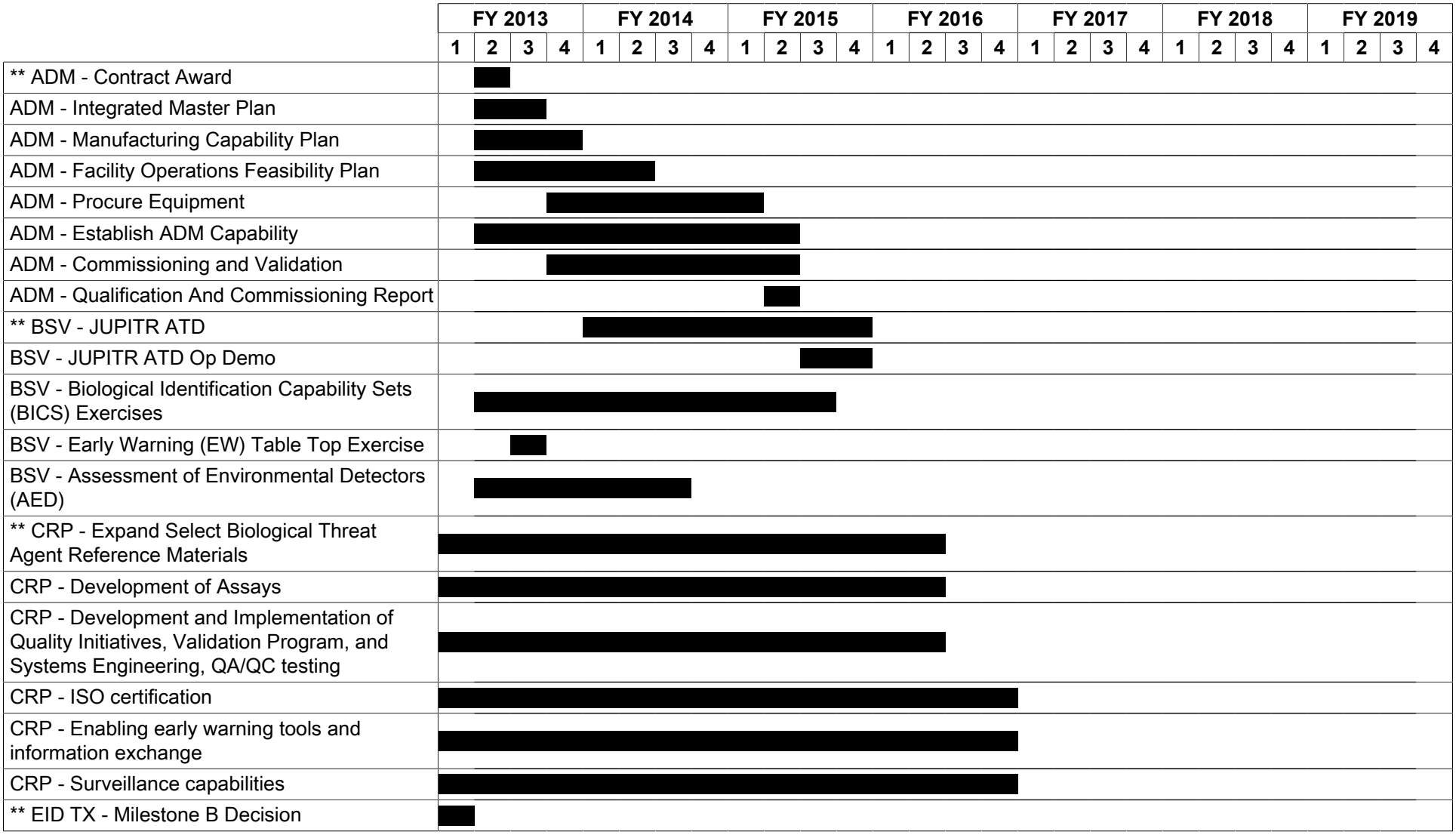

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

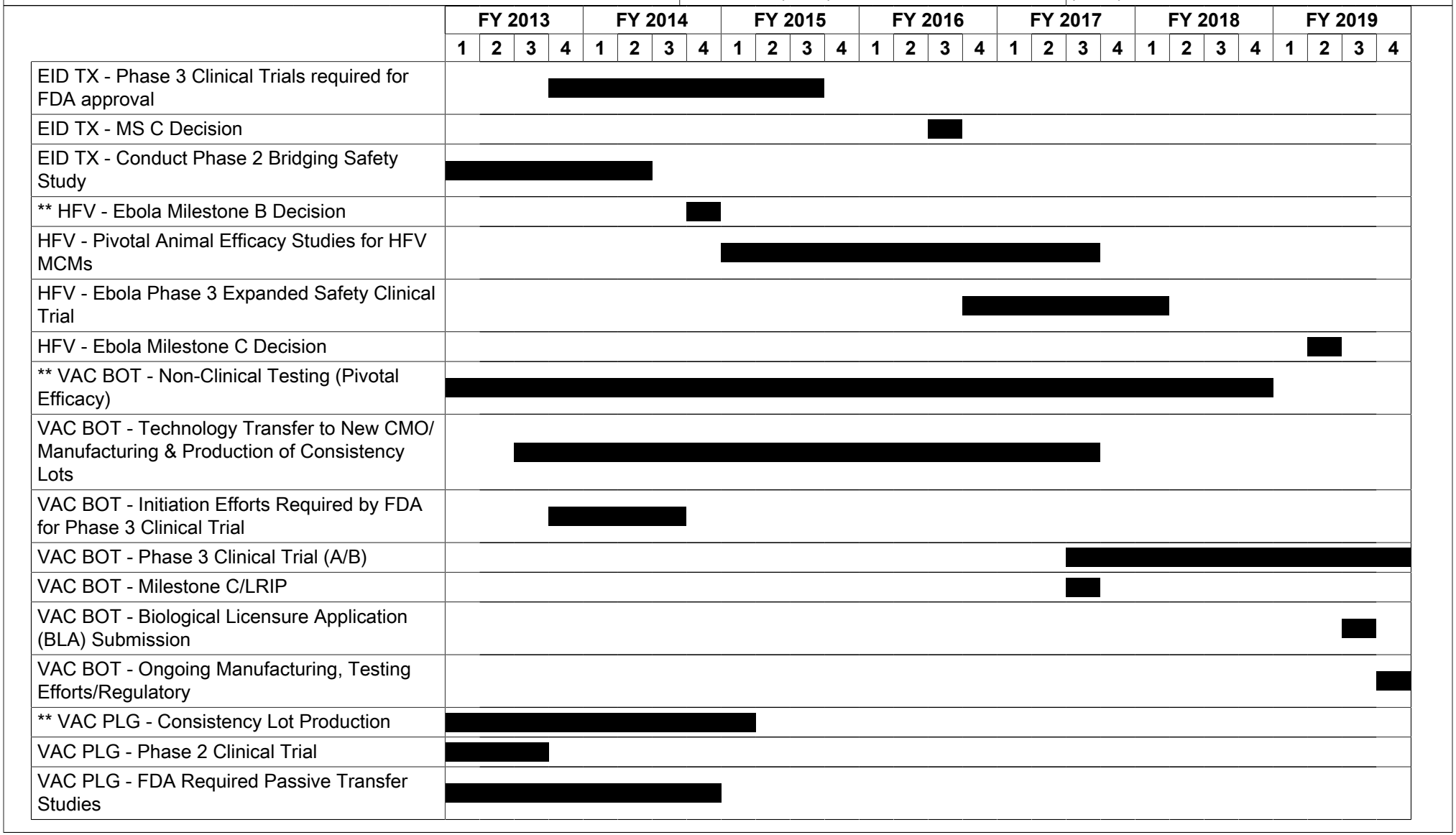

Exhibit R-4, **RDT&E Schedule Profile:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

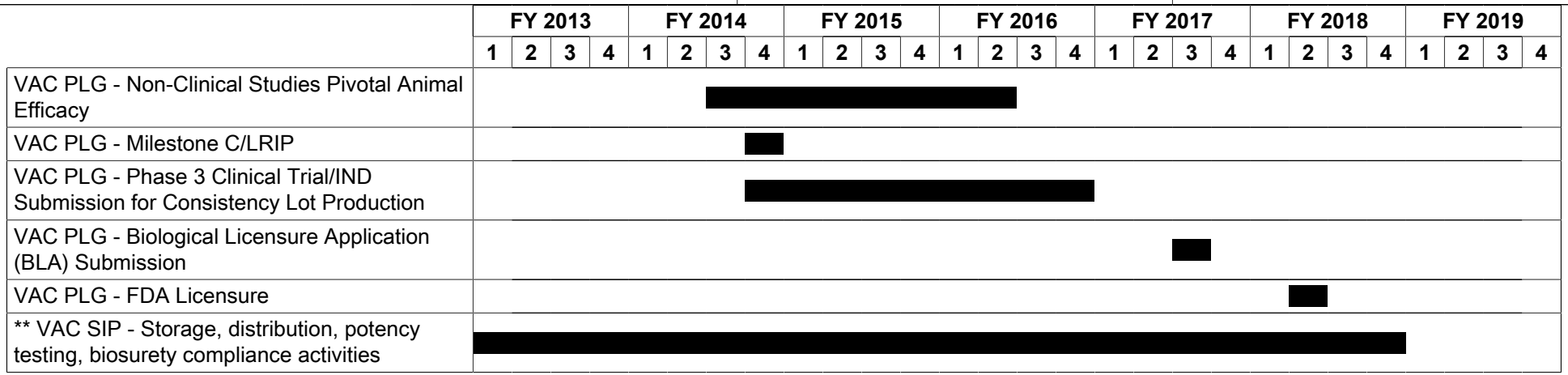

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** ADM - Contract Award	2	2013	2	2013
ADM - Integrated Master Plan	2	2013	3	2013
ADM - Manufacturing Capability Plan	2	2013	4	2013
ADM - Facility Operations Feasibility Plan	2	2013	2	2014
ADM - Procure Equipment	4	2013	1	2015
ADM - Establish ADM Capability	2	2013	2	2015
ADM - Commissioning and Validation	4	2013	2	2015
ADM - Qualification And Commissioning Report	2	2015	2	2015
** BSV - JUPITR ATD	1	2014	4	2015
BSV - JUPITR ATD Op Demo	3	2015	4	2015
BSV - Biological Identification Capability Sets (BICS) Exercises	2	2013	3	2015
BSV - Early Warning (EW) Table Top Exercise	3	2013	3	2013
BSV - Assessment of Environmental Detectors (AED)	2	2013	3	2014
** CRP - Expand Select Biological Threat Agent Reference Materials	1	2013	2	2016
CRP - Development of Assays	1	2013	2	2016
CRP - Development and Implementation of Quality Initiatives, Validation Program, and Systems Engineering, QA/QC testing	1	2013	2	2016
CRP - ISO certification	1	2013	4	2016
CRP - Enabling early warning tools and information exchange	1	2013	4	2016
CRP - Surveillance capabilities	1	2013	4	2016
** EID TX - Milestone B Decision	1	2013	1	2013
EID TX - Phase 3 Clinical Trials required for FDA approval	4	2013	3	2015

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
EID TX - MS C Decision	3	2016	3	2016
EID TX - Conduct Phase 2 Bridging Safety Study	1	2013	2	2014
** HFV - Ebola Milestone B Decision	4	2014	4	2014
HFV - Pivotal Animal Efficacy Studies for HFV MCMs	1	2015	3	2017
HFV - Ebola Phase 3 Expanded Safety Clinical Trial	4	2016	1	2018
HFV - Ebola Milestone C Decision	2	2019	2	2019
** VAC BOT - Non-Clinical Testing (Pivotal Efficacy)	1	2013	4	2018
VAC BOT - Technology Transfer to New CMO/Manufacturing & Production of Consistency Lots	3	2013	3	2017
VAC BOT - Initiation Efforts Required by FDA for Phase 3 Clinical Trial	4	2013	3	2014
VAC BOT - Phase 3 Clinical Trial (A/B)	3	2017	4	2019
VAC BOT - Milestone C/LRIP	3	2017	3	2017
VAC BOT - Biological Licensure Application (BLA) Submission	3	2019	3	2019
VAC BOT - Ongoing Manufacturing, Testing Efforts/Regulatory	4	2019	4	2019
** VAC PLG - Consistency Lot Production	1	2013	1	2015
VAC PLG - Phase 2 Clinical Trial	1	2013	3	2013
VAC PLG - FDA Required Passive Transfer Studies	1	2013	4	2014
VAC PLG - Non-Clinical Studies Pivotal Animal Efficacy	3	2014	2	2016
VAC PLG - Milestone C/LRIP	4	2014	4	2014
VAC PLG - Phase 3 Clinical Trial/IND Submission for Consistency Lot Production	4	2014	4	2016
VAC PLG - Biological Licensure Application (BLA) Submission	3	2017	3	2017
VAC PLG - FDA Licensure	2	2018	2	2018
** VAC SIP - Storage, distribution, potency testing, biosurety compliance activities	1	2013	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program			Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
MC5: *MEDICAL CHEMICAL DEFENSE (EMD)*	-	17.396	55.087	58.529	-	58.529	65.966	40.880	33.205	1.550	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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 warfare agent threats facing U.S. forces in the field. This project supports efforts in the System Development and Demonstration (SDD) 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) Bioscavenger (BSCAV), a new capability, to be used as a prophylaxis against nerve agents; and (2) Improved Nerve Agent Treatment System (INATS) an enhanced nerve agent treatment regimen consisting of an improved oxime to replace the current fielded oxime 2-pralidoxime chloride (2-PAM), product formulation enhancements to increase survival, and expanded pretreatment indications for the use of pyridostigmine bromide (PB), the active component of Soman Nerve Agent Pretreatment Pyridostigmine (SNAPP).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) BSCAV ***FY 2013 Accomplishments:*** Completed source selection activities, awarded the EMD contract, and initiated the re-establishment of a manufacturing line. ***FY 2014 Plans:*** Continue and complete re-establishment of a manufacturing line and initiate small scale process qualification.	15.646	11.972	-
Title: 2) BSCAV ***FY 2013 Accomplishments:*** Initiated storage and stability testing of purified product. ***FY 2014 Plans:*** Continue storage and stability testing of purified product. ***FY 2015 Plans:*** Continue storage and stability testing of purified product.	1.750	1.980	6.191
Title: 3) BSCAV	-	11.018	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
FY 2014 Plans: Initiate and complete nonclinical toxicity and efficacy studies (NTA).			
Title: 4) BSCAV ***FY 2014 Plans:*** Initiate Current Good Manufacturing Practice (cGMP) manufacturing for clinical and nonclinical studies. ***FY 2015 Plans:*** Continue cGMP manufacturing for clinical and nonclinical studies.	-	22.368	12.739
Title: 5) BSCAV ***FY 2015 Plans:*** Initiate pilot pharmacokinetic (PK) dosing, onset, duration, and clinical studies.	-	-	11.529
Title: 6) BSCAV ***FY 2014 Plans:*** Initiate engineering and scale-up manufacturing runs. ***FY 2015 Plans:*** Complete engineering and scale-up manufacturing runs.	-	4.000	12.855
Title: 7) INATS ***FY 2014 Plans:*** Initiate nonclinical studies to expand indications for the currently fielded pyridostigmine bromide (PB) component of the INATS system of systems. ***FY 2015 Plans:*** Continue nonclinical studies to expand indications for pyridostigmine bromide (PB).	-	3.749	3.870
Title: 8) INATS ***FY 2015 Plans:*** Initiate and complete pilot scale development of bulk drug substance (BDS) and final drug product (FDP).	-	-	4.861
Title: 9) INATS ***FY 2015 Plans:***	-	-	3.769

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Initiate current Good Manufacturing Practice (cGMP) efforts and manufacture of clinical trial material.			
Title: 10) INATS ***FY 2015 Plans:*** Initiate nonclinical studies to test product formulation enhancements.	-	-	2.715
Accomplishments/Planned Programs Subtotals	17.396	55.087	58.529

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• JM6677: *ADVANCED ANTICONVULSANT SYSTEM (AAS)*	1.566	-	2.500	-	2.500	-	-	-	-	-	4.066

Remarks

D. Acquisition Strategy

BIOSCAVENGER (BSCAV)

Used a serial evaluation of candidates to achieve competitive prototyping in the Technology Development Phase which culminated in a down-select decision. The Bioscavenger program issued a Request For Proposal (RFP) to select the best value for the government for a prophylaxis to support an initial limited user group. During the System Development and Demonstration (SDD) phase the program 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 includes options for transition to the Medical Countermeasures Initiative (MCMI) Advanced Development and 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 SDD phase will culminate in FDA licensure of the Bioscavenger. During the Production and Deployment phase, the Bioscavenger program, in conjunction with a commercial partner, will pursue full rate production and conduct any FDA-mandated post-marketing surveillance studies. Concurrently the Bioscavenger program will conduct an analysis of alternative manufacturing technologies, investigate additional product indications, and pursue an expanded force prophylaxis once alternate technologies have matured.

IMPROVED NERVE AGENT TREATMENT SYSTEM (INATS)

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

Improved Nerve Agent Treatment Systems (INATS) is an enhanced nerve agent treatment regimen designed to replace and provide improved product performance over the Antidote Treatment Nerve Agent Auto-injector (ATNAA). The components of the INATS program include: 1) development of a broad spectrum oxime that is effective against emerging threats to replace the fielded currently fielded oxime 2-pralidoxime chloride (2-PAM); 2) product formulation enhancements to increase survival; and 3) expanded pretreatment indications for pyridostigmine bromide (PB). During the Technology Development Phase, the system integrator will oversee conduct of formulation development efforts, nonclinical toxicology and efficacy studies, Phase 1 human clinical safety studies as well as nonclinical studies to obtain FDA approval for expanding the indications for PB. Following a successful Milestone B and entry in to the Engineering and Manufacturing (EMD) Phase, the system integrator will continue to exercise management oversight with system integration support from a commercial partner or partners to ensure that the development and manufacture of the INATS is in accordance with Food and Drug Administration (FDA) regulations and guidelines. Prior to FDA licensure, the commercial partner(s) will perform a Phase 2 human clinical safety study, nonclinical toxicology studies and definitive animal efficacy studies. The system integrator will also manufacture an improved oxime 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 Production and Deployment Phase, the system integrator, in conjunction with a commercial partner, will pursue full rate and stockpile production and will conduct any FDA mandated post-marketing surveillance studies. The system integrator will transfer contracting and logistical responsibilities to the Defense Logistics Agency during the Operations and Support Phase however, as the total life-cycle manager the system integrator will monitor program performance through disposal.

E. Performance Metrics

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

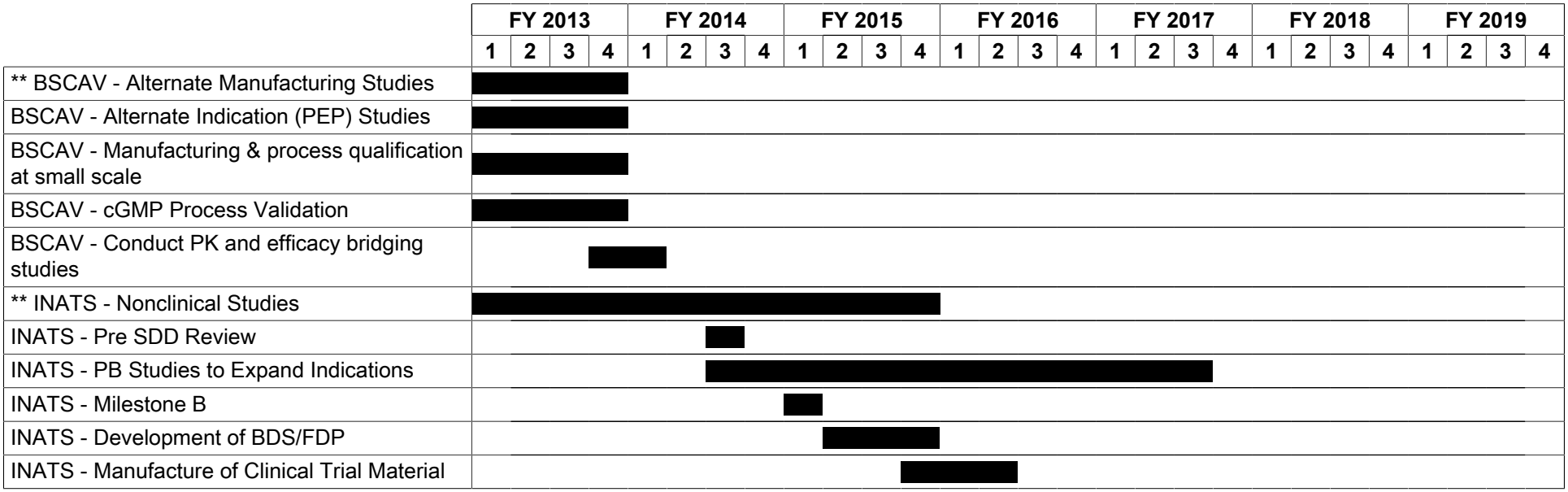

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** BSCAV - Alternate Manufacturing Studies	1	2013	4	2013
BSCAV - Alternate Indication (PEP) Studies	1	2013	4	2013
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
** INATS - Nonclinical Studies	1	2013	4	2015
INATS - Pre SDD Review	3	2014	3	2014
INATS - PB Studies to Expand Indications	3	2014	3	2017
INATS - Milestone B	1	2015	1	2015
INATS - Development of BDS/FDP	2	2015	4	2015
INATS - Manufacture of Clinical Trial Material	4	2015	2	2016

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program												Date: March 2014
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*				Project (Number/Name) TE5 / *TEST & EVALUATION (EMD)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
TE5: *TEST & EVALUATION (EMD)*	-	6.726	26.202	9.176	-	9.176	2.753	5.978	6.311	6.311	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This funding supports the Chemical Biological Defense Portfolio (CBDP) Test Equipment, Strategy, and Support (TESS) efforts. TESS provides test infrastructure products for testing and evaluating chemical and biological defense systems throughout the life cycle acquisition process. TESS test infrastructure products are aligned in four groups to include: (1) Chemical Laboratory (Sense); (2) Biological Laboratory (Sense); (3) Field Simulant Test (Sense); and (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 chemical defense testing using new emerging threats. The NTADTS supports testing of Decontamination, Collective Protection, Individual Protection, and Contamination Avoidance products. The CBD acquisition programs supported are Dismounted Reconnaissance Sets Kits and Outfits (DR SKO), Next Generation Chemical Detector (NGCD), Decon Family of Systems (DFoS), and Common Analytical Laboratory System (CALS).

(2) Sense Laboratory (Biological): The product for this area is the Whole System Live Agent Test (WSLAT) "Full System" Chamber and the Standoff Detection Test System (SDTS). The WSLAT "Full System" Chamber supports testing of all biological point detection systems in production configuration in biological live agent environments. The CBD acquisition programs supported are the Joint Biological Point Detection System (JBPDS) and the Joint Biological Tactical Detection System (JBTDS).

(3) Field Simulant (Sense): The product for this area is a fully instrumented simulant Test Grid. The Test Grid capability demonstrates test methodologies for chem and bio aerosols and advanced technologies. 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 acquisition programs supported are the Joint Expeditionary Collective Protection (JECP), Next Generation Chemical Detector (NGCD), Joint Biological Point Detection System (JBPDS) and the Joint Biological Tactical Detection System (JBTDS).

(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 individual protective equipment CBD programs supported include:

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** TE5 / *TEST & EVALUATION (EMD)*

Uniform Integrated Protection Ensemble Increment 1 (UIPE 1), UIPE Increment 2, Joint Service Aircrew Mask Fixed Wing (JSAM FW) and Rotary Wing (JSAM RW), and the Joint Service General Purpose Mask (JSGPM).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) PD TESS - Dynamic Test Chamber (DTC) ***FY 2014 Plans:*** Support validation activities.	-	1.465	-
Title: 2) PD TESS - Non-Traditional Agent Defense Test System (NTADTS) ***FY 2013 Accomplishments:*** Continued fabrication and installation. ***FY 2014 Plans:*** Complete verification, and test system commissioning. Initiate validation ***FY 2015 Plans:*** Complete test system validation. Transition test system to test and evaluation community.	3.779	11.088	4.801
Title: 3) PD TESS - WSLAT ***FY 2013 Accomplishments:*** Completed verification and validation. Transitioned to test and evaluation community.	0.552	-	-
Title: 4) PD TESS - Test Grid ***FY 2013 Accomplishments:*** Initiated pre-verification activities. ***FY 2014 Plans:*** Conduct verification. Initiate and conduct validation. ***FY 2015 Plans:*** Complete validation and transition initial capability.	1.262	13.649	4.375
Title: 5) PD TESS - Individual Protection Ensemble Mannequin System (IPEMS) ***FY 2013 Accomplishments:*** Completed mannequin installation and transitioned support.	0.393	-	-
Title: 6) PD TESS - Joint Biological Tactical Defense System Test Infrastructure ***FY 2013 Accomplishments:***	0.740	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** TE5 / *TEST & EVALUATION (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Initiated test infrastructure activities. Conducted background and interferent aerosol development characterization and verification.			
Accomplishments/Planned Programs Subtotals	6.726	26.202	9.176

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• TE7: *TEST & EVALUATION (OP SYS DEV)*	3.730	3.690	5.984	-	5.984	4.881	5.118	5.174	5.381	Continuing	Continuing

Remarks

D. Acquisition Strategy

TEST EQUIPMENT, STRATEGY & SUPPORT (PD TESS)

TESS 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-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** TE5 / *TEST & EVALUATION (EMD)*

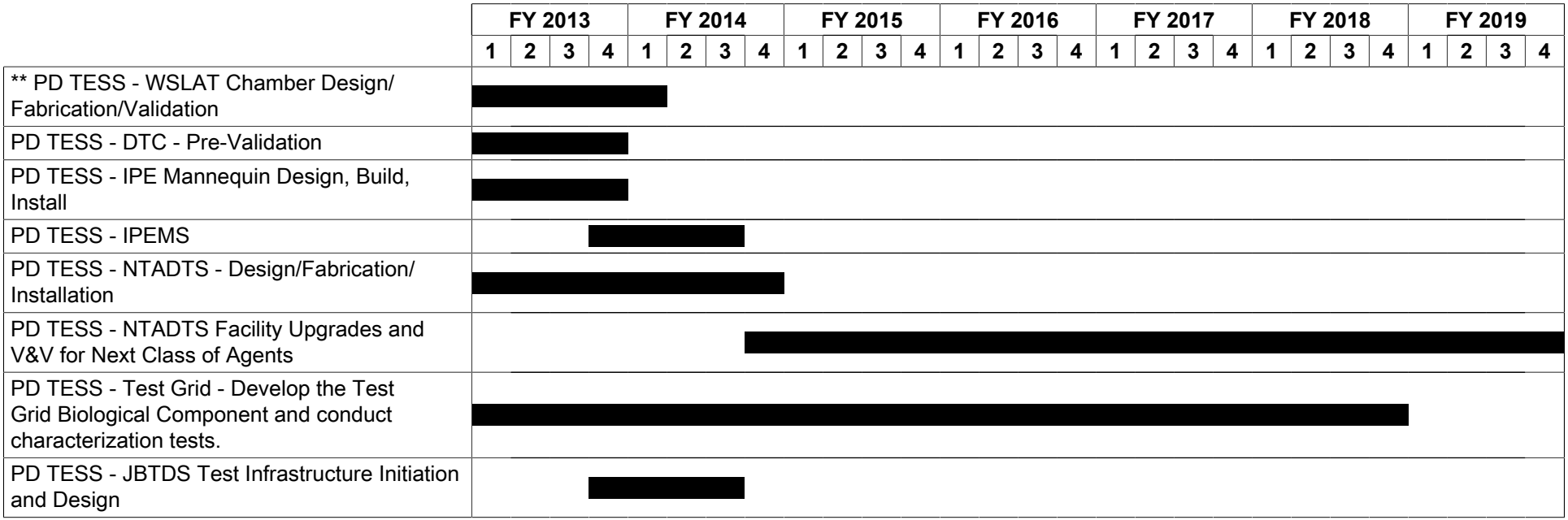

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** TE5 / *TEST & EVALUATION (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** PD TESS - WSLAT Chamber Design/Fabrication/Validation	1	2013	1	2014
PD TESS - DTC - Pre-Validation	1	2013	4	2013
PD TESS - IPE Mannequin Design, Build, Install	1	2013	4	2013
PD TESS - IPEMS	4	2013	3	2014
PD TESS - NTADTS - Design/Fabrication/Installation	1	2013	4	2014
PD TESS - NTADTS Facility Upgrades and V&V for Next Class of Agents	4	2014	4	2019
PD TESS - Test Grid - Develop the Test Grid Biological Component and conduct characterization tests.	1	2013	4	2018
PD TESS - JBTDS Test Infrastructure Initiation and Design	4	2013	3	2014

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Chemical and Biological Defense Program	**Date:** March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	-	89.100	89.346	105.944	-	105.944	108.472	109.443	109.956	110.443	Continuing	Continuing
DT6: *JOINT DOCTRINE AND TRAINING SUPPORT (RDT&E MGT SUPPORT)*	-	4.262	4.724	4.868	-	4.868	5.028	5.170	5.306	5.306	Continuing	Continuing
DW6: *MAJOR RANGE AND TEST FACILITY BASE (MRTFB)*	-	51.914	53.270	56.166	-	56.166	52.431	53.031	52.704	52.720	Continuing	Continuing
LS6: *LABORATORY SUPPORT*	-	2.000	0.742	12.132	-	12.132	12.290	12.436	12.657	12.894	Continuing	Continuing
MS6: *RDT&E MGT SUPPORT*	-	29.516	27.019	28.799	-	28.799	34.345	34.829	35.230	35.464	Continuing	Continuing
O49: *JOINT CONCEPT DEVELOPMENT AND EXPERIMENTATION PROGRAM*	-	1.408	3.591	3.979	-	3.979	4.378	3.977	4.059	4.059	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

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).

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 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 2015 Chemical and Biological Defense Program	**Date:** March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** 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 (PAIO); 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 2015 Chemical and Biological Defense Program	**Date:** March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*

B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	92.849	92.046	97.668	-	97.668
Current President's Budget	89.100	89.346	105.944	-	105.944
Total Adjustments	-3.749	-2.700	8.276	-	8.276
• Congressional General Reductions	-0.123	-			
• Congressional Directed Reductions	-7.755	-2.700			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	5.359	-			
• SBIR/STTR Transfer	-1.230	-			
• Other Adjustments	-	-	8.276	-	8.276

Change Summary Explanation

Funding: FY13: Reductions of $7.8M delayed T&E execution and weakened Dugway Proving Grounds capability to provide realistic threat representation/ replication, dissemination, and assessment. Reduced support to early test involvement and T&E standards development across the Interagency and Internationally.

FY14: Reductions of $2.7M impact Dugway Proving Ground T&E execution potentially increasing program test costs and timelines.

FY15: Increases of $8.3M ensure sustainment and modernization of core chemical biological defense infrastructure, specifically for modernization efforts at the Edgewood Chemical Biological Center. These additional resources ensure key systems are upgraded to the current state-of-the-art capabilities necessary for surety operations to be conducted effectively and safely.

Schedule: N/A

Technical: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	**Project (Number/Name)** DT6 / *JOINT DOCTRINE AND TRAINING SUPPORT (RDT&E MGT SUPPORT)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
DT6: *JOINT DOCTRINE AND TRAINING SUPPORT (RDT&E MGT SUPPORT)*	-	4.262	4.724	4.868	-	4.868	5.028	5.170	5.306	5.306	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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) and development/revision of 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 and; (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 2013	FY 2014	FY 2015
Title: 1) JRO DT	4.262	4.724	4.868
Description: The purpose of this requirement is to provide technical and subject matter expert (SME) support in the areas of: related CBRN Defense/Countering Weapons of Mass Destruction (CWMD); Joint and Multi-Service doctrine development; Joint and Service training, leadership development, education, and exercises. Specifically, support is needed to: 1. Conduct technical reviews of Joint and Multi-service CBRN Defense/CWMD doctrinal materials and develop CBRN defense/ CWMD related MTTP manuals. 2. Plan and conduct CBRN defense/CWMD Joint Professional Military Education (JPME). 3. Provide CBRN defense/CWMD planning, execution and SME support to Combatant Command (CCMD) and Joint Task Force (JTF) level exercises. 4. Conduct staff and leader CBRN defense/CWMD training for CCMD and JTF level commands.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	**Project (Number/Name)** DT6 / *JOINT DOCTRINE AND TRAINING SUPPORT (RDT&E MGT SUPPORT)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Provides support to the National Defense University (NDU) Center for the Study of Weapons of Mass Destruction (WMD) to support their efforts as the Chairman's focal point for CWMD JPME. ***FY 2013 Accomplishments:*** Supported revisions of Joint Publications (JP) 3-27, 3-28 and 3-29. JP 3-11 is currently in the development process and anticipate completion during FY14. Initiated JP 3-40 revision. Revised many MTTPs for Military CBRN Hazards and CBRN Passive Defense. Supported JPME and training at: the Eisenhower School, Army, Navy, Marine Corps, Air Force, and National War Colleges; Joint Special Operations University; Army Command & General Staff School; Air Force & Marine Corps Command & General Staff Colleges; Joint & Combined Warfighting Schools; Military Police (MP) school; CBRN school; Engineers (Eng) Captain's Career Course (CCC); Reserve CCC; Joint Forces Staff College; and the United States Air Force (USAF) Counter Proliferation Center. Provided support to Exercises Ardent Sentry, Vigilant Shield, Able Response, Talisman Saber, Ulchi Freedom Guardian, Key Resolve, Regional Cooperation, Special Operations Command (SOCOM) CBRN Table Top Exercise (TTX), Vibrant Response, Global Thunder and Sudden Response. ***FY 2014 Plans:*** Will continue to provide support to Joint and Multi-service doctrine development. Doctrine work will include: completion of JP 3-11 and JP 3-40; MTTPs for Military CBRN Hazards; and MTTPs for CBRN Passive Defense. Will begin work on MTTP manual for the Treatment of Chemical Agent Casualties and Conventional Injuries. Will continue to provide support in the areas of: scenario development; and controller/evaluator training. Will provide SMEs to annual exercises such as Ardent Sentry, Vigilant Shield, Able Response, Talisman Saber, Ulchi Freedom Guardian, Key Resolve, Regional Cooperation, SOCOM CBRN TTX, Vibrant Response, Global Thunder, and Sudden Response. Will continue to support JPME and other training efforts at: the Eisenhower School; Army, Navy, Marine Corps, and Air Force War Colleges; National War Colleges; Joint Special Operations University; Army Command & General Staff School; Air Force & Marine Corps Command & General Staff Colleges; Joint & Combined Warfighting Schools; MP School; CBRN School; Eng CCC; Reserve CCC; Joint Forces Staff College; and the USAF Counter Proliferation Center. ***FY 2015 Plans:*** Will continue to provide support in the areas related to: CBRN defense; CWMD; Joint and Multi-Service doctrine development; Joint and Service training; leadership development and education; and exercises.			
Accomplishments/Planned Programs Subtotals	4.262	4.724	4.868

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	**Project (Number/Name)** DT6 / *JOINT DOCTRINE AND TRAINING SUPPORT (RDT&E MGT SUPPORT)*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	**Project (Number/Name)** DW6 / *MAJOR RANGE AND TEST FACILITY BASE (MRTFB)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
DW6: *MAJOR RANGE AND TEST FACILITY BASE (MRTFB)*	-	51.914	53.270	56.166	-	56.166	52.431	53.031	52.704	52.720	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Project provides the technical and operational 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). Project provides overhead (institutional) funding required to operate WDTC in compliance with Section 232 of the National Defense Authorization Act (NDAA) for FY03 (Public Law 107-314 - December 2002).

WDTC 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 (BSL) 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 maintaining safety, security, and surety of 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 to ensure reliable and repeatable data is generated to support acquisition decisions of CB defense equipment.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) WDTC, MRTFB	32.483	35.486	36.327
FY 2013 Accomplishments: Maintained WDTC technical test capability and operations to include institutional civilian labor costs. 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 and MRTFB operating costs required to support operations, which cannot be directly tied to a single test customer.			
FY 2014 Plans: Maintains WDTC technical test capability and operations to include institutional civilian labor costs. These civilian personnel ensure the safe and efficient operations of the MRTFB and include safety, security, resource management, surety operations,			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	**Project (Number/Name)** DW6 / *MAJOR RANGE AND TEST FACILITY BASE (MRTFB)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
range control, environmental oversight, workload management, and training. This represents the civilian labor and MRTFB operating costs required to support operations, which cannot be directly tied to a single test customer. ***FY 2015 Plans:*** Maintains WDTC technical test capability and operations to include institutional civilian labor costs. 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 and MRTFB operating costs required to support operations, which cannot be directly tied to a single test customer.			
Title: 2) WDTC, MRTFB ***FY 2013 Accomplishments:*** Provided for ongoing sustainment of existing test instrumentation and equipment at WDTC, in support of their operations. Supports annual service contracts for equipment operation, diagnostics, and calibration, as well as routine life-cycle and use-related replacement of existing field, administrative, and analytical instrumentation components and systems. ***FY 2014 Plans:*** Provides for ongoing sustainment of existing test instrumentation and equipment at WDTC, in support of their operations. Supports annual service contracts for equipment operation, diagnostics, and calibration, as well as routine life-cycle and use-related replacement of existing field, administrative, and analytical instrumentation components and systems. ***FY 2015 Plans:*** Provides for ongoing sustainment of existing test instrumentation and equipment at WDTC, 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.	5.477	9.925	12.125
Title: 3) WDTC, MRTFB ***FY 2013 Accomplishments:*** Provided WDTC with a dedicated and specially trained, 24-hour, support staff who operate and maintain all critical control systems, such as highly complex heating, ventilation, and air conditioning (HVAC) system, and decontamination systems within WDTC's Materiel Test Facility (MTF), Combined Chemical Test Facility (CCTF), and the Life Science Test Facility (LSTF) Complex. ***FY 2014 Plans:*** 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 MTF, CCTF, LSTF Complex. ***FY 2015 Plans:***	2.137	2.300	2.341

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	**Project (Number/Name)** DW6 / *MAJOR RANGE AND TEST FACILITY BASE (MRTFB)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
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 MTF, CCTF, LSTF Complex.			
Title: 4) WDTC, MRTFB ***FY 2013 Accomplishments:*** Supported 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. ***FY 2014 Plans:*** 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. ***FY 2015 Plans:*** 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.	4.587	4.799	4.386
Title: 5) NTA TEST ***FY 2013 Accomplishments:*** Provided initial phase of upgrade of current test capabilities to establish a Non-Traditional Agent (NTA) Developmental and Operational Test capability at WDTC, including tests to correlate agents to simulants performance, leveraging Science & Technology (S&T) for initial set of NTAs. Includes continued 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. ***FY 2014 Plans:*** Continues to maintain current synthesis capability (personnel expertise and existing instrumentation) and analytical processes and methods developed through FY13. Limited technology transfers between DPG and Edgewood Chemical Biological Center (ECBC). This capability is critical to facilitate successful transition between S&T and Test and Evaluation (T&E) for NTA and evolving threats. ***FY 2015 Plans:*** Continues to maintain synthesis capability (personnel expertise and existing instrumentation) and analytical processes and methods developed through FY13. Limited technology transfers between DPG and ECBC. This capability is critical to facilitate successful transition between S&T and T&E for NTA and evolving threats.	7.230	0.760	0.987
Accomplishments/Planned Programs Subtotals	51.914	53.270	56.166

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	**Project (Number/Name)** DW6 / *MAJOR RANGE AND TEST FACILITY BASE (MRTFB)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program			Date: March 2014
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	Project (Number/Name) LS6 / *LABORATORY SUPPORT*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
LS6: *LABORATORY SUPPORT*	-	2.000	0.742	12.132	-	12.132	12.290	12.436	12.657	12.894	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This project (LS6) provides for the sustainment and modernization 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, fume hoods and duct work 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 2013	FY 2014	FY 2015
Title: 1) LABINF - Edgewood Chemical Biological Center Surety Facility Sustainment ***FY 2013 Accomplishments:*** Performed general facility sustainment in key surety facilities. Includes general safety, structural, exterior, interior, and utility sustainment. ***FY 2014 Plans:*** Performing general facility sustainment in key surety facilities. Includes general safety, structural, exterior, interior, and utility sustainment. ***FY 2015 Plans:*** Perform general facility sustainment and modernization in key surety facilities that support the Chemical Biological Defense Program (CBDP).	1.000	0.742	12.132
Title: 2) LABINF - Facility Operations, Sustainment, and Regulatory Compliance ***FY 2013 Accomplishments:*** Provided 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	1.000	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	**Project (Number/Name)** LS6 / *LABORATORY SUPPORT*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
surety costs; occupational health issues; maintenance of the vivarium; and maintenance of the neat (chemical) agent facility for medical countermeasure development.			
Accomplishments/Planned Programs Subtotals	2.000	0.742	12.132

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program												Date: March 2014
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*				Project (Number/Name) MS6 / *RDT&E MGT SUPPORT*			
COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
MS6: *RDT&E MGT SUPPORT*	-	29.516	27.019	28.799	-	28.799	34.345	34.829	35.230	35.464	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This project provides management support for the DoD CBDP. It includes program oversight and integration of overall non-CBRN Defense Equipment (non-CDE) and CBRN Defense Equipment (CDE) 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 (COCOMs) and Services to improve CBRN defense related doctrine, education, training, and awareness by the Joint Requirements Office (JRO); preparation of Joint Capability Integration and Development System (JCIDS) documents in accordance with Chairman of The Joint Chiefs of Staff Instruction CJCSI 3170.01H dated 10 January 2012; Joint CBRN Defense Research, Development, and Acquisition (RDA) planning; input to the CBD Annual Report to Congress; and program guidance development by the Program Analysis and Integration Office (PAIO).

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 to include fund distribution, execution reporting, and fiscal financial statements.

This project also supports the Chemical, Biological, Radiological and Nuclear Defense (CBRND) 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 CBRND systems, as outlined in the RDA Plan. The CBRND T&E Executive oversees the Enterprise processes to develop and sustain standardized T&E methodologies and validated instrumentation and infrastructure to ensure the adequacy of test for CBRND systems in alignment with acquisition milestones 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 CBRN Defense testing for all Services to include medical T&E efforts.

The CBRND 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 CBRND 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 CBRND T&E Executive oversees the T&E processes to include fielded equipment assessments to ensure end to end feedback loops to support to the Warfighter.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	**Project (Number/Name)** MS6 / *RDT&E MGT SUPPORT*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) JRO MGT	8.755	9.363	9.550

FY 2013 Accomplishments:
Implemented CBRN Defense medical and non-medical capabilities development. This consisted of representing the Services and COCOMs in JCIDS by acting as their proponent for coordinating and integrating CBRND operational capabilities. Reviewed and updated the CBRND Modernization Plan and the CBRND Joint Priority List. Chaired and operated the Countering Weapons of Mass Destruction (CWMD) Working Group for the Protection Functional Control Board (FCB). Served as the Joint Staff focal point for CBRN Survivability and the Joint Staff principal to the Biodefense Policy Coordinating Committee, Homeland Security Council. Updated CB Defense Modernization Plan. Coordinated Defense Department CBDP Annual Report to Congress. Coordinated Capabilities Gap Assessment actions. Coordinated Counter-proliferation Program Review Committee. Participated in multi-national agreements with international organizations such as NATO. Produced operational architecture for systems in development and maintained over-arching CBRND operational architecture. Monitored and abetted Advanced Technology Demonstrations (ATDs) and Joint Concept Technology Demonstrations (JCTDs). Developed Joint Staff positions on demonstration proposals. Led CBDP Enterprise Program Objective Memorandum (POM) development. Coordinated CWMD Working Group. Provided and coordinated liaison office support to Combatant Commands. Created the Radiological/Nuclear Integrated Concept Team (ICT) to support the expanding mission portfolio.

Initiated and completed Analysis of Alternatives (AoA) for Western Eastern Venezuelan Encephalitis Vaccine. Initiated: AoAs for Next Generation Chemical Detection (NGCD) and for Next Generation Diagnostics System (NGDS) Increment 2.

Initiated Capability Development Documents (CDDs) for: Hemorrhagic Fever Virus (HFV); Common Analytical Laboratory System (CALS); and NGDS Increment 1.

Initiated and completed Capability Production Document (CPD) for CBRN Uniform Integrated Protection Ensemble (UIPE) Increment 1. Initiated CPD for Botulinum Vaccine (VAC BOT).

FY 2014 Plans:
Will continue to implement CBRN Defense medical and non-medical capabilities development. This will consist of representing the Services and COCOMs in JCIDS by acting as their proponent for coordinating and integrating CBRND operational capabilities. Will review and update the CBRND Modernization Plan and the CBRND Joint Priority List. Will chair and operate the CWMD Working Group for the Protection FCB. Will serve as the Joint Staff focal point for CBRN Survivability and the Joint Staff principal to the Biodefense Policy Coordinating Committee, Homeland Security Council. Will coordinate the Defense Department CBDP Annual Report to Congress. Will coordinate Capabilities Gap Assessment actions. Will participate in multi-national agreements with international organizations such as NATO. Will produce operational architecture for systems in development and will maintain over-arching CBRND operational architecture. Will monitor and assist ATDs and JCTDs. Will develop Joint Staff

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	**Project (Number/Name)** MS6 / *RDT&E MGT SUPPORT*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
positions on demonstration proposals. Will lead the CBDP Enterprise Program Objective Memorandum (POM) development. Will provide and coordinate liaison office support to COCOMs. Will support the Radiological/Nuclear ICT. Will complete AoAs: for NGCD and NGDS Increment 2. Will initiate a CDD for Joint Biological Tactical Detection System (JBTDS). Will initiate and complete a CDD for Joint Effects Model (JEM) Increment 2. Will complete CDDs for HFV, NGDS Increment 1, and CALS. Will initiate and complete CPDs for Joint Service Aircrew Mask Fixed Wing (JSAM FW) and Joint Service Aircrew Mask Rotary Wing (JSAM RW). Will initiate CPDs for Plague Vaccine (VAC PLG)and NGDS Increment 1. ***FY 2015 Plans:*** Will continue to implement CBRN Defense medical and non-medical capabilities development. This will consist of representing the Services and COCOMs in JCIDS by acting as their proponent for coordinating and integrating CBRND operational capabilities. Will review and update the CBRND Modernization Plan and the CBRND Joint Priority List. Will chair and operate the CWMD Working Group for the Protection FCB. Will serve as the Joint Staff focal point for CBRN Survivability and the Joint Staff principal to the Biodefense Policy Coordinating Committee. Will coordinate the Defense Department CBDP Annual Report to Congress. Will coordinate Capabilities Gap Assessment actions. Will participate in multi-national agreements with international organizations such as NATO. Will produce operational architecture for systems in development and will maintain over-arching CBRND operational architecture. Will monitor and assist ATDs and JCTDs. Will develop Joint Staff positions on demonstration proposals. Will lead the CBDP Enterprise Program Objective Memorandum (POM) development. Will provide and coordinate liaison office support to COCOMs. Will support the Radiological/Nuclear ICT. Will complete CDD for JBTDS. Will complete CPD for VAC PLG.			
Title: 2) JTIWG ***FY 2013 Accomplishments:*** Continued 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; supported the DOT&E for OSD T&E Oversight; and supported 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. Continued direct support to the Joint Program Executive Office for Chemical Biological Radiological Nuclear Defense (JPEO-	5.019	5.967	6.152

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	**Project (Number/Name)** MS6 / *RDT&E MGT SUPPORT*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
CBRND) and the JRO IPTs and ICTs providing technical assistance to structure acquisition programs, plan for Analysis of Alternatives (AoAs) and develop test scopes. Continued 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 Detector (NGCD) and all detectors; Uniform Individual Protection Ensemble (UIPE); Dismounted Reconnaissance Sets, Kits, and Outfits (DR-SKO); Joint Expeditionary Collective Protection (JECP); Next Generation Diagnostic Systems (NGDS); Decontamination Decon Family of Systems (DFoS); 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 (TES), and participation in scientific review panels. Continue to provide guidance to improve the TES and TEMP for acquisition programs, threat support documentation, and validation of T&E Capabilities and associated standards. Continued to support OTAs in coordination of Lead OTA assignment, integration of test planning, issue resolution, and facilitation of OSD approval of test documents. Continued to lead the International T&E methodology development and standardization efforts to support the Australia, Canadian, UK, and US MOU. Provided T&E infrastructure input to the POM process and support JRO, PAIO, and OASD(NCB/CB) in development and defense of POM and Budget submissions. Supported tri-lateral international CBD Exercises.			
FY 2014 Plans: 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 Detector (NGCD) and all detectors; Uniform Individual Protection Ensemble (UIPE); Dismounted Reconnaissance Sets, Kits, and Outfits (DR-SKO); Joint Expeditionary Collective Protection (JECP); Next Generation Diagnostic Systems (NGDS); Decontamination Decon Family of Systems (DFoS); 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			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	**Project (Number/Name)** MS6 / *RDT&E MGT SUPPORT*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
needs, technology transition planning, approval of T&E Strategies (TES), and participation in scientific review panels. Continue to provide guidance to improve the TES and 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, 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, PAIO, and OASD(NCB/CB) in development and defense of POM and Budget submissions. Support tri-lateral international CBD Exercises. ***FY 2015 Plans:*** 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 Detector (NGCD) and all detectors; Uniform Individual Protection Ensemble (UIPE); Dismounted Reconnaissance Sets, Kits, and Outfits (DR-SKO); Joint Expeditionary Collective Protection (JECP); Next Generation Diagnostic Systems (NGDS); Decontamination Decon Family of Systems (DFoS); 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 (TES), and participation in scientific review panels. Continue to provide guidance to improve the TES and 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, 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, PAIO, and OASD(NCB/CB) in development and defense of POM and Budget submissions. Support tri-lateral international CBD Exercises.			
Title: 3) OSD MGT ***FY 2013 Accomplishments:***	10.154	5.871	6.674

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	**Project (Number/Name)** MS6 / *RDT&E MGT SUPPORT*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
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. ***FY 2014 Plans:*** 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. ***FY 2015 Plans:*** 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 ***FY 2013 Accomplishments:*** 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. ***FY 2014 Plans:*** 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. ***FY 2015 Plans:*** 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.	5.588	5.818	6.423
Accomplishments/Planned Programs Subtotals	29.516	27.019	28.799

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	**Project (Number/Name)** MS6 / *RDT&E MGT SUPPORT*

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program			Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	**Project (Number/Name)** O49 / *JOINT CONCEPT DEVELOPMENT AND EXPERIMENTATION PROGRAM*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
O49: *JOINT CONCEPT DEVELOPMENT AND EXPERIMENTATION PROGRAM*	-	1.408	3.591	3.979	-	3.979	4.378	3.977	4.059	4.059	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The objectives of the Joint Concept Development and Experimentation (JCDE) program are to support the Joint Requirements Office to develop, coordinate, and execute CBRND studies, experiments, analyses and architecture, in order to develop future operational concepts and support the efficient and effective generation of CBRN requirements.

Specific lines of effort across the Future Years Defense Program (FYDP) include: qualitatively characterizing emerging CBRN threats and operational risks to the Joint Force; conducting innovative approaches to deal with technical studies; analyzing Concepts of Operations for employing and developing capabilities; and analyzing specific issues that contribute to POM development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) JCDE ***FY 2013 Accomplishments:*** Continued JCDE analysis. Conducted Advanced Biological Threat Analysis. Conducted Forcible Entry Sea-based and Amphibious Operations Module 1 Experiment. ***FY 2014 Plans:*** Will continue JCDE analysis. Will continue to perform Advanced Threat Analysis. Will continue to perform Elimination and Forcible Entry Modules Experiments. Will conduct Biological Operational Risk Analysis. Will continue to provide concept-of-use experiments. ***FY 2015 Plans:*** Will continue JCDE analysis. Will continue to perform Advanced Threat Analysis. Will perform Unified Land Ops Experiments. Will continue Operational Risk Analysis. Will continue to provide concept-of-use experiments. Will establish architecture warehouse.	1.408	3.591	3.979
Accomplishments/Planned Programs Subtotals	1.408	3.591	3.979

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605384BP / *CHEMICAL/BIOLOGICAL DEFENSE (RDT&E MGT SUPPORT)*	**Project (Number/Name)** O49 / *JOINT CONCEPT DEVELOPMENT AND EXPERIMENTATION PROGRAM*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Chemical and Biological Defense Program	Date: March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605502BP / *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	-	14.662	-	-	-	-	-	-	-	-	-	14.662
SB6: *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)*	-	14.662	-	-	-	-	-	-	-	-	-	14.662

The FY 2015 OCO Request will be submitted at a later date.

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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	14.662	-	-	-	-
Total Adjustments	14.662	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	14.662	-			
• Other Adjustments	-	-	-	-	-

Change Summary Explanation

Funding: FY13 - Funding transferred and applied to SBIR program (+$14,662K).

Schedule: N/A

Technical: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program			Date: March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605502BP / *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)*	**Project (Number/Name)** SB6 / *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
SB6: *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)*	-	14.662	-	-	-	-	-	-	-	-	-	14.662
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The SBIR Program is a Congressionally mandated program established to increase the participation of small business in federal research and development (R&D). Currently, each participating government agency must reserve 2.5% of its extramural R&D for SBIR awards to competing small businesses. The goal of the SBIR Program is to invest in the innovative capabilities of the small business community to help meet government R&D objectives while allowing small companies to develop technologies and products which they can then commercialize through sales back to the government or in the private sector.

The Small Business Technology Transfer (STTR) Program like SBIR, is a Government-wide program, mandated by the Small Business Research and Development Enhancement Act of 1992, PL 102-564. STTR was established in FY94 as a three-year pilot program. In early 1996, the General Accounting Office (GAO) conducted a comprehensive review of the Government-wide STTR Program to determine the effectiveness of the pilot program. Upon review of the GAO report, Congress voted to reauthorize the STTR Program to the year 2000, consistent with the authorization period for the SBIR Program.

STTR was established as a companion program to the SBIR Program and is executed in essentially the same manner; however, there are several distinct differences. The STTR Program provides a mechanism for participation by university, Federally-Funded Research and Development Centers (FFRDCs), and other non-profit research institutions. Specifically, the STTR Program is designed to provide an incentive for small companies and research at academic institutions and non-profit research and development institutions to work together to move emerging technical ideas from the laboratory to the marketplace to foster high-tech economic development and to advance U.S. economic competitiveness. Each STTR proposal must be submitted by a team which includes a small business (as the prime contractor for contracting purposes) and at least one research institution, which have entered into a Cooperative Research and Development Agreement for the purposes of the STTR effort. Furthermore, the project must be divided up such that the small business performs at least 40% of the work and the research institution(s) performs at least 30% of the work. The remainder of the work may be performed by either party or a third party. The budget is separate from the SBIR budget and is significantly smaller (0.15% of the extramural R&D budget vs. 2.5% for the SBIR Program).

The DoD has consolidated management and oversight of the CBDP into a single office within the OSD. The Army was designated as the Executive Agent for coordination and integration of the Chemical and Biological Defense (CBD) program. The executive agent for the SBIR/STTR portion of the program is the Army Research Office-Washington.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605502BP / *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)*	**Project (Number/Name)** SB6 / *SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)*

The overall objective of the CBD SBIR/STTR program is to improve the transition or transfer of innovative CBD technologies between DoD components and the private sector for mutual benefit. The CBD program includes those technology efforts that maximize a strong defensive posture in a biological or chemical environment using passive and active means as deterrents. These technologies include chemical and biological detection; information assessment, which includes identification, modeling, and intelligence; contamination avoidance; and protection of both individual soldiers and equipment.

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015**
Title: 1) SBIR ***FY 2013 Accomplishments:*** Small Business Innovative Research	14.662	-	-
Accomplishments/Planned Programs Subtotals	14.662	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Chemical and Biological Defense Program	Date: March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	-	13.810	13.026	28.496	-	28.496	35.738	35.400	33.956	46.677	Continuing	Continuing
CA7: *CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV*	-	-	-	0.500	-	0.500	5.000	5.000	5.000	10.000	Continuing	Continuing
CM7: *HOMELAND DEFENSE (OP SYS DEV)*	-	-	1.819	2.006	-	2.006	1.981	1.981	1.981	1.981	Continuing	Continuing
IP7: *INDIVIDUAL PROTECTION (OP SYS DEV)*	-	-	0.500	2.501	-	2.501	1.490	1.490	1.490	1.800	Continuing	Continuing
IS7: *INFORMATION SYSTEMS (OP SYS DEV)*	-	9.590	6.518	4.091	-	4.091	7.835	11.995	13.034	11.019	Continuing	Continuing
MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*	-	0.490	0.499	13.414	-	13.414	14.551	9.816	7.277	16.496	Continuing	Continuing
TE7: *TEST & EVALUATION (OP SYS DEV)*	-	3.730	3.690	5.984	-	5.984	4.881	5.118	5.174	5.381	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

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 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).

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Chemical and Biological Defense Program	Date: March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	14.745	13.026	28.553	-	28.553
Current President's Budget	13.810	13.026	28.496	-	28.496
Total Adjustments	-0.935	-	-0.057	-	-0.057
• Congressional General Reductions	-0.020	-			
• Congressional Directed Reductions	-1.235	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.518	-			
• SBIR/STTR Transfer	-0.198	-			
• Other Adjustments	-	-	-0.057	-	-0.057

Change Summary Explanation

Funding: FY13: Reductions of $1.2M slowed modernization efforts for JEM and JWARN and reduced funds to upgrade T&E at Dugway Proving Ground.

Schedule: N/A

Technical: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program			Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CA7 / *CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
CA7: *CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV*	-	-	-	0.500	-	0.500	5.000	5.000	5.000	10.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This project provides the technology upgrade and refresh effort for the Chemical Biological Radiological Nuclear Dismounted Reconnaissance Systems (CBRN DRS) with emerging technologies and capabilities which will address and mitigate equipment obsolescence.

The CBRN Dismounted Reconnaissance Systems (CBRN DRS) consists of portable, commercial and government off-the-shelf equipment which provides personnel protection from current and emerging CBRN hazards through detection, identification, sample collection, decontamination, marking, and hazard reporting for CBRN threats. The system supports Dismounted Reconnaissance, Surveillance, and CBRN Site Assessment missions which enables more detailed and near real-time CBRN information flow for the Warfighter. The program will address emerging CBRN threat requirements in order to provide an enhanced capability for the future.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) CBRN DRS ***FY 2015 Plans:*** Initiate market analyses on emerging technologies for potential upgrades to the system. Initiate obsolescence management activities for existing fielded components. Conduct initial testing of potential candidates.	-	-	0.500
Accomplishments/Planned Programs Subtotals	-	-	0.500

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

CBRN DISMOUNTED RECONNAISSANCE SYSTEMS

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CA7 / *CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV*

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. This strategy employs an NDI acquisition concept to establish a simplified management framework to translate mission needs and emerging technology capabilities into a stable, affordable, and well-managed acquisition program.

E. Performance Metrics

N/A

Exhibit R-4, **RDT&E Schedule Profile:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CA7 / *CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV*

	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	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
** CBRN DRS - Development and testing of components to replace obsolete items and insert new technologies																												

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CA7 / *CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** CBRN DRS - Development and testing of components to replace obsolete items and insert new technologies	2	2015	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program												Date: March 2014
Appropriation/Budget Activity 0400 / 7					**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*				**Project (Number/Name)** CM7 / *HOMELAND DEFENSE (OP SYS DEV)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
CM7: *HOMELAND DEFENSE (OP SYS DEV)*	-	-	1.819	2.006	-	2.006	1.981	1.981	1.981	1.981	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The Weapons of Mass Destruction Civil Support Team (WMD CST) Program supports the fielded system upgrade and ongoing assessment and acquisition of commercial off-the-shelf (COTS) and government off-the-shelf (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 2013	FY 2014	FY 2015
Title: 1) WMD CST - System Engineering and Program Management ***Description:*** System engineering and technical control, as well as the business management of the system/program. ***FY 2014 Plans:*** Provided System Engineering, technical control, and business management support of the COTS Life Cycle Management Program. ***FY 2015 Plans:*** Provides 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).	-	0.691	0.733
Title: 2) WMD CST - Component Test and Evaluation ***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. ***FY 2014 Plans:*** Conducted test and evaluation of CBRN COTS technology as part of the modernization strategy. ***FY 2015 Plans:***	-	1.128	1.273

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CM7 / *HOMELAND DEFENSE (OP SYS DEV)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Provides 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.			
Accomplishments/Planned Programs Subtotals	-	1.819	2.006

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

WMD - CIVIL SUPPORT TEAMS (WMD CST)

The Weapons of Mass Destruction Civil Support Team Program (WMD-CST) is a COTS based program that supports the ongoing system engineering assessment, validation, and modernization of both CBRN COTS and GOTS analytical detection, protection, decontamination and sampling capabilities fielded to the (57) WMD CST Teams in order to optimize/enhance their operational capabilities.

E. Performance Metrics

N/A

Exhibit R-4, **RDT&E Schedule Profile:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CM7 / *HOMELAND DEFENSE (OP SYS DEV)*

	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	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
** WMD CST - Upgrade Fielded Systems																												

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CM7 / *HOMELAND DEFENSE (OP SYS DEV)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** WMD CST - Upgrade Fielded Systems	2	2014	2	2019

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IP7 / *INDIVIDUAL PROTECTION (OP SYS DEV)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
IP7: *INDIVIDUAL PROTECTION (OP SYS DEV)*	-	-	0.500	2.501	-	2.501	1.490	1.490	1.490	1.800	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This Project provides for filter modernization and enhancements against Toxic Industrial Chemicals (TICs), Toxic Industrial Materials (TIMs) and Non-Traditional Agents (NTAs). These upgrades will be provided for fielded Protection systems including Joint Service General Purpose Mask (JSGPM) and Joint Service Aircrew Mask (JSAM) to enhance respiratory and ocular protection.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) JSGPM ***FY 2014 Plans:*** Conduct developmental filter enhancement efforts for integration into JSGPM filters to increase protection against TICs, TIMs and NTAs. ***FY 2015 Plans:*** Build final prototypes for product qualification.	-	0.500	2.501
Accomplishments/Planned Programs Subtotals	-	0.500	2.501

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• JI0003: *JOINT SERVICE GENERAL PURPOSE MASK (JSGPM)*	51.199	85.343	61.131	-	61.131	54.146	59.340	49.026	-	-	360.185

Remarks

D. Acquisition Strategy

JS GENERAL PURPOSE MASK (JSGPM)

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IP7 / *INDIVIDUAL PROTECTION (OP SYS DEV)*

The JSGPM ARPI effort is using the M61 filter contracts awarded to 3M and Avon to develop improved filters for the JSGPM. There is a continual technology refreshment CLIN that allows for filter development tasks to be awarded under this contract. The tasks can be competed between the two awardees.

E. Performance Metrics

N/A

Exhibit R-4, **RDT&E Schedule Profile:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IP7 / *INDIVIDUAL PROTECTION (OP SYS DEV)*

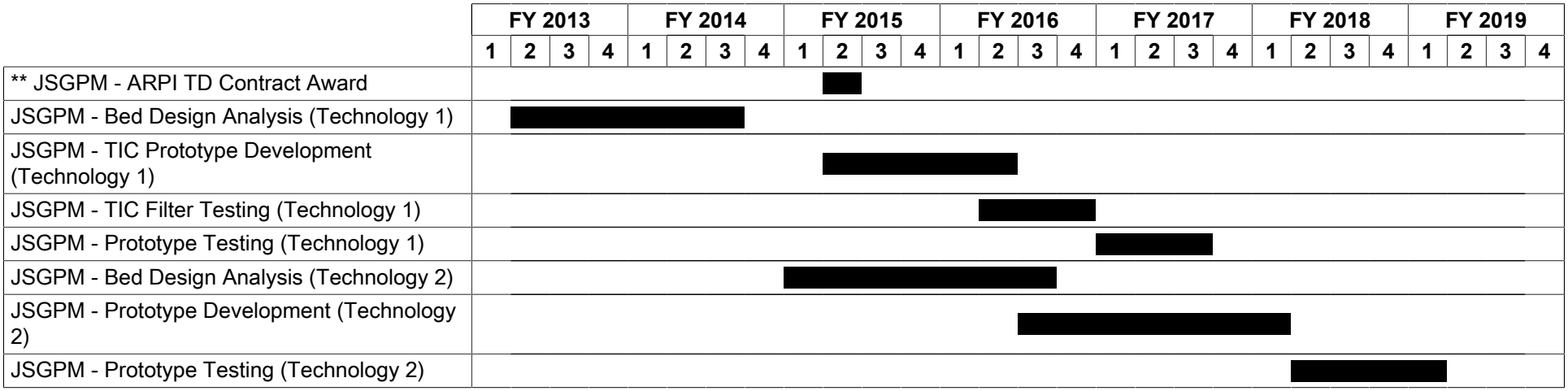

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IP7 / *INDIVIDUAL PROTECTION (OP SYS DEV)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** JSGPM - ARPI TD Contract Award	2	2015	2	2015
JSGPM - Bed Design Analysis (Technology 1)	2	2013	3	2014
JSGPM - TIC Prototype Development (Technology 1)	2	2015	2	2016
JSGPM - TIC Filter Testing (Technology 1)	2	2016	4	2016
JSGPM - Prototype Testing (Technology 1)	1	2017	3	2017
JSGPM - Bed Design Analysis (Technology 2)	1	2015	3	2016
JSGPM - Prototype Development (Technology 2)	3	2016	1	2018
JSGPM - Prototype Testing (Technology 2)	2	2018	1	2019

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program												Date: March 2014
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*				Project (Number/Name) IS7 / *INFORMATION SYSTEMS (OP SYS DEV)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
IS7: *INFORMATION SYSTEMS (OP SYS DEV)*	-	9.590	6.518	4.091	-	4.091	7.835	11.995	13.034	11.019	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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). This project also provides for the Software Support Activity (SSA).

Efforts included in this project are: (1) Joint Effects Model (JEM) IT Box; (2) the Joint Warning and Reporting Network (JWARN) IT Box; and (3) Software Support Activity (SSA).

JEM and JWARN will utilize the Joint Capabilities Integration and Development System (JCIDS) Manual prescribed Agile Information Technology Box "IT Box" construct for managing requirements for the follow-on increments of capability development. Use of the "IT Box" acquisition approach increases flexibility and will expedite fielding of Information System products through a series of Build Decisions (BDs) versus less frequent traditional DoD Milestone B and C decisions. Each program will use an Information Systems Initial Capabilities Document (IS ICD) to describe the required operational capabilities for the development effort. JEM's IS ICD was approved by the Joint Staff J8 Joint Requirements Office for Chemical, Biological, Radiological and Nuclear Defense (JRO-CBRND) in September 2013 and JWARN's IS ICD will be reviewed for approval in 2QFY14. After the IS ICD is approved, more detailed requirements will be captured in Requirements Definition Packages (RDP) and will be approved at the Functional Capability Board (FCB) level. In order to support an agile incremental approach, each program will ensure that the "IT Box" describes the entire IT program and not just a single increment. The supporting BDs will ensure incorporation of mature technology and development efforts culminating in incremental deliveries of capability to Joint and Service Command and Control (C2) architectures. These limited fielding efforts are based on providing capabilities with the most value to the operators based on Warfighter priorities/needs, maturation of the technology being incorporated and available resources supporting the effort. As software-intensive systems both JEM and JWARN have no separately identifiable unit production components. Both are designated ACAT III programs and unit cost calculations including Program Acquisition Unit Cost/Average Procurement Unit Cost (PAUC/APUC) and Operations and Sustainment (O&S) average annual per unit costs are not applicable.

The Joint Effects Model (JEM) is the DoD's only accredited model that has been operationally tested and deemed effective for predicting hazards associated with the release of contaminants into the environment. JEM is a software-only, ACAT III program that was originally developed as an increment 1 and is continuing development using the agile "IT Box" process described above. JEM is currently 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 Non-Traditional Agent (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. JEM IT Box adds capability to JEM Increment 1 including modeling of missile intercepts and improved modeling of hazard events in urban and littoral terrain. The IT Box version of JEM also includes improved architecture called Common CBRN Modeling Interface (CCMI). Together, CCMI and IT Box enable more rapid and less costly integration of Science and Technology updates, aligning with the S&T provider to provide the most current capability to the warfighter.

JEM Increment 2, using IT Box Acquisition Strategy, adds capability to JEM Increment 1 including modeling of missile intercepts and improved modeling of hazard events in urban and littoral terrain. It also includes improved architecture called Common CBRN Modeling Interface (CCMI). Together, CCMI and IT Box enable more rapid and less costly integration of Science and Technology updates, aligning with the S&T provider to provide the most current capability to the warfighter. 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) provides the Joint Forces with a comprehensive Early Warning (EW) analysis and response capability to minimize the effects of hostile Chemical, Biological, Radiological, and Nuclear (CBRN) attacks, incidents and accidents. It provides the operational capability to employ CBRN warning technology which will collect, analyze, identify, locate, report, and disseminate CBRN warnings. JWARN will transition from a Command and Control (C2) platform specific implementation to a Web-based Service Oriented Architecture (SOA) meeting the DoD's evolution to a more comprehensive Common Operating Environment (COE). JWARN Increment 2 will provide an expansion of sensors that will connect to JWARN, increased automation of message handling, improved false alarm filtering, integration of route-planning calculator, and interoperability with additional Command and Control (C2), medical information and evolving Bio-Surveillance 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 to improve the efficiency of limited CBRN personnel assets. This employment will transfer data automatically from existing sensors and to and from the future sensors to provide commanders with the capability to support operational decision making in a CBRN environment. JWARN will 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. JWARN will be compatible and integrated with Joint Services Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Systems and will operate as a standalone capability in the next increment of development. Activities include: logistical elements, support equipment, manuals and training required to operate and support the system.

The Software Support Activity (SSA) is a Chem-Bio Defense user developmental support and service organization to facilitate net-centric interoperability of systems in acquisition for the Warfighter. The SSA provides the CBRN Warfighter with Joint Service solutions for Integrated Architectures, Data Management/Modeling, Information Assurance (IA), Interoperability Certifications, Verification, Validation and Accreditation (VV&A) to support interoperable and integrated net-centric, service-oriented solutions for CBRN systems. The SSA emphasizes development of reference implementations to guide Government and industry system and software developers to ensure that their products meet common interoperability standards. The latest technologies/products include the definition of a Common CBRN Sensor Integration Standard (CCSI) and the CBRN Data Model. These technologies and direct enablers for the development of CBRN integrated sensor networks and the dissemination

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *INFORMATION SYSTEMS (OP SYS DEV)*

of CBRN information across all users. The SSA directly supports Chemical and Biological Defense Program (CBDP) initiatives by providing common service oriented architectures and frameworks for the collection and dissemination of Bio-Surveillance and other critical CBRN information.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) JEM Command and Control (C2) Modernization Efforts ***FY 2013 Accomplishments:*** Upgraded fielded JEM software due to changing Army, Navy, Air Force, Marine Corps, SOCOM, and National Guard C2 host architectures, systems, and standards in order to maintain interoperability and avert cyber threats and vulnerabilities to host C2 systems, interoperable platforms. Performed test and evaluation of updated JEM software baseline. ***FY 2014 Plans:*** Update fielded JEM software due to changing Army, Navy, Air Force, Marine Corps, SOCOM, and National Guard C2 host architectures, systems, and standards in order to maintain interoperability and avert cyber threats and vulnerabilities to host C2 systems. Perform test and evaluation of updated JEM software baseline. ***FY 2015 Plans:*** Continue to update field JEM software due to changing Army, Navy, Air Force, Marine Corps, SOCOM, and National Guard C2 host architectures, systems, and standards in order to maintain interoperability and avert cyber threats and vulnerabilities to host C2 systems. Perform test and evaluation of updated JEM software baseline.	0.730	0.646	0.322
Title: 2) JEM Pre-Planned Product Improvement (P3I) ***FY 2013 Accomplishments:*** Developed, tested, and integrated previously fielded JEM software with science and technology upgrades and model enhancements to improve JEM accuracy and precision. Improved JEM architecture and overall performance through software updates and deficiency resolution. ***FY 2014 Plans:*** 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. ***FY 2015 Plans:*** Continue 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.	1.130	1.151	1.069
Title: 3) JWARN System Modernization/Update Development ***FY 2013 Accomplishments:***	3.688	2.321	0.914

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *INFORMATION SYSTEMS (OP SYS DEV)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Conducted engineering and manufacturing development to upgrade existing, operational JWARN Systems in order to maintain interoperability, efficiency and functionality within the targeted C2 systems while utilizing the IT BOX construct and Agile Software development processes. ***FY 2014 Plans:*** Conduct engineering and manufacturing development to upgrade existing, operational JWARN Systems in order to maintain interoperability, efficiency and functionality within the targeted C2 systems while utilizing the IT BOX construct and Agile Software development processes. ***FY 2015 Plans:*** Conduct engineering and manufacturing development to upgrade existing, operational JWARN Systems in order to maintain interoperability, efficiency and functionality within the targeted C2 systems while utilizing the IT BOX construct and Agile Software development processes.			
Title: 4) JWARN IT BOX Program Management Support ***FY 2013 Accomplishments:*** Conducted JWARN program financial management, scheduling, planning and reporting support to modernization effort under the IT BOX construct and Agile Software development processes. ***FY 2014 Plans:*** Conduct JWARN program financial management, scheduling, planning and reporting support to modernization effort under the IT BOX construct and Agile Software development processes. ***FY 2015 Plans:*** Continue JWARN program financial management, scheduling, planning and reporting support to modernization effort under the IT BOX construct and Agile Software development processes.	1.117	0.337	0.227
Title: 5) JWARN IT BOX Test & Evaluation (T&E) ***FY 2013 Accomplishments:*** Conducted required governmental developmental and operational testing on JWARN software updates and modernization efforts under the IT BOX construct and Agile Software testing processes. ***FY 2014 Plans:*** Conduct required governmental developmental and operational testing on JWARN software updates and modernization efforts under the IT BOX construct and Agile Software testing processes. ***FY 2015 Plans:***	1.051	0.507	0.227

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *INFORMATION SYSTEMS (OP SYS DEV)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Continue required governmental developmental and operational testing on JWARN software updates and modernization efforts under the IT BOX construct and Agile Software testing processes.			
Title: 6) JWARN IT BOX Technical Support ***FY 2013 Accomplishments:*** Conducted engineering and technical support for JWARN modernization efforts within the IT BOX construct and Agile Software development processes and integration of software within targeted C2 systems. ***FY 2014 Plans:*** Conduct engineering and technical support for JWARN modernization efforts efforts within the IT BOX construct and Agile Software development processes and integration of software within targeted C2 systems. ***FY 2015 Plans:*** Continue engineering and technical support for JWARN modernization efforts efforts within the IT BOX construct and Agile Software development processes and integration of software within targeted C2 systems.	0.809	0.337	0.113
Title: 7) SSA Policies, Standards and Guidelines ***FY 2013 Accomplishments:*** Provided ISP development support for JPEO-CBD programs and the Modeling and Simulation Accreditation Steering Group. ***FY 2014 Plans:*** Support programs in Interoperability and Supportability (I&S) certification, Information Support Plan (ISP), and Data and Service Exposure Verification and Registration. Register systems in the Army Portfolio Management Solution/Army Information Technology Registry (APMS/AITR). ***FY 2015 Plans:*** Continue to support programs in the Interoperability and Supportability (I&S) certification, Information Support Plan (ISP), and Data and Service Exposure Verification and Registration. Update existing programs and register new programs in the Army Portfolio Management Solution/Army Information Technology Registry (APMS/AITR).	0.213	0.252	0.266
Title: 8) SSA Integrated Architecture ***FY 2013 Accomplishments:*** Provided and updated program of record integrated architectures and provide Net-Centric Policy implementation assistance. Continued to support CCSI updates. Continued to provide CCSI reference implementation. Supported the enterprise tools and common capabilities to ensure relevance across CBRN programs. ***FY 2014 Plans:***	0.228	0.251	0.247

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *INFORMATION SYSTEMS (OP SYS DEV)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
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. ***FY 2015 Plans:*** Continue to 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.			
Title: 9) SSA Chemical, Biological, Radiological, Nuclear (CBRN) Data Model ***FY 2013 Accomplishments:*** Provided changes to CBRN data models. Supported data model requirements for CDBP Bio-surveillance initiatives. ***FY 2014 Plans:*** Assist programs achieve a mandated net-centric environment by providing enabling tools which include the CBRN Data Model and Data Dictionary, which define Common CBRN semantics and syntax and the CBRN Extensible Markup Language (XML) schemas that define reusable XML types for information exchange throughout the enterprise. ***FY 2015 Plans:*** Continue to assist programs achieve a mandated net-centric environment by providing enabling tools which include the CBRN Data Model and Data Dictionary, which define Common CBRN semantics and syntax and the CBRN Extensible Markup Language (XML) schemas that define reusable XML types for information exchange throughout the enterprise.	0.227	0.267	0.253
Title: 10) SSA Information Assurance ***FY 2013 Accomplishments:*** Provided Information Assurance Site Compliance Testing. Continued to provide Information Assurance Certification/Acceptance products and services. ***FY 2014 Plans:*** Maintain proper Information Assurance accreditation of any system within the CBDP portfolio throughout its life-cycle. This includes periodic re-accreditation of JPEO CBDP systems. ***FY 2015 Plans:*** Continue to maintain proper Information Assurance accreditation of any system within the CBDP portfolio throughout its life-cycle. This includes periodic re-accreditation of JPEO CBDP systems.	0.397	0.449	0.453
Accomplishments/Planned Programs Subtotals	9.590	6.518	4.091

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *INFORMATION SYSTEMS (OP SYS DEV)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

JOINT EFFECTS MODEL (JEM)

JEM Increment 2 acquisition will utilize the JROC's "IT Box" construct for software development. The intent is to provide the next generation of capability with current and future technologies, as stated in the IS ICD, in less time and away from an incremental delivery approach. This effort is being acquired through a Request for Proposal (RFP) to Industry under full and open competition. The program plans to award multiple development contracts in a competitive prototyping phase prior to downselecting a single JEM developer and integrator.

JOINT WARNING & REPORTING NETWORK (JWARN)

JWARN Increment 2 acquisition will utilize the JROC's "IT Box" construct for software requirements management and development. The intent is to provide the next generation of capability with current and future technologies, as stated in the IS ICD, in less time and away from an incremental delivery approach. This effort is being executed under a Cost-Plus-Award Term Incentive structure to gain maximum benefit to the Government in maintaining the fielded baseline and future software capability development and was awarded under a full and open competition Request for Proposal (RFP). The JWARN Program will procure a Sensor Connectivity Capability (SCC) (hardware materiel solution) in order to facilitate the transfer of CBRN sensor information from legacy CBRN sensors to DoD networks. This solution will be external to the CBRN Sensors and Service-identified network transmission device(s).

SOFTWARE SUPPORT ACTIVITY (SSA)

The SSA provides enterprise-wide services and coordination across all CBDP programs 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). Phase 1a identifies CBDP programs that deal with data or software, and have an IT component. This will be followed by coordination 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 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-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *INFORMATION SYSTEMS (OP SYS DEV)*

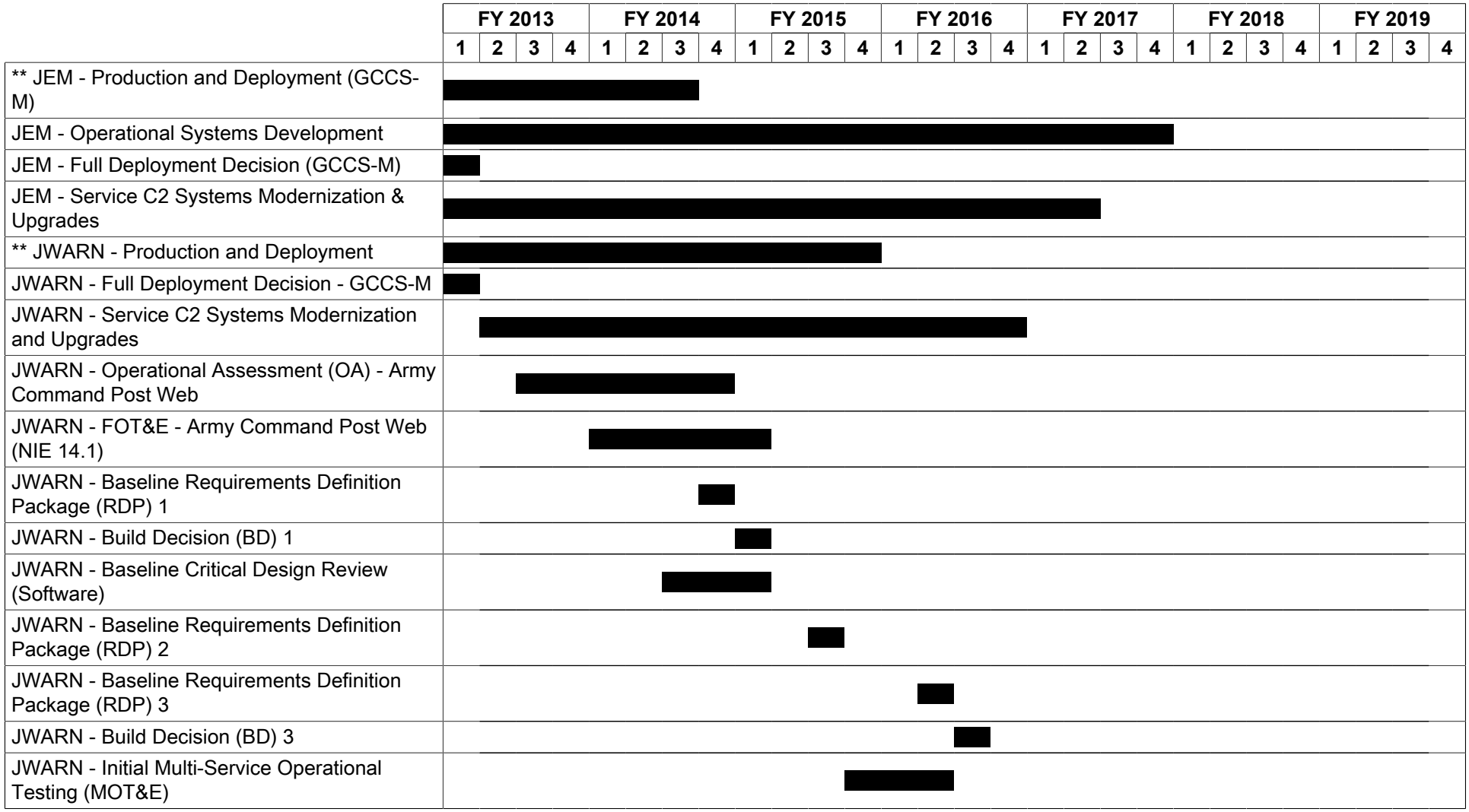

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *INFORMATION SYSTEMS (OP SYS DEV)*

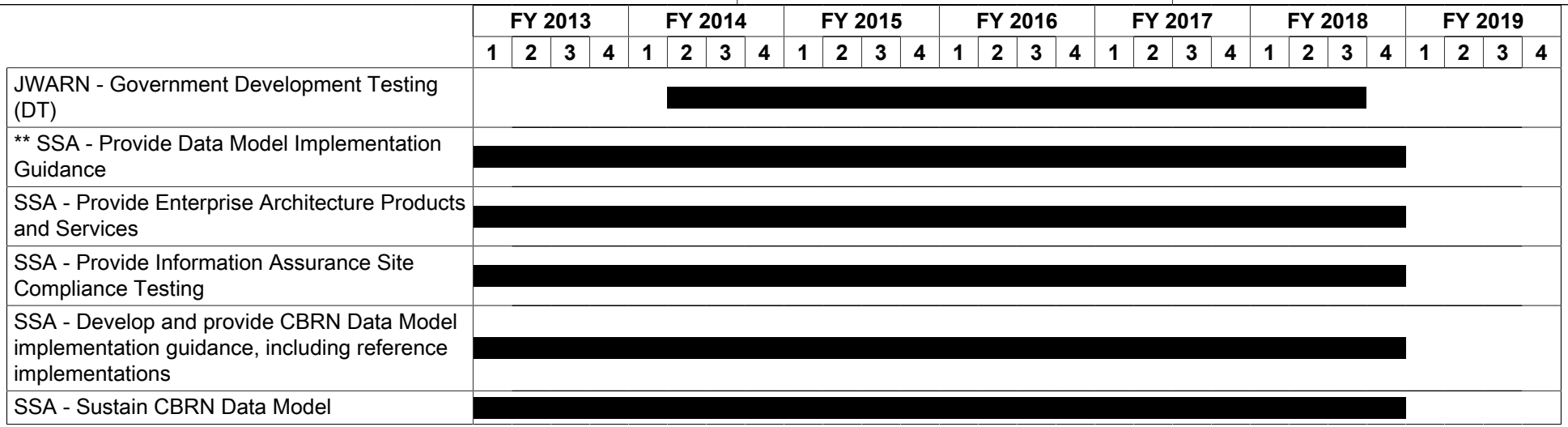

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *INFORMATION SYSTEMS (OP SYS DEV)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** JEM - Production and Deployment (GCCS-M)	1	2013	3	2014
JEM - Operational Systems Development	1	2013	4	2017
JEM - Full Deployment Decision (GCCS-M)	1	2013	1	2013
JEM - Service C2 Systems Modernization & Upgrades	1	2013	2	2017
** JWARN - Production and Deployment	1	2013	4	2015
JWARN - Full Deployment Decision - GCCS-M	1	2013	1	2013
JWARN - Service C2 Systems Modernization and Upgrades	2	2013	4	2016
JWARN - Operational Assessment (OA) - Army Command Post Web	3	2013	4	2014
JWARN - FOT&E - Army Command Post Web (NIE 14.1)	1	2014	1	2015
JWARN - Baseline Requirements Definition Package (RDP) 1	4	2014	4	2014
JWARN - Build Decision (BD) 1	1	2015	1	2015
JWARN - Baseline Critical Design Review (Software)	3	2014	1	2015
JWARN - Baseline Requirements Definition Package (RDP) 2	3	2015	3	2015
JWARN - Baseline Requirements Definition Package (RDP) 3	2	2016	2	2016
JWARN - Build Decision (BD) 3	3	2016	3	2016
JWARN - Initial Multi-Service Operational Testing (MOT&E)	4	2015	2	2016
JWARN - Government Development Testing (DT)	2	2014	3	2018
** SSA - Provide Data Model Implementation Guidance	1	2013	4	2018
SSA - Provide Enterprise Architecture Products and Services	1	2013	4	2018
SSA - Provide Information Assurance Site Compliance Testing	1	2013	4	2018
SSA - Develop and provide CBRN Data Model implementation guidance, including reference implementations	1	2013	4	2018

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *INFORMATION SYSTEMS (OP SYS DEV)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SSA - Sustain CBRN Data Model	1	2013	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program			Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MB7 / *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*	-	0.490	0.499	13.414	-	13.414	14.551	9.816	7.277	16.496	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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 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 bacterial and viral agents in environmental surveillance and clinical specimen 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, JBAIDS achieved full operational capability (340 systems delivered all Services) in July 2011. JBAIDS efforts in 2012-2015 will focus on adding surveillance food and water pathogen detection assays. Also, the development team will focus on completing Pre-Emergency Use Authorization (Pre-EUA's) packages annually for FDA review. The operational development RDT&E funds will be used to oversee the configuration management of the system to include the conduct of annual software security information assurance (IA) updates on fielded software and monitor analyzer/laptop parts obsolescence.

The NGDS is envisioned to be an evolutionary acquisition family of systems to provide increments of capability over time across many echelons of the Combat Health Support System. The mission of the NGDS is to provide CBRN warfare threat identification and FDA-cleared diagnostics to inform individual patient treatment, CBRN situational awareness, and disease surveillance. NGDS Increment 1 Deployable Component will significantly improve diagnostic capabilities for deployable combat health support units (role 3) while also improving operational suitability and affordability. The term "Role" is used to describe the stratification of the four tiers in which medical support is organized, on a progressive basis, to conduct treatment, evacuation, resupply, and functions essential to the maintenance of the health of the force. Role 3 support is normally provided at Division or Service equivalent level and includes specialist laboratory resources. The NGDS Increment 1 Deployable Component is intended to replace the legacy Joint Biological Agent Identification and Diagnostic System (JBAIDS) beginning in FY17. The NGDS Increment 1 Service Laboratory Component is intended to provide high throughput Biological threat identification, characterization and diagnostics to fixed site CONUS and OCONUS laboratories operated by the Army, Navy and Air Force in coordination with the Armed Forces Health Surveillance Center. NGDS Increment 2 is intended to provide advanced diagnostics for biological pathogens and toxins, diagnostics for chemical and radiological exposures and to provide capability to lower echelons of care.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1) Joint Biological Agent Identification and Diagnostic System (JBAIDS)	0.030	0.295	1.016
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MB7 / *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Conducted required Department of Defense Information Assurance Certification and Accreditation Process (DIACAP) and parts obsolescence. ***FY 2014 Plans:*** Conduct annual FISMA software compliance certifications, parts obsolescence studies. Continue and complete Defense Logistics Agency Electronic-cataloging (E-Cat), system-sustainment requirements, Contractor Logistics Support, and analyzer refurbishment. ***FY 2015 Plans:*** Conduct annual FISMA software compliance certifications, parts obsolescence, system-sustainment, and configuration management studies.			
Title: 2) JBAIDS ***FY 2013 Accomplishments:*** Continued submission of Pre-Emergency Use Authorizations (EUA) packages to the FDA. ***FY 2014 Plans:*** Continue submission of Pre-EUA packages to the FDA. ***FY 2015 Plans:*** Continue Pre-EUA package development and submission to the FDA.	0.037	0.204	0.550
Title: 3) JBAIDS ***FY 2013 Accomplishments:*** Initiated Defense Logistics Agency (DLA) Electronic-Cataloging (E-Cat).	0.100	-	-
Title: 4) JBAIDS ***FY 2013 Accomplishments:*** Initiated system-sustainment requirements, Contractor Logistics Support (CLS), and analyzer refurbishment. ***FY 2015 Plans:*** Initiate laptop and software operating system replacement.	0.323	-	1.700
Title: 5) NGDS - Increment 1 ***FY 2015 Plans:*** Continue FDA clearance of Plague, Tularemia and Q-Fever IVD assays	-	-	4.000
Title: 6) NGDS - Increment 1	-	-	1.500

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MB7 / *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
FY 2015 Plans: Initiate Assay optimization for pan-Burkholderia IVD panel and Alpha virus IVD panel.			
Title: 7) NGDS - Increment 1 ***FY 2015 Plans:*** Continue Development and Testing of 22 Environmental Assays.	-	-	4.648
Accomplishments/Planned Programs Subtotals	0.490	0.499	13.414

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

JOINT BIO AGENT IDENT AND DIAG SYSTEM (JBAIDS)

The original Equipment Manufacturer (OEM) was selected to design and manufacture additional surveillance assay kits to detect food and water pathogens, along with diagnostic kits to detect additional threat agents. The program plans 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 continues to partner with the US Army Medical Institute of Infectious Diseases (USAMRIID), other DoD and US Government laboratories to develop FDA Pre-Emergency Use Authorization (EUA) packages for biological warfare agents (BWA's) that could be used as biological warfare threats to DoD military forces.

NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)

The Next Generation Diagnostics System (NGDS) will develop and field a family of enhanced CBRN analytical and diagnostic systems to the Joint force through an evolutionary acquisition strategy. NGDS Increment 1 Deployable Component will develop FDA cleared Biological Warfare Agent (BWA) in vitro diagnostic (IVD) assays for an existing Commercial diagnostic device with a well established FDA regulatory history and a pipeline of commercial non-BWA infectious disease diagnostic tests. Additional DoD-unique BWA diagnostic and environmental surveillance capabilities will be added to the downselected instrument after MS C. BA4 funds are used for NGDS Incr 1 throughout the FY12-15 Technology Development phase in accordance with the streamlined MS A to MS C acquisition strategy. Specifically, NGDS Incr 1 BA4 funds are used to conduct competitive prototyping, early operational assessments, development of 6 BWA IVD assays (Anthrax, Ebola, Marburg, Plague, Tularemia and Q-Fever), 22 BWA surveillance assays and multiservice operational test prior to MS C.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MB7 / *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*

NGDS Increment 2 will use BA4 funds FY14-16 to conduct technology development prior to MS B. The acquisition strategy and capability to be developed will be determined by the results of the Analysis of Alternatives to be completed 2QFY14. NGDS Incr 2 is intended to be complementary to NGDS Incr 1 to expand the breath of diagnostics to CBRN threats, pre-symptomatic diagnostics and far forward echelons of care.

E. Performance Metrics

N/A

Exhibit R-4, **RDT&E Schedule Profile:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MB7 / *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*

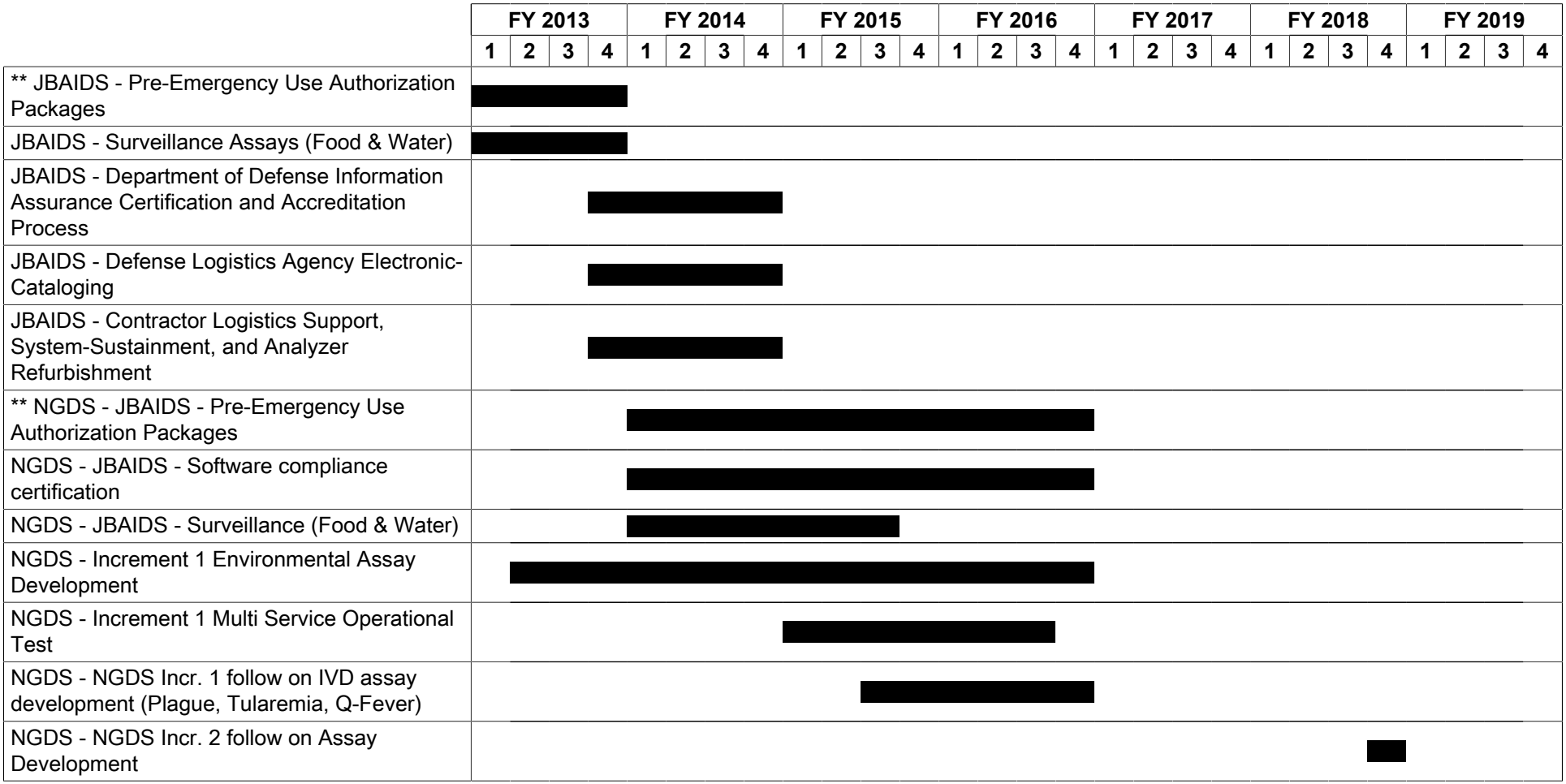

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MB7 / *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** JBAIDS - Pre-Emergency Use Authorization Packages	1	2013	4	2013
JBAIDS - Surveillance Assays (Food & Water)	1	2013	4	2013
JBAIDS - Department of Defense Information Assurance Certification and Accreditation Process	4	2013	4	2014
JBAIDS - Defense Logistics Agency Electronic-Cataloging	4	2013	4	2014
JBAIDS - Contractor Logistics Support, System-Sustainment, and Analyzer Refurbishment	4	2013	4	2014
** NGDS - JBAIDS - Pre-Emergency Use Authorization Packages	1	2014	4	2016
NGDS - JBAIDS - Software compliance certification	1	2014	4	2016
NGDS - JBAIDS - Surveillance (Food & Water)	1	2014	3	2015
NGDS - Increment 1 Environmental Assay Development	2	2013	4	2016
NGDS - Increment 1 Multi Service Operational Test	1	2015	3	2016
NGDS - NGDS Incr. 1 follow on IVD assay development (Plague, Tularemia, Q-Fever)	3	2015	4	2016
NGDS - NGDS Incr. 2 follow on Assay Development	4	2018	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** TE7 / *TEST & EVALUATION (OP SYS DEV)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
TE7: *TEST & EVALUATION (OP SYS DEV)*	-	3.730	3.690	5.984	-	5.984	4.881	5.118	5.174	5.381	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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 2013	FY 2014	FY 2015
Title: 1) WDTC - MRTFB - Life Sciences Test Facility	1.018	1.080	2.454

FY 2013 Accomplishments:

Continued to provide instrumentation and equipment upgrades to Life Sciences Test Facility (LSTF) at the West Desert Test Center (WDTC), in support of the Chemical and Biological (CB) Defense mission. This is the only U.S. laboratory equipped to test for aerosolized bio-safety level-3 (BSL-3) agents. Upgrades and technology enhancements included: (1) Continued upgrade of aging Aerodynamic Particle Sizers (APS) with ultraviolet APS (UV-APS); (2) Outfitting of a second Aerosol Simulant Exposure Chamber (ASEC) for BSL-1 and BSL-2 testing; (3) Optical Deoxyribonucleic acid (DNA) Mapping System; (4) A Mass Spectrophotometer (Mass Spec) for enhanced identity determination of biological samples; and (5) Enhanced aerosol particle generation equipment for point-tactical-detector challenge. FY13 accomplishments include upgrade of Digital polymerase chain reaction (PCR) equipment.

FY 2014 Plans:

Continues to provide instrumentation and equipment upgrades to LSTF at the WDTC, in support of the CB Defense mission. This is the only U.S. laboratory equipped to test for aerosolized bio-safety level-3 (BSL-3) agents. Upgrades and technology enhancements included: (1) Coupled Mass Spec-PCR genotyping system and bundled analysis software to be used to determine identity of all bacterial and viral constituents in biological samples; (2) Referee instrumentation aimed at characterizing bio-Non-Traditional Agent (NTA) (advanced bio threat) and other simulant samples. (3) Immunological identification system; and (4) Enhanced simulant development capability.

FY 2015 Plans:

Continues to provide instrumentation and equipment upgrades to LSTF at the WDTC, in support of the CB Defense mission. This is the only U.S. laboratory equipped to test for aerosolized BSL-3 agents. Increased programming funds procurement of BSL-3

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** TE7 / *TEST & EVALUATION (OP SYS DEV)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
biological laboratory equipment for the LSTF Annex which is scheduled for completion in FY15. This equipment is required to re-establish full capability of the LSTF upon completion of the Annex.			
Title: 2) WDTC - MRTFB - Major Test Chambers	0.790	0.630	0.641
FY 2013 Accomplishments: Continued 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 Materiel Test Facility (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, decontamination technologies, and detection systems with chemical agents and simulants; and (3) Building 3445 chambers support filter and collective protection testing. Modernization in the chambers includes: (1) Development of an aerosol generation and sampling capability specifically for use with agent fate work; (2) Upgrades to aerosol chambers; (3) Upgrades to surety communications radio systems. These are multi-year efforts. ***FY 2014 Plans:*** Continues 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, decontamination technologies, and detection systems with chemical agents and simulants; and (3) Building 3445 chambers support filter and collective protection testing. Modernization in the chambers includes: (1) Continue development of an aerosol generation and sampling capability; and (2) Characterization of improved and/or articulated testing fixtures; and (3) Continuous enhancement of Toxic Industrial Chemical detection. ***FY 2015 Plans:*** Continues to provide for modernization of existing instrumentation and equipment in the major test chambers at WDTC, in support of the CB defense mission. These chambers 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, decontamination technologies, and detection systems with chemical agents and simulants; and (3) Building 3445 chambers support filter and collective protection testing. Modernization in the chambers includes: (1) Continue enhancements of an aerosol generation and sampling capability; (2) Continue development of the agent fate aerosol capability; (3) Upgrades to agent surety monitor and analytical instrumentation; (4) Continue Small Item Decontamination (SID) recirculating bath upgrade; (5) Upgrade to the large scale filtration fixture to allow toxic agents and systems other than single-pass filtration to be tested; (6) Characterization of improved and/or articulated testing fixtures; (7) Continuous enhancement of Toxic Industrial Chemical detection; and (8) Non-Traditional Agent test and detection capability.			
Title: 3) WDTC - MRTFB - CB Test Grid	0.581	0.750	0.764

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** TE7 / *TEST & EVALUATION (OP SYS DEV)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Continued to enhance existing instrumentation and equipment at multiple test grids (Target S, Downwind, Tower Outdoor Test Grids, etc.) at WDTC, in support of the CB defense mission. DPG's vast area combined with its remote location allow for all sizes of CB and explosive test events, including large scale Toxic Industrial Materials (TIC) release capability, and are supported by state of the art meteorological and referee capability. Continued modernization efforts included: (1) Development of agent to simulant correlation, dissemination equipment, and monitoring systems for additional field simulants; (2) Improve both point and standoff referee systems for TIC; (3) Adding testing capability to support expanded use of Agent Like Organisms (ALOs); (4) Required upgrade of referee systems (LIDAR, DIAL, etc.); (5) Wireless tracking system for test grid equipment; and (6) Development of transportable standoff chamber to allow remote calibration of active and passive standoff systems for improved test accuracy. FY13 accomplishments include upgrades to high speed and infrared (IR) cameras. ***FY 2014 Plans:*** Continues to enhance existing instrumentation and equipment at multiple test grids (Target S, Downwind, Tower Outdoor Test Grids, etc.) at WDTC, in support of the CB defense mission. DPG's vast area combined with its remote location allow for all sizes of CB and explosive test events, including large scale TIC release capability, and are supported by state of the art meteorological and referee capability. Continuing modernization efforts will include: (1) Development of agent to simulant correlation, dissemination equipment, and monitoring systems for additional field simulants; (2) Required upgrades to point and standoff field referee systems; (3) Upgrade of communications and data analysis capabilities at command posts; (4) Enhanced aerosol dissemination systems; (5) Upgraded high speed cameras; and (6) Development of in house capability to calibrate infrared (IR) cameras to reduce cost and turnaround time. ***FY 2015 Plans:*** Continue to enhance existing instrumentation and equipment at multiple test grids (Target S, Downwind, Tower Outdoor Test Grids, etc.) at WDTC, in support of the CB defense mission. DPG's vast area combined with its remote location allow for all sizes of CB and explosive test events, including large scale TIC release capability, and are supported by state of the art meteorological and referee capability. Continuing modernization efforts will include: (1) Development of agent to simulant correlation, dissemination equipment, and monitoring systems for additional field simulants; (2) Required upgrades to point and standoff field referee systems; (3) Upgrade of communications and data analysis capabilities at command posts; (4) Enhanced aerosol dissemination systems; (5) Upgrade high speed cameras; and (6) Development of in-house capability to calibrate IR cameras to reduce cost and turnaround time. Enhancements to Test Grid provides near real time data analysis and rapid test adaptation to minimize costs and increase effectiveness of testing.			
Title: 4) WDTC - MRTFB - Combined Chemical Test Facility	1.341	1.230	2.125
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** TE7 / *TEST & EVALUATION (OP SYS DEV)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Provided for continued 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 upgrades current technology to include: (1) Characterization of new and upgraded test fixtures; (2) Upgraded control systems for swatch, protective component, and detection testing test fixtures; (3) Continued upgrade of CB Navy Safari instrumentation to hardened components compatible with a marine environment; (4) Upgraded swatch test capability to include VX and other low volatility agents; (5) Chemical agent referee and analytical instrumentation; and (6) Improved automation for current chemical synthesis capability. ***FY 2014 Plans:*** Provide 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 current technology to include: (1) Characterization of new and upgraded test fixtures; (2) Upgrade control systems for swatch, protective component, and detection testing test fixtures; (3) Continue upgrade of CB Navy Safari instrumentation to hardened components compatible with a marine environment; (4) Validate low volatility swatch test capability; (5) Enhancements to agent referees and analytical instrumentation; and (6) Expand filter test capability to include additional toxic industrial chemicals and simulants, and additional types of filtration systems. ***FY 2015 Plans:*** Provide for continued revitalization and upgrade of existing instrumentation and equipment at the CCTF at WDTC in support of their chemical test mission. The CCTF tests the capability of detectors, decontaminants, and protective systems to defend against toxic chemical agents. Increased programming in FY15 initiates replacement of chemical laboratory fume hoods and hood controllers throughout the chemical labs. Modernization results in improved test fixtures which reduce risk to personnel and testing results.			
Accomplishments/Planned Programs Subtotals	3.730	3.690	5.984

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

T&E RANGE INSTRUMENT/TECH UPGRADE (T&E UPGRADE)

Test and evaluation Range Instrumentation/Technology Upgrades is a continuing project. It provides for technical upgrades to WDTC capabilities for Chemical and Biological testing of DoD CB materiel, weapons, and weapons systems from concept through production.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Chemical and Biological Defense Program		Date: March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** TE7 / *TEST & EVALUATION (OP SYS DEV)*

E. Performance Metrics

N/A

Exhibit R-4, **RDT&E Schedule Profile:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** TE7 / *TEST & EVALUATION (OP SYS DEV)*

	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
** T&E UPGRAD - LSTF Instrumentation & Equip Upgrades, WDTC																												
T&E UPGRAD - Modernization of Major Test Chambers, WDTC																												
T&E UPGRAD - Enhance Instrumentation & Equipment at Chemical Biological (CB) Test Grids, WDTC																												
T&E UPGRAD - Revitalize & Upgrade Instrumentation & Equipment at Combined Chemical Test Facility, WDTC																												

Exhibit R-4A, **RDT&E Schedule Details:** PB 2015 Chemical and Biological Defense Program		**Date:** March 2014
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** TE7 / *TEST & EVALUATION (OP SYS DEV)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
** T&E UPGRAD - LSTF Instrumentation & Equip Upgrades, WDTC	1	2013	4	2019
T&E UPGRAD - Modernization of Major Test Chambers, WDTC	1	2013	4	2019
T&E UPGRAD - Enhance Instrumentation & Equipment at Chemical Biological (CB) Test Grids, WDTC	1	2013	4	2019
T&E UPGRAD - Revitalize & Upgrade Instrumentation & Equipment at Combined Chemical Test Facility, WDTC	1	2013	4	2019