Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Chemical and Biological Defense Program	Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	-	32.213	45.677	48.741	-	48.741	43.159	44.044	47.207	43.309	Continuing	Continuing
CA7: *CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV*	-	5.957	6.393	6.299	-	6.299	6.397	6.485	11.815	11.815	Continuing	Continuing
CM7: *HOMELAND DEFENSE (OP SYS DEV)*	-	1.594	1.652	4.365	-	4.365	4.365	4.348	4.348	6.215	Continuing	Continuing
C07: *COLLECTIVE PROTECTION (OP SYS DEV)*	-	3.460	5.127	3.856	-	3.856	3.765	2.905	0.953	0.703	Continuing	Continuing
DE7: *DECONTAMINATION SYSTEMS (OSD)*	-	0.000	0.000	0.445	-	0.445	0.445	0.000	0.000	0.000	0.000	0.890
IP7: *INDIVIDUAL PROTECTION (OP SYS DEV)*	-	1.359	1.747	2.056	-	2.056	2.092	2.021	2.663	2.663	Continuing	Continuing
IS7: *INFORMATION SYSTEMS (OP SYS DEV)*	-	10.293	12.203	15.552	-	15.552	16.951	16.492	15.163	13.211	Continuing	Continuing
MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*	-	6.999	11.950	9.850	-	9.850	3.728	6.060	6.532	2.969	Continuing	Continuing
TE7: *TEST & EVALUATION (OP SYS DEV)*	-	2.551	6.605	6.318	-	6.318	5.416	5.733	5.733	5.733	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element supports developmental efforts to upgrade systems in the Department of Defense (DoD) Chemical Biological Defense (CBD) 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 Chemical Biological defense equipment against emerging chemical and biological threat agents and toxic industrial chemicals. Specifically this program includes: (1) the upgrade and modernization of contamination avoidance systems; (2) the upgrade and modernization of homeland defense systems; (3) the upgrade and modernization of collective protection systems; (4) the upgrade and modernization of contamination mitigation and decontamination systems; (5) the upgrade and modernization of individual protective equipment; (6) the upgrade and modernization of information systems; (7) the Software Support Activity (SSA); (8) the upgrade and modernization of medical systems; (9) upgrade and modernization of BSL3 systems; and (10) revitalization and technical upgrade of existing instrumentation and equipment at Dugway Proving Ground (DPG) supporting WDTC and BTB-ECBC.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Chemical and Biological Defense Program	Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	33.361	45.677	51.510	-	51.510
Current President's Budget	32.213	45.677	48.741	-	48.741
Total Adjustments	-1.148	0.000	-2.769	-	-2.769
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	0.000	-			
• Congressional Directed Transfers	0.000	-			
• Reprogrammings	-0.135	-			
• SBIR/STTR Transfer	-1.013	-			
• Other Adjustments	0.000	-	-2.769	-	-2.769

Change Summary Explanation

Funding: FY17 (-$0.135M): Program reprogrammings.
FY17 (-$1.013M): Transfer of funding to support Small Business Innovative Research/Small Business Technology Transfer efforts.
FY19 (-$2.769M): Adjustment due to fact of life change to NGDS Inc 2.

Schedule: N/A

Technical: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
CA7: *CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV*	-	5.957	6.393	6.299	-	6.299	6.397	6.485	11.815	11.815	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program provides the technology upgrade and refresh effort for the Chemical Biological Radiological Nuclear Dismounted Reconnaissance Systems (CBRN DRS). The program supports Dismounted Reconnaissance, Surveillance, and CBRN Sensitive Site Assessment missions which enables more detailed and near real-time CBRN information flow for the Warfighter.

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 and emerging threats. This project provides the technology upgrade and refresh effort for the Chemical Biological Radiological Nuclear Dismounted Reconnaissance Systems (CBRN DRS) to address and mitigate technology/equipment obsolescence. Experimentation and demonstration will be used in this phase to reduce risk and inform supporting materiel solutions, CONOPS and TTPs.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) CBRN DRS	5.957	6.393	6.299
Description: Provide analysis of the existing components of CBRN Dismounted Reconnaissance Sets, Kits, and Outfits Increment 1 to ensure current requirements baseline can be met. Funds will be use to identify potential obsolescence in current components, identify concerns with current components (technical, human factors, sustainment), assess the current market, procurement and testing of candidates that could correct concerns, and integrate the new items into the product baseline.			
FY 2018 Plans: Continue market analyses on emerging technologies for potential upgrades to the system. Continue obsolescence management activities for existing fielding components. Continue purchasing components for testing. Continue testing of potential candidates. Initiate changes to product baseline.			
FY 2019 Plans: Continue market analyses on emerging technologies for potential upgrades to the system. Continue obsolescence management activities for existing field components. Continue purchasing components for testing. Continue testing of potential candidates. Initiate changes to product baseline.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Minor change due to routine program adjustments.			
Accomplishments/Planned Programs Subtotals	5.957	6.393	6.299

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

CBRN DISMOUNTED RECONNAISSANCE SYSTEMS

CA4 The Chemical Biological Radiological Dismounted Reconnaissance Systems (CBRN DRS) Inc 2 program will provide an Advanced Capabilities Set (ACS) for use by Joint Technical Forces in sensitive site assessment, exploitation and elimination missions in conjunction with their existing baseline CBRN DRS Inc1 system. The ACS will be comprised of Government (GOTS) and commercial off-the-shelf (COTS) equipment to the greatest extent possible. Requirements analysis will support Materiel Development Decision and provide guidance for the Analysis of Material Approaches (AoMA) to identify potential solutions. Efforts will culminate in an approved Capabilities Development Document and a Milestone B. Contracting efforts will be initiated under the Joint Enterprise Research, Development, Acquisition and Production contract mechanism. The contract will cover a base period of performance for development/integration with options for Low-Rate and Full Rate Production (FRP).

CA7 The Chemical Biological Radiological Dismounted Reconnaissance Systems (CBRN DRS) program uses a government-off-the-shelf (GOTS)/commercial-off-the-shelf (COTS) non-developmental item (NDI) single step acquisition approach to a full capability. 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, well-managed acquisition program. CBRN DRS systems will be produced using a workshare approach between Organic assets and Contractor production facilities.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CBRN DRS - HW C - HW - Product Development	MIPR	Defense Logistics Agency : Philadelphia, PA	0.000	0.925	Feb 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
CBRN DRS - HW - Product Development	MIPR	Various : Various	0.549	0.597	Jul 2017	1.562	Mar 2018	1.576	Mar 2019	-		1.576	Continuing	Continuing	0.000
		Subtotal	0.549	1.522		1.562		1.576		-		1.576	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CBRN DRS - ES - Market Analysis	MIPR	Various : Various	1.561	0.000	May 2017	1.425	Jan 2018	0.327	Jan 2019	-		0.327	Continuing	Continuing	0.000
CBRN DRS - ES C - Market Analysis	FFRDC	Johns Hopkins University - Applied Physics Lab : Laurel, MD	0.301	0.970	Apr 2017	0.000		1.000	Jan 2019	-		1.000	Continuing	Continuing	0.000
CBRN DRS - ES - Obsolescence Management	MIPR	Various : Various	1.040	0.000	Dec 2016	0.950	Jan 2018	0.485	Feb 2019	-		0.485	Continuing	Continuing	0.000
		Subtotal	2.902	0.970		2.375		1.812		-		1.812	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CBRN DRS - OTE - Candidate Testing	Various	Various : Various	1.471	1.555	Mar 2017	1.400	Mar 2018	2.000	Mar 2019	-		2.000	Continuing	Continuing	0.000
CBRN DRS - DTE C - OTE - Candidate Testing	MIPR	Defense Technical Information Center (DTIC) : Fort Belvoir, VA	0.000	0.942	Jun 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			1.471	2.497		1.400		2.000		-		2.000	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CBRN DRS - PM - Program Management and Systems Engineering Support	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.514	0.968	Dec 2016	1.056	Dec 2017	0.911	Dec 2018	-		0.911	Continuing	Continuing	0.000
Subtotal			0.514	0.968		1.056		0.911		-		0.911	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.436	5.957		6.393		6.299		-		6.299	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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*

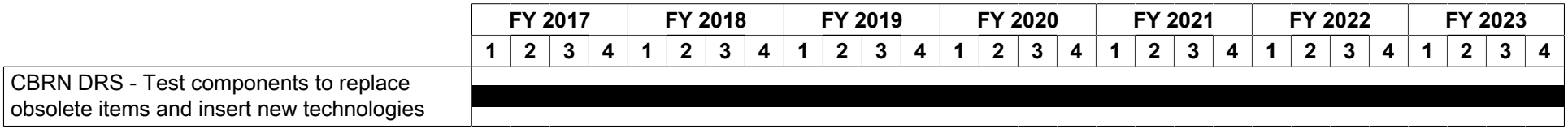

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CA7 / *CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CBRN DRS - Test components to replace obsolete items and insert new technologies	1	2017	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
CM7: *HOMELAND DEFENSE (OP SYS DEV)*	-	1.594	1.652	4.365	-	4.365	4.365	4.348	4.348	6.215	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Experimentation and demonstration will be used in this phase to reduce risk and inform supporting materiel solutions, Concept of Operations (CONOPS) and Tactics, Techniques and Procedures (TTP)s.

WMD-CST - 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. Efforts in the program element support upgrades of key components of the WMD CST Program that have become obsolete, or are no longer being supported by the manufacturer.

CALS - This program element supports the evaluation of analytical components for technical refreshment of the Common Analytical Laboratory System (CALS). Efforts in the program element support upgrades of key components of the CALS system that have become obsolete, or are no longer being supported by the manufacturer. This allows the CALS users to maintain their operational capability and operational effectiveness.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) CALS - Integrated Logistics (ILS) and Asset Integration ***FY 2019 Plans:*** Conduct component and system level logistics evaluations to assess viability of candidate analytical upgrade components. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	0.500
Title: 2) CALS - Component Test and Evaluation ***FY 2019 Plans:*** Conduct system related test activities including costs of test candidate selection, testing hardware, engineering data to assess the performance of the system, test planning, execution of testing, data interpretation and reporting. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	0.225
Title: 3) CALS - Systems Engineering and Program Management	-	-	2.185

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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 2017	FY 2018	FY 2019
FY 2019 Plans: Provide 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, engineering design and development of the system. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.			
Title: 4) WMD CST - Component Test and Evaluation ***FY 2018 Plans:*** 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. ***FY 2019 Plans:*** 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. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	1.073	0.937	0.940
Title: 5) WMD CST - System Engineering and Program Management ***FY 2018 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). ***FY 2019 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). ***FY 2018 to FY 2019 Increase/Decrease Statement:***	0.521	0.715	0.515

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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 2017	FY 2018	FY 2019
Increase/Decrease due to change in program/project technical parameters.			
Accomplishments/Planned Programs Subtotals	1.594	1.652	4.365

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

COMMON ANALYTICAL LABORATORY SYSTEM (CALS)

The Common Analytical Laboratory System (CALS) will be developed leveraging both Commercial Off the Shelf (COTS) and Government Off the Shelf (GOTS) analytical components to support the identification of Chemical, Biological, Radiological and Non-traditional agent materials in environmental samples technology. The (CALS) program is designed to provide an affordable, modular, scalable and sustainable field analytic capability that can be readily transported to meet the mission profile and requirements of the gaining organization. CALS will consist of (3) variants which will be fielded, in accordance with mission need, to components of the Air Force, Army, Marines, Navy and National Guard Bureau requiring CBRN field confirmatory analytical detection capability. Post Milestone B (FY15), a hybrid contract (CPIF / FPI / FFP) was awarded to develop, design and build these system variant prototypes in order to conduct developmental test (DT) and evaluation. The Field Confirmatory Analytical Capability Set (FC ACS) entered DT first and to reached an early Milestone C - Low Rate Initial Production (LRIP) (FY17) followed by a Full Rate Production (FRP) Decision prior to the Milestone C (LRIP) (FY19) and (FRP) Decision for the FC (1st Quarter, FY20) and TV Integrated Systems. After each Milestone C, contracts will be awarded to produce the (3) variants of the Common Analytical Laboratory System using Fixed Price (FP) Contract vehicles.

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 evaluation of advancements in CBRN commercial off the shelf (COTS)/government-off-the-shelf (GOTS) equipment against the current technology baseline of equipment fielded to the (57) WMD CST Teams. As such, the program establishes a time phased modernization plan to integrate and incorporate proven advancements in commercially available technology into the CST operating mission set based on highest priority capability requirements and availability of resources.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CALS - ILS S - Integrated Logistics Support	Various	TBD : TBD	0.000	0.000		0.000		0.500	Dec 2018	-		0.500	Continuing	Continuing	0.000
WMD CST - ES C - Science & Engineering Program Management Support	Various	Battelle Memorial Institute : Aberdeen, MD	1.077	0.000		0.510	Jan 2018	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	1.077	0.000		0.510		0.500		-		0.500	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CALS - OTHT C - Test & Evaluation	Various	TBD : TBD	0.000	0.000		0.000		0.225	Dec 2018	-		0.225	Continuing	Continuing	0.000
WMD CST - OTHT C - CBRN COTS Component	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	2.894	1.073	Mar 2017	0.937	Mar 2018	0.940	Mar 2019	-		0.940	Continuing	Continuing	0.000
		Subtotal	2.894	1.073		0.937		1.165		-		1.165	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CALS - PM/MS SB - Program Management Support	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		2.185	Nov 2018	-		2.185	Continuing	Continuing	0.000
WMD CST - PM/MS SB - CBRN COTS	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	1.035	0.521	Mar 2017	0.205	Jan 2018	0.515	Jan 2019	-		0.515	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	1.035	0.521		0.205		2.700		-		2.700	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.006	1.594		1.652		4.365		-		4.365	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

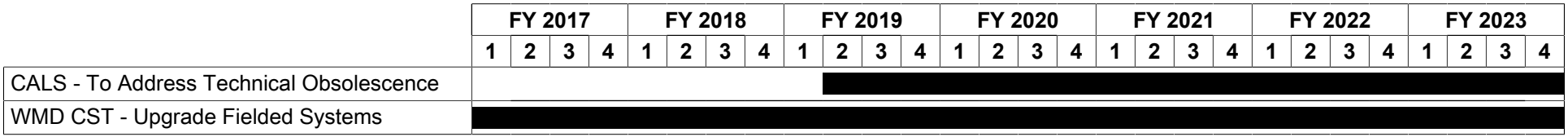

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CM7 / *HOMELAND DEFENSE (OP SYS DEV)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CALS - To Address Technical Obsolescence	2	2019	4	2023
WMD CST - Upgrade Fielded Systems	1	2017	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	Project (Number/Name) C07 / *COLLECTIVE PROTECTION (OP SYS DEV)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
C07: *COLLECTIVE PROTECTION (OP SYS DEV)*	-	3.460	5.127	3.856	-	3.856	3.765	2.905	0.953	0.703	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the upgrade and modernization of Collective Protection (CP) equipment and systems including Modernization Protection (MODPROT) for fielded CP systems and Joint Expeditionary Collective Protection (JECP).

MODPROT provides upgrades, improvements and modernizations to fielded Collective Protection Systems such as the Chemical and Biological Protective Shelter, Shipboard Collective Protection Systems, Fixed Site Collective Protection Systems, M20A1 Simplified Collective Protection Equipment, Modular Collective Protection Equipment systems, and Collectively Protected Field Hospitals. Funding increases the Collective Protection System Backfit program M98 filter set life extension, and identifies and tests replacements for obsolete M93 Gas Particulate Filter Unit (GPFU) components used in numerous hard shelter systems. The M93 GPFU improvements also address current electromagnetic interference requirements. MODPROT also addresses obsolescence issues in test quality standards for gas filters and tests sealants and coatings to mitigate corrosion on filter systems to extend service life of these systems.

JECP provides the Joint Expeditionary Forces a CP capability which is lightweight, compact, modular, and affordable. A family of systems, developed in two phases, 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. Phase 1 includes standalone CP systems and kits to provide existing host platforms and structures with CBRN protection. Phase 2 includes kits to provide other host platforms and structures that were not explicitly designed in Phase 1. 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. Funding will develop a field leakage test capability that allows Warfighters to validate the integrity of JECP and other fielded collective protection systems, integrate newly developed filtration material into existing M98 Gas Particulate Filter Sets to provide the Warfighter with improved protection against toxic industrial chemicals and toxic industrial materials while maintaining current performance characteristics against Chemical Warfare Agents and meeting military standards, develop a CP kit for non-CP environmental control units and improve on the current tent liner restraint systems.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) MODPROT Collective Protection Modernization	-	0.800	0.667
Description: Modular Collective Protection Equipment (MCPE) M93 Gas Particulate Filter Unit (GPFU) 100-cfm main fan and system control module improvements and Collectively Protected Field Hospital obsolescence issues specific to Chemically Protected Deployable Medical System (CPDEPMEDS) System components.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** C07 / *COLLECTIVE PROTECTION (OP SYS DEV)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2018 Plans: Obtain test articles of vendor provided M93 GPFU replacement components for evaluation against Government electromagnet interference (EMI) standards. Review existing test reports. Obtain test articles and perform surveillance testing to determine Collective Protection System Backfit (CPSBKFT) M98 filter set service life extension times. Evaluate collective protection equipment types and quantities required to upgrade legacy components based on the new CPDEPMEDS configuration. ***FY 2019 Plans:*** Continue EMI testing M93 GPFU, continue evaluating CPDEPMEDS ColPro equipment and complete environmental guard bed testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to change in program/project schedule.			
Title: 2) MODPROT Collective Protection Modernization ***Description:*** M59 gas particulate filter unit electromagnetic interference (EMI) qualification to modern standards. Improved non-destructive production acceptance leak test method for gas filters. Corrosion mitigation for collective protection system components. ***FY 2019 Plans:*** Obtain government owned test articles for M59 GPFU for evaluation against government electromagnet interference standards. Review current test reports and test procedures. Begin market survey for M18A1 gas filter leak test detectors and tracer gas replacement and also for sealants, coatings, and materials to mitigate M98 filter housing corrosion. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase due to change in program/project schedule.	-	-	0.365
Title: 3) JECP Field Leakage Test Capability ***Description:*** Improve field leakage test capability, simulate test methods and field operator procedures. ***FY 2018 Plans:*** Develop technical data package to include: level three drawings and technical manuals. Update design and conduct user evaluation for candidate solutions. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to change in program/project schedule.	0.786	0.485	-
Title: 4) JECP Filtration Improvements	2.137	3.640	2.824

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** C07 / *COLLECTIVE PROTECTION (OP SYS DEV)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: Improve M98 filter set capability. ***FY 2018 Plans:*** Continue design and form-fit-function development. Fabricate prototypes and perform required testing. Perform detailed cost/ benefit analysis. Develop and update drawing packages. Develop and update logistics package. ***FY 2019 Plans:*** Finalize the design and form-fit-function development. Continue to test prototypes. Finalize drawing packages. Finalize logistics package. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to change in program/project schedule.			
Title: 5) JECP Chemical/Biological Hardened Environmental Control Unit Improvements ***Description:*** Environment Control Unit (ECU) Collective Protection (ColPro) kit development for non-ColPro ECUs. ***FY 2018 Plans:*** Finalize prototype development and conduct prototype testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to change in program/project schedule.	0.537	0.080	-
Title: 6) JECP Liner and Liner Restraint System Improvements ***Description:*** Tent kit liner and liner restraint system improvements. ***FY 2018 Plans:*** Continue updates to the drawing package and technical manuals. Implement engineering changes. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase/Decrease due to change in program/project schedule.	-	0.122	-
Accomplishments/Planned Programs Subtotals	3.460	5.127	3.856

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** C07 / *COLLECTIVE PROTECTION (OP SYS DEV)*

D. Acquisition Strategy

MODERNIZATION PROTECTION (MODPROT)

Modernizing Collective Protection leverages mature technology from contractor developed components to address and replace obsolete components of various fielded collective protection systems. Modernization efforts will also use items developed by the government that have transitioned from lower to higher technology readiness levels that can be inserted into fielded systems. A combination of competitive and sole source contracts to various industry vendors and project orders to various government activities will be used to adapt previously developed components to modernize systems. Robust component and system level testing will validate both government and contractor furnished improvements. The improvements will be added into the specific system's updated technical data packages to be used in engineering change proposals and provided to the item managers.

JOINT EXPEDITIONARY COLLECTIVE PROTECTION (JECP)

JECP Family of Systems (FoS) (Phase 1 and Phase 2) involves multiple contract types throughout the Engineering and Manufacturing Development and Production and Deployment Phases of the program. Having achieved a Full Rate Production (FRP) decision for Phase 1 Systems in December 2016, the program exercised Fixed Price Incentive production options in FY17 & FY18 under the current Leidos contract to meet Initial Operational Capability. A competitive build-to-print follow-on production task order under the Joint Enterprise Research, Development, Acquisition, and Production (JE-RDAP) Contract will be awarded in FY19 to support production of Phase 1 Systems to meet Full Operational Capability (FOC). Phase 2 systems will be developed starting in FY18 as engineering changes to the Phase 1 systems under a separate JE-RDAP competitive task order and will undergo limited developmental and operational testing in pursuit of a FRP decision in FY21. Production options will be included in the task order to meet FOC for Phase 2 systems. Additionally, BA7 funding will develop incremental improvements to fielded JECP FoS. BA7 efforts include a range of improvements intended to enhance filtration protection, provide a field leakage test capability and update various environmental control unit types for use with collective protection. These efforts involve a simplified acquisition procurement contract and exploitation of commercial off-the-shelf items. BA7 product development and testing will continue through FY19 with an expectation to achieve production readiness at the end of FY19.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** C07 / *COLLECTIVE PROTECTION (OP SYS DEV)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - HW C - Compatibility Engineering M93 GPFU	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.080	Nov 2017	0.032	Nov 2018	-		0.032	Continuing	Continuing	0.000
MODPROT - HW C - Compatibility Engineering M98 Filter Set	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.072	Nov 2017	0.020	Nov 2018	-		0.020	Continuing	Continuing	0.000
MODPROT - HW C - Compatibility Engineering Non Destructive Test	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.041	Nov 2018	-		0.041	Continuing	Continuing	0.000
JECP - HW C - Environmental Control Unit Improvements	MIPR	28th Test and Evaluation Squadron : Eglin AFB, FL	0.000	0.090	Nov 2016	0.080	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000
JECP - HW C - Liner Restrain System Improvements	MIPR	US Army Natick Soldier RD&E Center : Natick, MA	0.000	0.000		0.122	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000
JECP - HW S - Field Leakage Test Capability Development	MIPR	28th Test and Evaluation Squadron : Eglin AFB, FL	0.000	0.070	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JECP - HW S - Field Leakage Test Capability Development #2	MIPR	US Army Natick Soldier RD&E Center : Natick, MA	0.000	0.270	Oct 2016	0.485	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000
JECP - HW C - Improved M98 Filter Set Development	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.596	Feb 2017	1.302	Nov 2017	1.408	Nov 2018	-		1.408	Continuing	Continuing	0.000
JECP - HW C - Improved M98 Fitter Set Design Improvements	MIPR	Naval Surface Warfare Center (NSWC) - Dahlgren Center : Dahlgren, VA	0.000	1.192	Oct 2016	0.960	Nov 2017	0.775	Nov 2018	-		0.775	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	Project (Number/Name) C07 / *COLLECTIVE PROTECTION (OP SYS DEV)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.000	2.218		3.101		2.276		-		2.276	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - ES C - Engineering Support	MIPR	Naval Surface Warfare Center (NSWC) - Dahlgren Center : Dahlgren, VA	0.000	0.000		0.042	Nov 2017	0.115	Nov 2018	-		0.115	Continuing	Continuing	0.000
MODPROT - ES C - Engineering Support #2	MIPR	US Army Natick Soldier RD&E Center : Natick, MA	0.000	0.000		0.000		0.060	Nov 2018	-		0.060	Continuing	Continuing	0.000
MODPROT - ES C - Engineering Support #3	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.006	Nov 2017	0.135	Nov 2018	-		0.135	Continuing	Continuing	0.000
JECP - ES S - Systems Engineering Oversight	MIPR	Various : Various	0.000	0.496	Oct 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	0.000	0.496		0.048		0.310		-		0.310	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - DTE C - M93 GPFU Environmental Testing	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.162	Nov 2017	0.170	Nov 2018	-		0.170	Continuing	Continuing	0.000
MODPROT - DTE C - M59 GPFU Environmental Testing	MIPR	Edgewood Chemical Biological Center	0.000	0.000		0.000		0.060	Nov 2018	-		0.060	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** C07 / *COLLECTIVE PROTECTION (OP SYS DEV)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		(ECBC) : Aberdeen Proving Ground, MD													
MODPROT - DTE C - M98 Filter Set Improvement Testing	MIPR	Naval Surface Warfare Center (NSWC) - Dahlgren Center : Dahlgren, VA	0.000	0.000		0.323	Nov 2017	0.165	Nov 2018	-		0.165	Continuing	Continuing	0.000
JECP - DTE C - Test & Evaluation IPT	MIPR	28th Test and Evaluation Squadron : Eglin AFB, FL	0.000	0.133	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JECP - DTE C - Improved M98 Filter Set Developmental Testing	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.755	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	0.000	0.133		1.240		0.395		-		0.395	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - PM/MS S - Program Management Support	Various	Various : Various	0.000	0.000		0.115	Nov 2017	0.234	Nov 2018	-		0.234	Continuing	Continuing	0.000
JECP - PM/MS S - Program Management Support	MIPR	Various : Various	0.000	0.613	Nov 2016	0.623	Nov 2017	0.641	Nov 2018	-		0.641	Continuing	Continuing	0.000
		Subtotal	0.000	0.613		0.738		0.875		-		0.875	Continuing	Continuing	N/A

	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	3.460		5.127		3.856		-		3.856	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	Project (Number/Name) C07 / *COLLECTIVE PROTECTION (OP SYS DEV)*	

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** C07 / *COLLECTIVE PROTECTION (OP SYS DEV)*

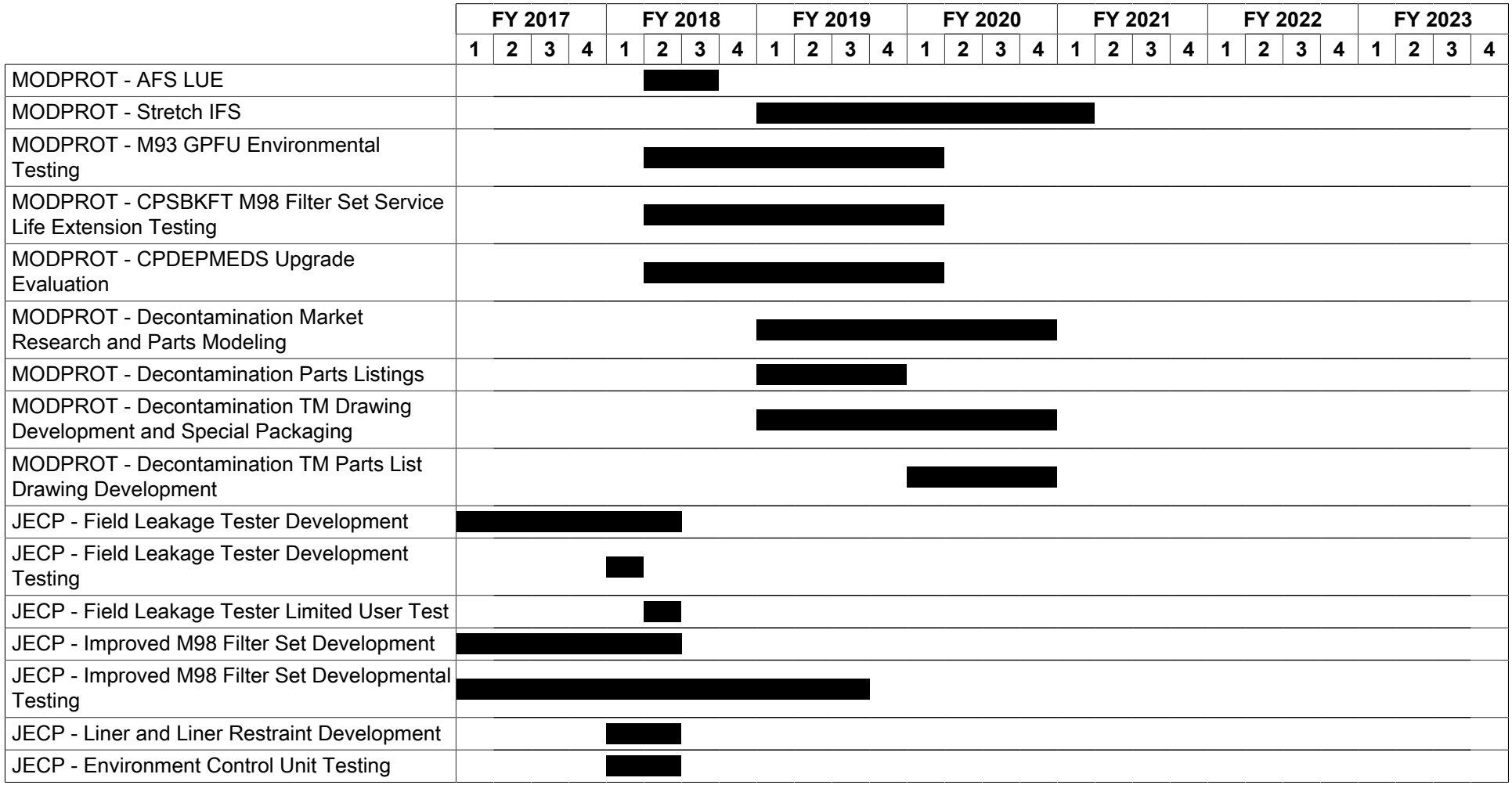

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** C07 / *COLLECTIVE PROTECTION (OP SYS DEV)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MODPROT - AFS LUE	2	2018	3	2018
MODPROT - Stretch IFS	1	2019	1	2021
MODPROT - M93 GPFU Environmental Testing	2	2018	1	2020
MODPROT - CPSBKFT M98 Filter Set Service Life Extension Testing	2	2018	1	2020
MODPROT - CPDEPMEDS Upgrade Evaluation	2	2018	1	2020
MODPROT - Decontamination Market Research and Parts Modeling	1	2019	4	2020
MODPROT - Decontamination Parts Listings	1	2019	4	2019
MODPROT - Decontamination TM Drawing Development and Special Packaging	1	2019	4	2020
MODPROT - Decontamination TM Parts List Drawing Development	1	2020	4	2020
JECP - Field Leakage Tester Development	1	2017	2	2018
JECP - Field Leakage Tester Development Testing	1	2018	1	2018
JECP - Field Leakage Tester Limited User Test	2	2018	2	2018
JECP - Improved M98 Filter Set Development	1	2017	2	2018
JECP - Improved M98 Filter Set Developmental Testing	1	2017	3	2019
JECP - Liner and Liner Restraint Development	1	2018	2	2018
JECP - Environment Control Unit Testing	1	2018	2	2018

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	Project (Number/Name) DE7 / *DECONTAMINATION SYSTEMS (OSD)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
DE7: *DECONTAMINATION SYSTEMS (OSD)*	-	0.000	0.000	0.445	-	0.445	0.445	0.000	0.000	0.000	0.000	0.890
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Modernize (MODPROT) Decon addresses obsolescence issues with decontamination equipment and the need to modernize the Joint Services fielded chemical and biological protection with capabilities meeting or exceeding the Services requirements.

Efforts in the MODPROT Decon program element will address obsolescence and technical data concerns, beginning with the 1) Joint Services Transportable Decontamination System-Small Scale (M26 JSTDS-SS) through validation and verification of technical manual changes as well as technical data for spare and repair parts, and 2) the Power Driven Decontamination Apparatus (M12A1 PDDA) by updating technical references and performing the necessary validation and verification before publishing an updated technical manual.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) MODPROT Decontamination Modernization	-	-	0.445
Description: 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. ***FY 2019 Plans:*** Conduct market research and parts modeling for the modernization and upgrade of contamination mitigation systems and Transportable Decontamination defense systems. Complete technical manual and technical data package updates incorporating the system changes. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase/Decrease due to change in program/project schedule.			
Accomplishments/Planned Programs Subtotals	-	-	0.445

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

MODERNIZATION PROTECTION (MODPROT)

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** DE7 / *DECONTAMINATION SYSTEMS (OSD)*

Modernizing Decontamination leverages mature technology from contractor developed components to address and replace obsolete components of various fielded decontamination systems. Modernization efforts will also use items developed by the government that have transitioned from lower to higher technology readiness levels that can be inserted into fielded systems. A combination of competitive and sole source contracts to various industry vendors and project orders to various government activities will be used to adapt previously developed components to modernize systems. Robust component and system level testing will validate both government and contractor furnished improvements. The improvements will be added into the specific system's updated technical data packages to be used in engineering change proposals and provided to the item managers.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	Project (Number/Name) DE7 / *DECONTAMINATION SYSTEMS (OSD)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - HW S - Market Research and Parts Modeling	MIPR	TBD : TBD	0.000	0.000		0.000		0.094	Nov 2018	-		0.094	0.000	0.094	0.000
		Subtotal	0.000	0.000		0.000		0.094		-		0.094	0.000	0.094	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - TD/D C - Tech Manual Updates	MIPR	Edgewood Chemical Biological Center (ECBC) : Rock Island, IL	0.000	0.000		0.000		0.100	Nov 2018	-		0.100	0.000	0.100	0.000
MODPROT - TD/D S - Tech Data Package Update	MIPR	Edgewood Chemical Biological Center (ECBC) : Rock Island, IL	0.000	0.000		0.000		0.150	Nov 2018	-		0.150	0.000	0.150	0.000
		Subtotal	0.000	0.000		0.000		0.250		-		0.250	0.000	0.250	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - PM/MS C - Management Support	Various	TBD : TBD	0.000	0.000		0.000		0.101	Nov 2018	-		0.101	0.000	0.101	0.000
		Subtotal	0.000	0.000		0.000		0.101		-		0.101	0.000	0.101	N/A

	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		0.445		-		0.445	0.000	0.445	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** DE7 / *DECONTAMINATION SYSTEMS (OSD)*

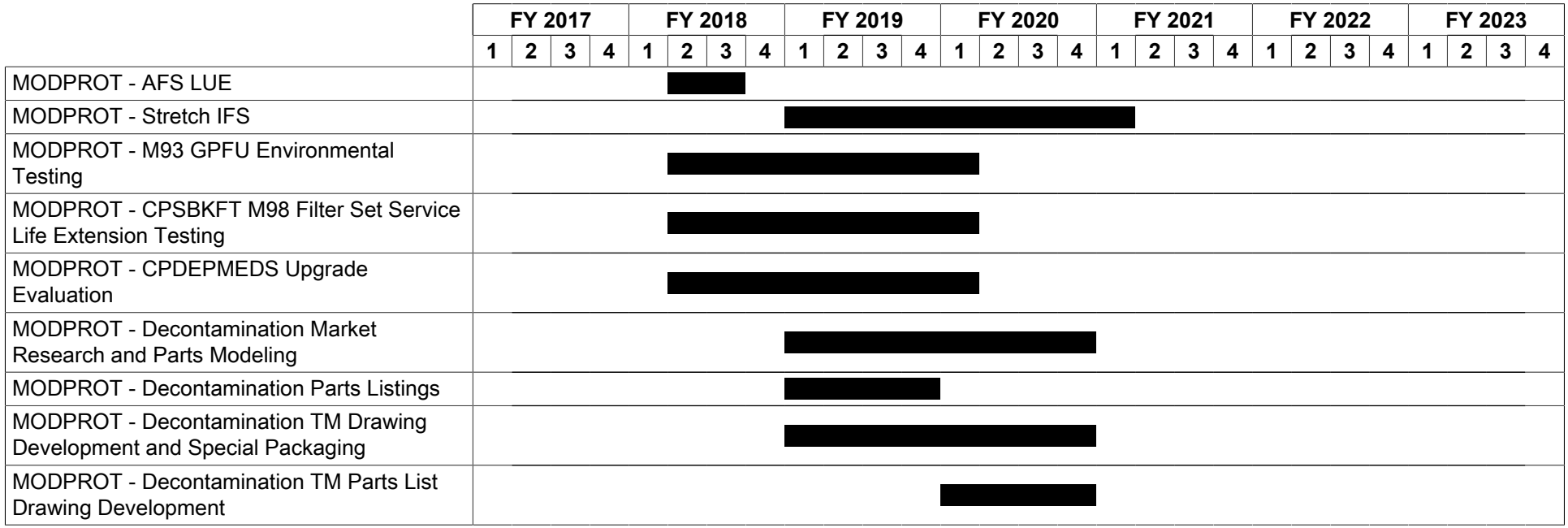

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** DE7 / *DECONTAMINATION SYSTEMS (OSD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MODPROT - AFS LUE	2	2018	3	2018
MODPROT - Stretch IFS	1	2019	1	2021
MODPROT - M93 GPFU Environmental Testing	2	2018	1	2020
MODPROT - CPSBKFT M98 Filter Set Service Life Extension Testing	2	2018	1	2020
MODPROT - CPDEPMEDS Upgrade Evaluation	2	2018	1	2020
MODPROT - Decontamination Market Research and Parts Modeling	1	2019	4	2020
MODPROT - Decontamination Parts Listings	1	2019	4	2019
MODPROT - Decontamination TM Drawing Development and Special Packaging	1	2019	4	2020
MODPROT - Decontamination TM Parts List Drawing Development	1	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
IP7: *INDIVIDUAL PROTECTION (OP SYS DEV)*	-	1.359	1.747	2.056	-	2.056	2.092	2.021	2.663	2.663	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Modernize Individual Protection (MODPROT) addresses obsolescence issues with Individual Protective equipment and the need to modernize the Joint Services fielded chemical and biological protection with capabilities meeting or exceeding the Services requirements.

MODPROT will modernize current chemical protective footwear by conducting 1) Limited User Evaluation (LUE) in support of the Alternative Source Qualification plan for a suitable replacement to the Alternative Footwear Solutions (AFS) and 2) modernizing the Integrated Footwear System (IFS). MODPROT will also conduct a modernization effort of the Joint Service Lightweight Integrated Suit Technology (JSLIST) Block 1 Glove Upgrade Flame Resistant (JB1GU FR) glove, and reverse engineering of maintenance and repair procedures for the Joint Services Mask Leakage Tester (JSMLT).

JSGPM provides for filter modernization and enhancements against Toxic Industrial Chemicals (TICs) and Toxic Industrial Materials (TIMs) on the Joint Service General Purpose Mask (JSGPM). Filter upgrades will be provided for fielded Protection systems to enhance respiratory and ocular protection.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) MODPROT Individual Protection Modernization	-	0.051	-
Description: Alternative Footwear Solution (AFS) Limited User Evaluation (LUE)			
FY 2018 Plans: Initiate and conduct a coordinated LUE with Defense Logistics Agency through the Army Test and Evaluation Command as part of the Alternative Source Qualification to determine vendors' ability to meet AFS requirements.			
FY 2018 to FY 2019 Increase/Decrease Statement: Decrease due to change in program/project schedule.			
Title: 2) MODPROT Individual Protection Modernization	-	-	0.129
Description: Improve Integrated Footwear System (IFS)			
FY 2019 Plans: Initiate and conduct a comparison of the current IFS to the stretch IFS.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Increase due to change in program/project schedule.			
Title: 3) JSGPM	1.359	1.696	1.927
Description: Product Qualification and Integration testing ***FY 2018 Plans:*** Conduct Product Qualification Testing (PQT) of the Cobalt-Zinc, zirconium hydroxide, Argentum(Silver), TEDA (triethylene diamine)(CoZZAT) technology and begin the Metal Organic Framework (MOF) integration into the M61 filter. ***FY 2019 Plans:*** Conduct Product Qualification Testing (PQT) of the Cobalt-Zinc, zirconium hydroxide, Argentum (Silver), TEDA (triethylene diamine) (CoZZAT) technology and begin the Metal Organic Framework (MOF) integration into the M61 filter. Initiate Next Generation Filter Developmental Testing (DT). ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase/Decrease due to change in program/project schedule.			
Accomplishments/Planned Programs Subtotals	1.359	1.747	2.056

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• JI0003: *JOINT SERVICE GENERAL PURPOSE MASK (JSGPM)*	65.374	48.493	16.927	-	16.927	18.166	0.000	0.000	0.000	0.000	148.960

Remarks

D. Acquisition Strategy

MODERNIZATION PROTECTION (MODPROT)

Modernize Individual Protection, as part of the Alternative Source Qualification test and evaluation approach, conducts an evaluation of the Moulded Airboss Lightweight Overboot (MALO) as a potential substitute to the Alternative Footwear Solutions (AFS) CBRN Protective Overboot. Part of this evaluation includes a performance assessment of the MALO physical properties relative to the AFS and its performance requirements. MODPROT will also conduct an evaluation of the stretchy Integrated Footwear System (IFS) as a potential substitute for the current version of the IFS CBRN Protective sock.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

JS GENERAL PURPOSE MASK (JSGPM)

The JSGPM Advanced Respiratory Protection Initiative (ARPI) effort is using the two M61 filter contracts awarded to 3M and Avon to develop improved filters for the JSGPM. There is a continual technology refreshment CLIN on both contracts that allow for filter development tasks to be awarded. The tasks can be competed between the two awardees or awarded to both to ensure competition on future spares and delivery orders. As filter technologies transition from the Defense Threat Reduction Agency (DTRA) and Joint Science and Technology Office (JSTO), the technologies will be matured from system/subsystem prototyping demonstration technologies at Technology Readiness Level (TRL) 6 to actual system "mission proven" through successful mission operations in a mission environment at TRL 9. In addition to the maturing of the technology, the Manufacturing Readiness Level (MRL) of the media and the layered bed design requires maturing to an MRL level 9. The complexity of maturing all these different items requires an evolutionary approach with one prototype iteration governing the approach on the next iteration. With the criticality of the filter, the production transition to the new improved filter has to be done with a high degree of confidence with risks mitigated to a low level.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - HW C - Stretch Integrated Footwear System Assessment	MIPR	Navy Clothing and Textile Research Facility (NCTRF) : Natick, MA	0.000	0.000		0.000		0.100	Nov 2018	-		0.100	Continuing	Continuing	0.000
JSGPM - HW C - Filter Prototypes #2 (C2A1)	C/FFP	3M Canada : Brockville Ontario, CN	0.062	0.000		0.250	Mar 2018	0.075	Nov 2018	-		0.075	Continuing	Continuing	0.000
JSGPM - HW C - Filter Prototypes #2 (C2A1) #2	C/FFP	AVON Protection Systems Inc. : Cadillac, MI	0.075	0.000		0.250	Feb 2018	0.075	Nov 2018	-		0.075	Continuing	Continuing	0.000
JSGPM - HW C - Filter Prototypes #1 (CoZZAT)	C/FFP	AVON Protection Systems Inc. : Cadillac, MI	1.170	0.301	Nov 2016	0.250	Feb 2018	0.350	Nov 2018	-		0.350	Continuing	Continuing	0.000
JSGPM - HW C - Filter Prototypes #1 (CoZZAT) #2	C/FFP	3M Canada : Brockville Ontario, CN	0.588	0.074	Dec 2016	0.250	Mar 2018	0.350	Nov 2018	-		0.350	Continuing	Continuing	0.000
		Subtotal	1.895	0.375		1.000		0.950		-		0.950	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JSGPM - ES C - System Filter Bed Design Analysis (CoZZAT)	MIPR	Various : Various	0.976	0.000		0.314	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000
JSGPM - ES C - IPT, Program, Engineering, and Technical Support	MIPR	Various : Various	0.000	0.226	Feb 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	0.976	0.226		0.314		0.000		-		0.000	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - DTE C - Alternate Footwear Solution LUE	MIPR	Army Test and Evaluation Command (ATEC) : Aberdeen Proving Ground, MD	0.000	0.000		0.051	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000
JSGPM - DTE C - System Filters (CoZZAT)	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	1.250	0.400	Nov 2016	0.116	Nov 2017	0.640	Nov 2018	-		0.640	Continuing	Continuing	0.000
JSGPM - DTE C - Environmental Conditioning/Dust Emission Testing - M61 Canisters	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.200	Jul 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	1.250	0.600		0.167		0.640		-		0.640	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - PM/MS S - Program Management Support	MIPR	Various : Various	0.000	0.000		0.000		0.029	Nov 2018	-		0.029	Continuing	Continuing	0.000
JSGPM - PM/MS C - Program Management and Technical Support	MIPR	Various : Various	1.439	0.158	Nov 2016	0.266	Nov 2017	0.437	Nov 2018	-		0.437	Continuing	Continuing	0.000
		Subtotal	1.439	0.158		0.266		0.466		-		0.466	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.560	1.359		1.747		2.056		-		2.056	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

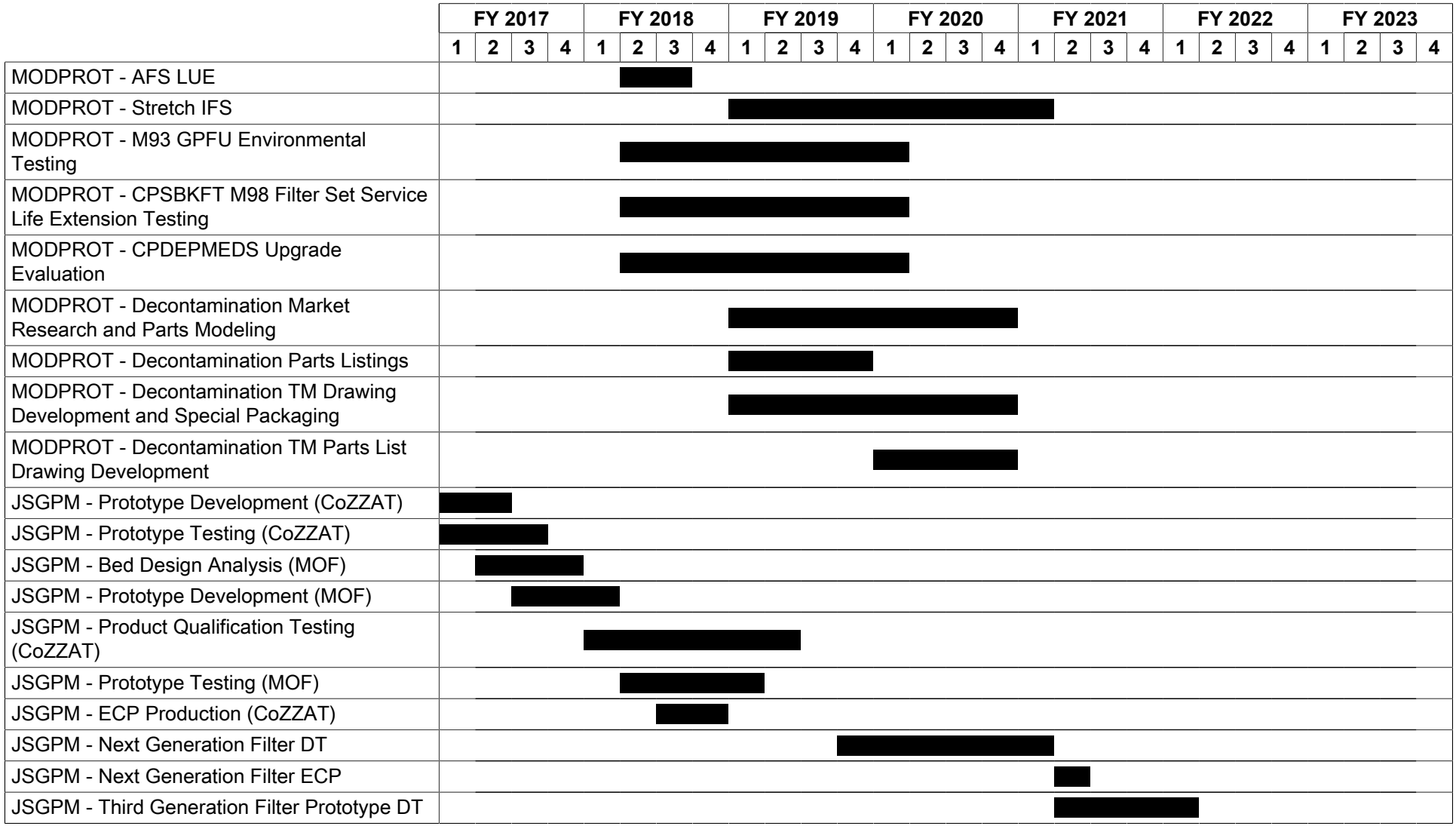

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IP7 / *INDIVIDUAL PROTECTION (OP SYS DEV)*

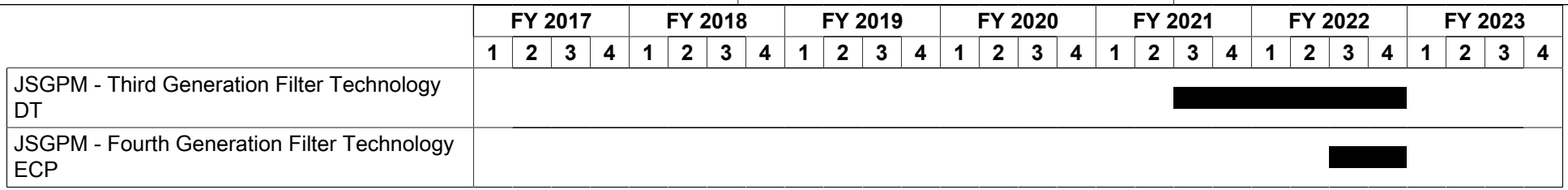

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IP7 / *INDIVIDUAL PROTECTION (OP SYS DEV)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MODPROT - AFS LUE	2	2018	3	2018
MODPROT - Stretch IFS	1	2019	1	2021
MODPROT - M93 GPFU Environmental Testing	2	2018	1	2020
MODPROT - CPSBKFT M98 Filter Set Service Life Extension Testing	2	2018	1	2020
MODPROT - CPDEPMEDS Upgrade Evaluation	2	2018	1	2020
MODPROT - Decontamination Market Research and Parts Modeling	1	2019	4	2020
MODPROT - Decontamination Parts Listings	1	2019	4	2019
MODPROT - Decontamination TM Drawing Development and Special Packaging	1	2019	4	2020
MODPROT - Decontamination TM Parts List Drawing Development	1	2020	4	2020
JSGPM - Prototype Development (CoZZAT)	1	2017	2	2017
JSGPM - Prototype Testing (CoZZAT)	1	2017	3	2017
JSGPM - Bed Design Analysis (MOF)	2	2017	4	2017
JSGPM - Prototype Development (MOF)	3	2017	1	2018
JSGPM - Product Qualification Testing (CoZZAT)	1	2018	2	2019
JSGPM - Prototype Testing (MOF)	2	2018	1	2019
JSGPM - ECP Production (CoZZAT)	3	2018	4	2018
JSGPM - Next Generation Filter DT	4	2019	1	2021
JSGPM - Next Generation Filter ECP	2	2021	2	2021
JSGPM - Third Generation Filter Prototype DT	2	2021	1	2022
JSGPM - Third Generation Filter Technology DT	3	2021	4	2022
JSGPM - Fourth Generation Filter Technology ECP	3	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program											Date: February 2018	
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 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
IS7: *INFORMATION SYSTEMS (OP SYS DEV)*	-	10.293	12.203	15.552	-	15.552	16.951	16.492	15.163	13.211	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides for the upgrade and modernization of fielded Information Systems including the Biosurveillance Portal (BSP), the Joint Effects Model (JEM) and the Joint Warning and Reporting Network (JWARN). This project also provides for the Software Support Activity (SSA) and Chemical Biological Radiological and Nuclear Information Systems (CBRN-IS). Experimentation and demonstration will be used in this phase to reduce risk and inform supporting materiel solutions, CONOPS and TTPs.

Efforts included in this project are: (1) Chemical Biological Radiological and Nuclear Information Systems (CBRN-IS); (2) Joint Effects Model (JEM); (3) Joint Warning and Reporting Network (JWARN); (4) Biosurveillance Portal (BSP); and (5) Software Support Activity (SSA).

CBRN-IS is an enterprise solution that provides End to End easily accessible sets of CBRN Enterprise capabilities through web services utilizing Service Oriented Architecture. Provides timely, fused, and easily accessible CBRN defense information to the Joint warfighter, CBDP community of interest, civil and international partners. CBRN-IS provides a collaborative environment that allows users to collect and disseminate CBRN warning and reporting data, provide detailed CBRN hazard predictions, aid in decision support, and make relevant CBRN defense information available in near-real time. CBRN-IS provides an environment that supports the implementation of Integrated Early Warning (IEW) capabilities that allow users to access netted sensor information, data fusion, disease modeling, biosurveillance data, source term estimation data, incident management tools, and planning and analysis capabilities. CBRN-IS provides net centric, cloud based tools and capabilities that are aligned with the current and future DoD IT/Cyber computing environments including Army Common Operating Environment (COE) and the Joint Information Environment (JIE). The CBRN-IS enterprise makes CBRN decision aids readily accessible from any desktop through a standard web browser simplifying interoperability, reducing integration and deployment costs and increases cybersecurity protection.

The Joint Effects Model (JEM) is a web-based software application that supplies the DoD with the one and only accredited tool to effectively model and simulate the effects of Chemical, Biological, Radiological and Nuclear (CBRN) weapon strikes and incidents. JEM is capable of providing all warfighters with the ability to accurately model and predict the time-phased impact of CBRN and Toxic Industrial Chemical/Material (TIC/TIM) events and effects. JEM supports planning to mitigate the effects of Weapons of Mass Destruction (WMD) and to provide rapid estimates of hazards and effects into the Common Operational Picture (COP).

Follow-on versions of JEM will refine and display hazard areas in near real time to reflect inputs such as meteorological, oceanographic, or actual agent concentration data. JEM will automatically receive input data from the Command, Control, Communications, Computers and Intelligence (C4I) system on which it resides, such as historical climatology, local observations, weather forecasts, natural environmental threats (i.e.: pandemic influenza, etc.), terrain data, intelligence information, or population data. JEM will also allow manual user input for factors such as concentrations of chemical warfare agents or actual exposure measurements and forecast sheltering stay-times and provide for modeling sheltering time through user-defined scenarios.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

The Joint Warning and Reporting Network (JWARN) is an accredited DoD warning and reporting system that provides a standardized warning and reporting capability for Chemical, Biological, Radiological and Nuclear (CBRN) and Toxic Industrial Materials (TIM) incidents.

JWARN supports the Joint Force Commander (JFC) by improving force protection capabilities for units operating in chemical, biological, radiological and nuclear environments. JWARN provides a digital display of CBRN 1-6 reports on the Common Operational Picture, displayed through Service provided C4I systems resident at all echelons of command. JWARN will be operated by CBRN and non-CBRN trained personnel operating in the operations center at various command nodes. This provides commanders with situational awareness to inform decision making for force protection criteria, unmasking operations, decontamination, and continuity of operations in a contaminated environment. Future sensor configurations will forward sensor inputs directly to JWARN via established communication lanes, removing the man-in-the-loop requirement with the current system configuration. JWARN will be information system classification agnostic and must be able to operate on unclassified, secret, top secret, and mission partner IT Systems without increasing system operator requirement, i.e.: sensor to COP via one communication loop. As a result, sensors will then be able to communicate with JWARN on the same network, regardless of classification.

JEM and JWARN utilize the Joint Capabilities Integration and Development System (JCIDS) Manual prescribed Information Technology Box (IT Box) construct for managing requirements for the follow-on increments of capability development. The "IT Box" is an acquisition approach and methodology regarding how software systems should be developed and fielded. It is a process that differs from the way DoD acquires hardware systems. The acquisition approach uses the Information Systems Initial Capabilities Document (IS ICD) to describe the required operational capabilities for the entire development effort. These overarching requirements are further broken out into Requirements Definition Packages (RDPs) released over the life of the product instead of a single Capability Development Document (CDD) released early in the program. "Agile Software Development" is a set of industry standard software development methods used in conjunction with the IT Box framework. Agile Software Development promotes adaptive planning, evolutionary development, early delivery, continuous improvement, and encourages rapid and flexible response to change. The Agile methodology is an alternative to traditional program management, typically used in software development. It helps teams respond to unpredictability through incremental, iterative work cadences, known as sprints. Agile methodologies are an alternative to waterfall, or traditional sequential development.

IT Box enables programs to tailor the incrementally fielded software program model in the DODI 5000.02 to conduct multiple, more frequent fielding events in lieu of a single fielding event. Programs conduct a single Milestone B (MS B) decision by the Milestone Decision Authority (MDA) that covers the entire program. MS B is followed by a series of supporting Build Decisions (BDs) associated with each RDP as they are released. 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. Instead of a single Milestone C (MS C) decision and fielding event for one increment, the program will return to the MDA for more frequent fielding decisions, as often as annually, as portions of capability are determined suitable and operationally effective. These multiple 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.

The Biosurveillance Portal (BSP) was a FY 2016 new start program to address USSOCOM requirements contained in an approved Information Systems Capability Development Document (IS CDD). BSP is a web-based enterprise environment that will facilitates collaboration, communication, and information sharing in support of the detection, management, and mitigation of man-made and naturally occurring biological events. BSP bridges the communication gaps in the biosurveillance domain

to provide a central access point for biosurveillance information and situational awareness for DoD, interagency and allied partners supporting the early identification and response to biological events. BSP provides an integrated suite of web-based components designed to support public health officers, environmental officers, clinicians, physicians, and CBRN personnel as they maintain their situational awareness of local, regional, and global biological threats to the force. BSP does not duplicate existing DoD capabilities, but rather leverages existing tools and technologies to provide users across multiple organizations and disciplines with a centralized "one-stop shop" for all of their biosurveillance resources.

The BSP Program will utilize BA7 funding to execute modernization, bug fixes, provide support at the fielded locations and maintain training. There will be two Production Capability Drops (CDs) and two Engineering CDs in FY18. CDs will be evaluated following Developmental Testing (DT) through End-to-End Testing using users to validate delivered capability as part of the IT Box process thus reducing risk to the program and ensuring a quality product is delivered to the warfighter.

As software-intensive systems, JEM, JWARN, and BSP have no separately identifiable unit production components. BSP, JEM, and JWARN are designated as 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 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 Cybersecurity/Information Assurance (IA), Integrated Architectures, Data Management/Modeling, 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 biosurveillance and other critical CBRN information.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) BSP	-	0.960	3.150
Description: Modernization Efforts			
FY 2018 Plans: Initial authorization of BA7 funds will be utilized to modernize/upgrade program cloud host provider hardware and maintain compatibility of previously delivered/fielded capabilities to ensure continuity of effort to the User.			
FY 2019 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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 2017	FY 2018	FY 2019
BA7 funds will be utilized to modernize/upgrade program cloud host provider hardware and maintain compatibility of previously delivered/fielded capabilities to ensure continuity of effort to the User. BA7 will also be used to perform refresher training and ongoing support at fielded locations. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.			
Title: 2) CBRN-IS ***Description:*** Modernization Efforts ***FY 2018 Plans:*** Continue installations of CBRN IS on milCloud and other data centers. ***FY 2019 Plans:*** Continue to modernize fielded capabilities throughout the lifecycle of the program to ensure compatibility with Service architectures, cloud-hosted environments, and system requirements, to include tech refresh of system hardware and software to maintain compatibility with new technologies and standards. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.	-	0.289	2.352
Title: 3) JEM ***Description:*** Command and Control (C2) Modernization Efforts ***FY 2018 Plans:*** Continue to update fielded JEM Increment 1 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 Increment 1 baselines. Increased funding planned for the emerging cyber security threats. Strong possibility that there will be significant increases in information assurance and cyber security arena. ***FY 2019 Plans:*** Continue to update fielded JEM 1 and JEM 2 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 1 and JEM 2 baselines. ***FY 2018 to FY 2019 Increase/Decrease Statement:***	1.657	1.656	1.795

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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 2017	FY 2018	FY 2019
Minor change due to routine program adjustments.			
Title: 4) JEM ***Description:*** Pre-Planned Product Improvement (P3I) ***FY 2018 Plans:*** Continue to test and integrate fielded JEM Increment 1 and Increment 2 software with science and technology upgrades and model enhancements to improve JEM accuracy and precision. Improve architecture and overall performance of all JEM increments through software updates and deficiency resolution. Both increments of JEM software will be supported until all service C2 systems with Increment 1 software are fielded with Increment 2 software. ***FY 2019 Plans:*** Continue to test and integrate fielded JEM 1 and 2 software with science and technology upgrades and model enhancements to improve JEM accuracy and precision. Improve architecture and overall performance of all JEM increments through software updates and deficiency resolution. Both increments of JEM software will be supported until all service C2 systems with JEM 1 software are fielded with JEM 2 software. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	3.124	3.318	3.597
Title: 5) JWARN ***Description:*** System Modernization/Update Development ***FY 2018 Plans:*** Continue engineering and development efforts 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 2019 Plans:*** Continue engineering and development efforts 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 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to change in program/project schedule.	3.342	3.858	2.801
Title: 6) JWARN	0.554	0.533	0.387

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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 2017	FY 2018	FY 2019
Description: Program Management Support ***FY 2018 Plans:*** Continue JWARN program financial management, scheduling, planning and reporting support to modernization effort under the IT BOX construct and Agile Software development processes. ***FY 2019 Plans:*** Continue JWARN program financial management, scheduling, planning and reporting support to modernization effort under the IT BOX construct and Agile Software development processes. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 7) JWARN ***Description:*** IT BOX Test & Evaluation (T&E) ***FY 2018 Plans:*** Continue required Governmental developmental and operational testing on JWARN software updates and modernization efforts under the IT BOX construct and Agile Software testing processes. ***FY 2019 Plans:*** Continue required Governmental developmental and operational testing on JWARN software updates and modernization efforts under the IT BOX construct and Agile Software testing processes. Conduct developmental and operational testing on JWARN software updates and modernization efforts to support Army's Common Operational Environment version 3 (COE v3). Develop training guides and courseware to reflect major upgrades to JWARN 2 in support of COE v3. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	0.410	0.431	0.313
Title: 8) SSA Policies, Standards and Guidelines ***FY 2018 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). ***FY 2019 Plans:***	0.262	0.244	0.246

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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 2017	FY 2018	FY 2019
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). ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 9) SSA Integrated Architecture ***FY 2018 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. ***FY 2019 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. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	0.256	0.254	0.253
Title: 10) SSA Chemical, Biological, Radiological, Nuclear (CBRN) Data Model ***FY 2018 Plans:*** Continue updating 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 2019 Plans:*** Continue updating 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 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	0.256	0.237	0.236
Title: 11) SSA Cybersecurity/Information Assurance (CS/IA) ***FY 2018 Plans:***	0.432	0.423	0.422

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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 2017	FY 2018	FY 2019
Continue to maintain proper Cybersecurity/Information Assurance (CS/IA) accreditation of any system within the CBDP portfolio throughout its life-cycle. This includes periodic re-accreditation of JPEO CBDP systems. ***FY 2019 Plans:*** Continue to maintain proper Cybersecurity/Information Assurance (CS/IA) accreditation of any system within the CBDP portfolio throughout its life-cycle. This includes periodic re-accreditation of JPEO CBDP systems. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Accomplishments/Planned Programs Subtotals	10.293	12.203	15.552

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

BIOSURVEILLANCE PORTAL (BSP)

The Biosurveillance Portal (BSP) program will continue to meet the requirements as set forth in the USSOCOM Information Systems Capability Development Document (IS CDD), 19 May 2014. The BSP program will utilize the JROC's "IT Box" construct for program requirements, management, and development. The intent is to provide the next generation of capability with current and future technologies in less time and fielding products to the DoD utilizing an incremental delivery approach. IT Box enables programs to tailor the incrementally fielded software program model in the DODI 5000.02 to conduct multiple, more frequent fielding events in lieu of a single fielding event. Capabilities will be developed and delivered in a series of Capability Drops (CDs). There are two planned Production Capability Drops and two Engineering Capability Drops planned in each FY. Developmental Testing (DT) and end-to-end tests (E2E) will be conducted for each CD to verify capabilities prior to delivery to the Warfighter. User Feedback Events (UFEs) will be conducted with identified Users to elicit feedback on developed capabilities and input on required adjustments to address new technologies. Initial Operational Capability (IOC) was achieved in July 2016. A Full Operational Test & Evaluation will be conducted prior to Final Operational Capability to be delivered in 3QFY20.

CBRN INFORMATION SYSTEMS

CBRN-IS acquisition strategy utilizes a Family-of-Systems (FoS) approach to align multiple programs of record capabilities to the CBRN-IS architecture and operational environment. CBRN-IS enterprise will initially integrate appropriate JPEO-CBD products into a FoS framework beginning with the Joint Warning and Reporting (JWARN) and Joint Effects Model (JEM) program capabilities. CBRN-IS leverages the concepts of CBRN Hazard Awareness and Understanding and DISA Enterprise Services to integrate current CBRN capabilities, and other information and intelligence services, applications, and systems to provide increased situational awareness and decision

support to commanders for CBRN defense. The strategy supports the implementation of integrated early warning capabilities by incorporating the inclusion of mature science and technology products and emerging technologies from existing advanced technology demonstrations (ATD) and experimental capability demonstrations (ECD). CBRN-IS utilizes the Agile software development process with the IT Box acquisition strategy to provide for the spiral development and fielding of modular capability packages.

JOINT EFFECTS MODEL (JEM)

JEM 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 fielding products to the service more frequently than an incremental delivery approach.

IT Box enables programs to tailor the incrementally fielded software program model in the DODI 5000.02 to conduct multiple, more frequent fielding events in lieu of a single fielding event. Programs conduct a single Milestone B (MS B) decision by the Milestone Decision Authority (MDA) that covers the entire program. MS B is followed by a series of supporting Build Decisions (BDs) associated with each RDP as they are released. 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. Instead of a single Milestone C (MS C) decision and fielding event for one increment, the program will return to the MDA for more frequent fielding decisions, as often as annually, as portions of capability are determined suitable and operationally effective. These multiple 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 part of this strategy a single JEM integrator, General Dynamics Information Technology (GDIT), was selected as the prime development contract in March 2017.

The current contractor for JEM 2 will provide all capabilities defined in the Requirement Definition Package 1 (RDP-1), Capability Drop 1.1 (CD 1.1), Capability Drop 1.2 (CD 1.2), and RDP-2 / CD 2.1, CD 2.2, and CD 2.3 documents. It is anticipated that the JRO will release further RDP-1 CDs, RDP-3, and RDP-4 prior to contract completion. The contract awarded in March 2017 includes scope for developing the remaining capabilities under the JEM 2.0 contract. The contract utilizes full and open competition and is referred to as the JEM development, modernization and sustainment contract.

An over-arching MS B and Build Decision for RDP-1 were approved by the MDA in Q4 FY14, and a CD1.1 Fielding Decision and a RDP-2 Build Decision were approved in Q3 FY16. Each subsequent RDP will have a single Build Decision and each CD will have an associated Fielding Decision.

It is anticipated JEM 2 capabilities will transition to CBRN-IS in Fiscal Year 2023.

JOINT WARNING & REPORTING NETWORK (JWARN)

JWARN 2 utilizes 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-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

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).

IT Box enables programs to tailor the incrementally fielded software program model in the DODI 5000.02 to conduct multiple, more frequent fielding events in lieu of a single fielding event. Programs conduct a single Milestone B (MS B) decision by the Milestone Decision Authority (MDA) that covers the entire program. MS B is followed by a series of supporting Build Decisions (BDs) associated with each RDP as they are released. 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. Instead of a single Milestone C (MS C) decision and fielding event for one increment, the program will return to the MDA for more frequent fielding decisions, as often as annually, as portions of capability are determined suitable and operationally effective. These multiple 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.

The JWARN Program will find an appropriate Sensor Connectivity Capability (SCC) 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).

The current contractor for JWARN 2 will provide all capabilities defined in the Requirement Definition Package 1 (RDP-1) and RDP-2 documents. It is anticipated that the JRO will release further RDP-3 and RDP-4 prior to contract completion.

As part of the strategy for a single JWARN integrator, a follow-on contract Request for Proposal (RFP) is targeted for release Q4 FY17 with a targeted award date of Q3 FY18. The follow-on contractor for JWARN 2 will provide all capabilities defined in the Requirement Definition Package 1 (RDP-1), Capability Drop 1.1 (CD 1.1), Capability Drop 1.2 (CD 1.2), and RDP-2 / CD 2.1 documents. It is anticipated that the JRO will release further RDP-1 CDs, RDP-3, and RDP-4 prior to contract completion. The follow-on contract in FY18 will include scope for developing the remaining capabilities under the JEM 2.0 contract. The JWARN follow-on contract will utilize full and open competition and will be referred to as the JWARN software development and maintenance contract.

It is anticipated JWARN 2 capabilities will transition to CBRN IS in Fiscal Year 2023.

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). 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. The SSA 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.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BSP - BSP- SW S - BSP Modernization	MIPR	Various : Various	0.000	0.000		0.960	Dec 2017	3.150	Dec 2018	-		3.150	Continuing	Continuing	0.000
JEM - SW S - Increment 1 - Modernization	C/CPAF	Northrop Grumman Corp. : San Diego, CA	9.817	1.953	Dec 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JEM - SW S - Increment 2 - Modernization	C/CPAF	General Dynamics Information Technologies : Fairfax, VA	0.100	2.828	Apr 2017	4.974	Apr 2018	5.392	Apr 2019	-		5.392	Continuing	Continuing	0.000
JWARN - 1- SW S - Modernization	C/CPAF	Northrop Grumman Corp. : Winter Park, FL	12.260	0.743	Dec 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JWARN - 2- SW S - Modernization	C/CPAF	Northrop Grumman Corp. : Winter Park, FL	0.000	1.901	Dec 2016	3.858	Mar 2018	0.000		-		0.000	Continuing	Continuing	0.000
JWARN - 2- SW S - Modernization Follow-On	C/CPAF	TBD : TBD	0.000	0.000		0.000		2.801	Jun 2019	-		2.801	Continuing	Continuing	0.000
SSA - SW S - Development Services	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	2.717	0.469	Dec 2016	0.445	Dec 2017	0.444	Dec 2018	-		0.444	Continuing	Continuing	0.000
		Subtotal	24.894	7.894		10.237		11.787		-		11.787	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CBRN IS - ES S - milCloud support	MIPR	Various : Various	0.000	0.000		0.289	Dec 2017	2.352	Dec 2018	-		2.352	Continuing	Continuing	0.000
JWARN - 1&2 - ES S - Modernization	MIPR	Various : Various	0.424	0.787	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program			Date: February 2018
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)*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SSA - TD/D C - Information Assurance Activities	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	2.888	0.291	Nov 2016	0.268	Dec 2017	0.268	Dec 2018	-		0.268	Continuing	Continuing	0.000
		Subtotal	3.312	1.078		0.557		2.620		-		2.620	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JWARN - 1- OTE S - FOT&E	MIPR	Various : Various	4.015	0.404	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JWARN - 2- OTE S	MIPR	Various : Various	0.000	0.070	Nov 2016	0.431	Dec 2017	0.313	Dec 2018	-		0.313	Continuing	Continuing	0.000
SSA - OTHT S - Integration Verification and Valuation (IV&V)	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	2.856	0.446	Dec 2016	0.445	Dec 2017	0.445	Dec 2018	-		0.445	Continuing	Continuing	0.000
		Subtotal	6.871	0.920		0.876		0.758		-		0.758	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JWARN - PM/MS S - Program management	MIPR	Various : Various	1.304	0.401	Dec 2016	0.533	Dec 2017	0.387	Dec 2018	-		0.387	Continuing	Continuing	0.000
		Subtotal	1.304	0.401		0.533		0.387		-		0.387	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	36.381	10.293		12.203		15.552		-		15.552	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program			Date: February 2018
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)*	

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

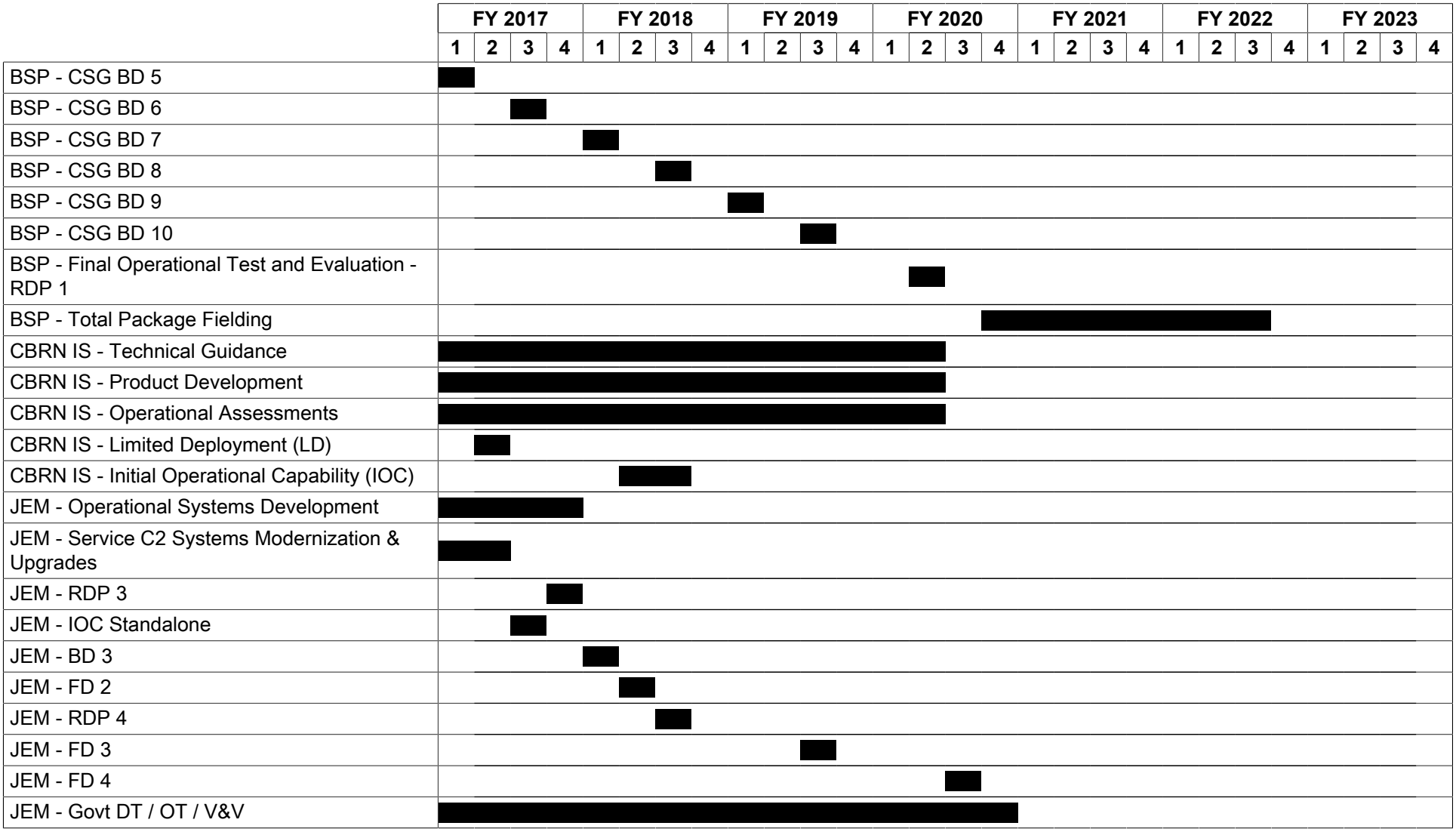

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *INFORMATION SYSTEMS (OP SYS DEV)*

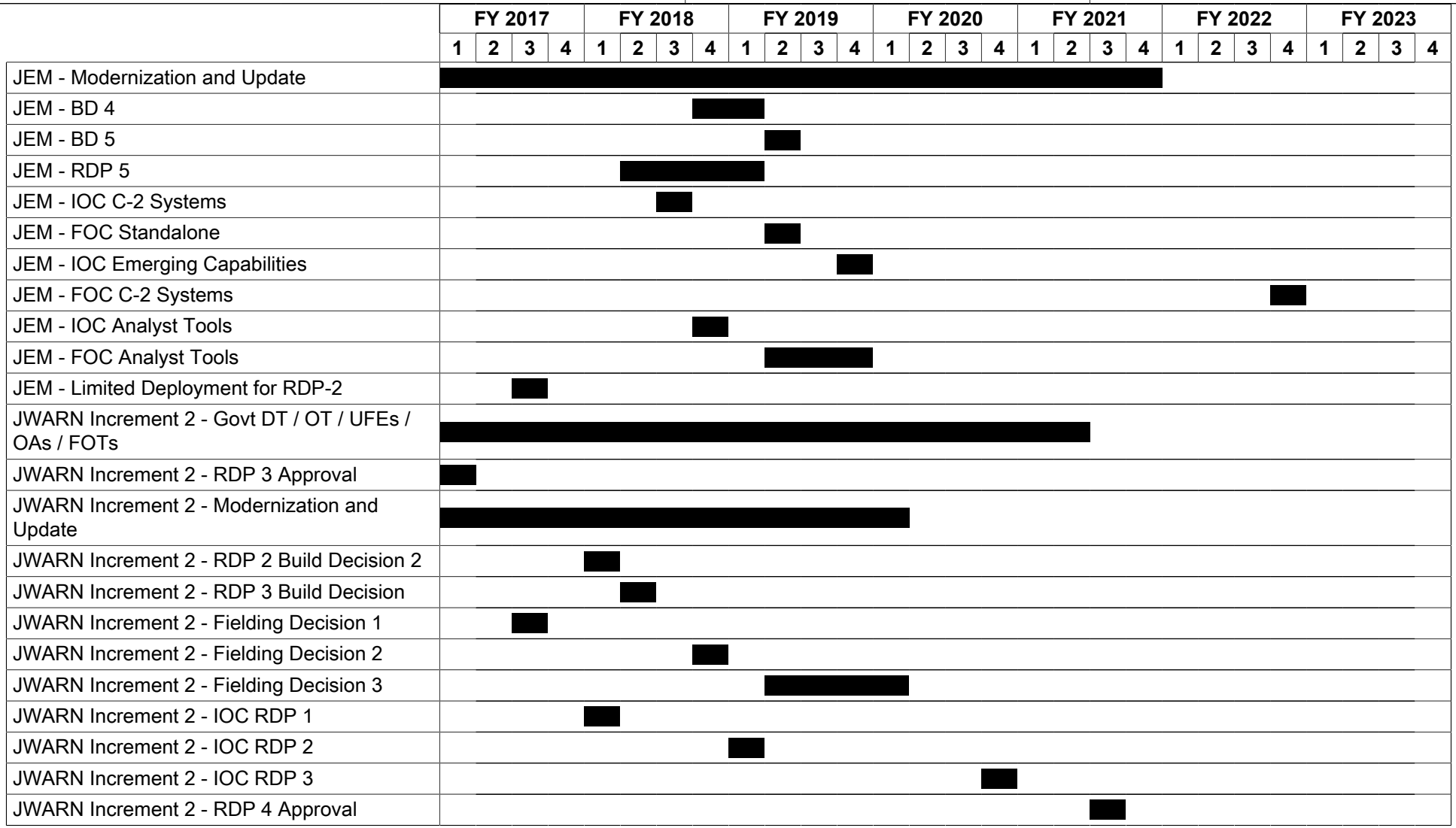

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *INFORMATION SYSTEMS (OP SYS DEV)*

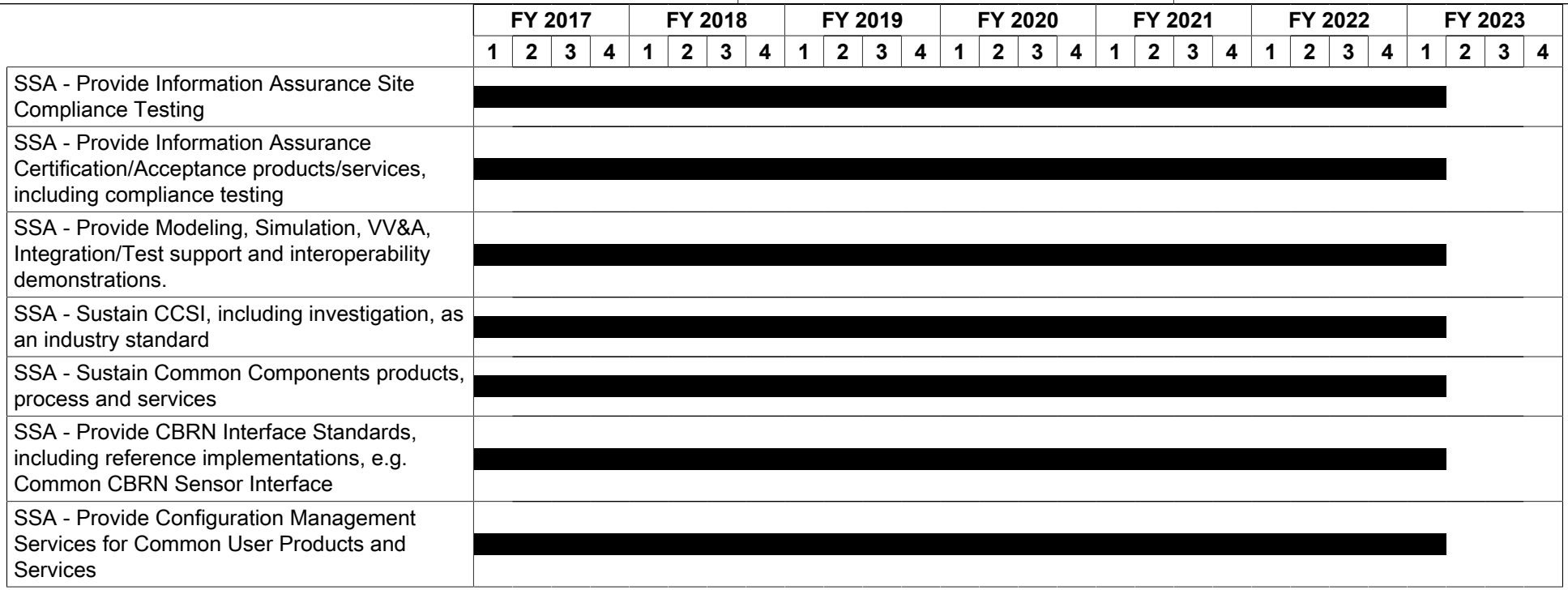

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *INFORMATION SYSTEMS (OP SYS DEV)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
BSP - CSG BD 5	1	2017	1	2017
BSP - CSG BD 6	3	2017	3	2017
BSP - CSG BD 7	1	2018	1	2018
BSP - CSG BD 8	3	2018	3	2018
BSP - CSG BD 9	1	2019	1	2019
BSP - CSG BD 10	3	2019	3	2019
BSP - Final Operational Test and Evaluation - RDP 1	2	2020	2	2020
BSP - Total Package Fielding	4	2020	3	2022
CBRN IS - Technical Guidance	1	2017	2	2020
CBRN IS - Product Development	1	2017	2	2020
CBRN IS - Operational Assessments	1	2017	2	2020
CBRN IS - Limited Deployment (LD)	2	2017	2	2017
CBRN IS - Initial Operational Capability (IOC)	2	2018	3	2018
JEM - Operational Systems Development	1	2017	4	2017
JEM - Service C2 Systems Modernization & Upgrades	1	2017	2	2017
JEM - RDP 3	4	2017	4	2017
JEM - IOC Standalone	3	2017	3	2017
JEM - BD 3	1	2018	1	2018
JEM - FD 2	2	2018	2	2018
JEM - RDP 4	3	2018	3	2018
JEM - FD 3	3	2019	3	2019
JEM - FD 4	3	2020	3	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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**
JEM - Govt DT / OT / V&V	1	2017	4	2020
JEM - Modernization and Update	1	2017	4	2021
JEM - BD 4	4	2018	1	2019
JEM - BD 5	2	2019	2	2019
JEM - RDP 5	2	2018	1	2019
JEM - IOC C-2 Systems	3	2018	3	2018
JEM - FOC Standalone	2	2019	2	2019
JEM - IOC Emerging Capabilities	4	2019	4	2019
JEM - FOC C-2 Systems	4	2022	4	2022
JEM - IOC Analyst Tools	4	2018	4	2018
JEM - FOC Analyst Tools	2	2019	4	2019
JEM - Limited Deployment for RDP-2	3	2017	3	2017
JWARN Increment 2 - Govt DT / OT / UFEs / OAs / FOTs	1	2017	2	2021
JWARN Increment 2 - RDP 3 Approval	1	2017	1	2017
JWARN Increment 2 - Modernization and Update	1	2017	1	2020
JWARN Increment 2 - RDP 2 Build Decision 2	1	2018	1	2018
JWARN Increment 2 - RDP 3 Build Decision	2	2018	2	2018
JWARN Increment 2 - Fielding Decision 1	3	2017	3	2017
JWARN Increment 2 - Fielding Decision 2	4	2018	4	2018
JWARN Increment 2 - Fielding Decision 3	2	2019	1	2020
JWARN Increment 2 - IOC RDP 1	1	2018	1	2018
JWARN Increment 2 - IOC RDP 2	1	2019	1	2019
JWARN Increment 2 - IOC RDP 3	4	2020	4	2020
JWARN Increment 2 - RDP 4 Approval	3	2021	3	2021
SSA - Provide Information Assurance Site Compliance Testing	1	2017	1	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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 - Provide Information Assurance Certification/Acceptance products/services, including compliance testing	1	2017	1	2023
SSA - Provide Modeling, Simulation, VV&A, Integration/Test support and interoperability demonstrations.	1	2017	1	2023
SSA - Sustain CCSI, including investigation, as an industry standard	1	2017	1	2023
SSA - Sustain Common Components products, process and services	1	2017	1	2023
SSA - Provide CBRN Interface Standards, including reference implementations, e.g. Common CBRN Sensor Interface	1	2017	1	2023
SSA - Provide Configuration Management Services for Common User Products and Services	1	2017	1	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*	-	6.999	11.950	9.850	-	9.850	3.728	6.060	6.532	2.969	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides for the upgrade and modernization of fielded Medical Biological defense equipment/systems including the Joint Biological Agent Identification and Diagnostic System (JBAIDS) and Next Generation Diagnostic Systems (NGDS).

JBAIDS is a commercial off the shelf system that provides 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.

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 Chemical, Biological and Radiological (CBR) threat and infectious disease identification and U.S. Food and Drug Administration (FDA) cleared diagnostics to inform individual patient treatment as defined in the approved NGDS Capabilities Development Document (CDD) and CBR situational awareness and disease surveillance as defined in the Common Analytical Laboratory (CALS) CDD. NGDS Increment 1 will significantly improve diagnostic capability for deployable combat health support units (Role 3) while also improving operational suitability and affordability by developing FDA cleared biological warfare agent (BWA) and infectious disease in vitro diagnostic (IVD) assays on existing commercial diagnostic device with a well established FDA regulatory history and pipeline of commercial non BWA infectious disease diagnostic tests. The NGDS Increment 1 program successfully achieved MS C Limited Deployment in December 2016.

FY19, JBAIDS efforts will oversee the configuration management of the system to include program management and monitoring obsolescence.

FY19, NGDS 1 efforts will complete the development of additional assays needed for JBAIDS replacement as well as for additional threat agents (e.g., Alpha Virus, and Orthopox).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) Joint Biological Agent Identification and Diagnostic System (JBAIDS)	0.374	0.203	-
Description: Logistic Support, Engineering Studies, and Software Security Testing			
FY 2018 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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 2017	FY 2018	FY 2019
Continue sustainment contract, software security and RMF FISMA. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to fact of life change in the program/project.			
Title: 2) JBAIDS ***Description:*** Development and Submission of Pre-EUA Packages to FDA ***FY 2018 Plans:*** Continue development and submissions of Pre-EUA packages to the FDA. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to fact of life change in the program/project.	0.068	0.203	-
Title: 3) JBAIDS ***FY 2018 Plans:*** Maintain the Defense Logistics Agency Electronic-Cataloging capability. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	-	0.052	-
Title: 4) JBAIDS ***Description:*** Program Management and Obsolescence Monitoring ***FY 2019 Plans:*** Continue to monitor obsolescence and strategic planning, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, regulatory and technical support ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase due to fact of life change in the program/project.	-	-	0.468
Title: 5) NGDS 1 ***Description:*** NGDS 1 Development of Plague, Tularemia, and Q-Fever assays.	4.527	-	-
Title: 6) NGDS 1 ***Description:*** NGDS 1 Program Management	2.030	-	3.640

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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 2017	FY 2018	FY 2019
FY 2019 Plans: Continue strategic/tactical planning, Government system engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, regulatory and technical support. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 7) NGDS 1 ***Description:*** Development of FDA-Cleared Medical Diagnostic Assays. ***FY 2018 Plans:*** Initiate development of additional FDA cleared medical diagnostic assay for the Alphavirus's (Eastern Equine Encephalitis/ Venezuela Equine Encephalitis/Western Equine Encephalitis) and Orthopox (Variola major-Smallpox, Variola minor, Pan-Orthopox, Monkeypox). ***FY 2019 Plans:*** Continue development of additional FDA cleared medical diagnostic assay for the Alphavirus's (Eastern Equine Encephalitis/ Venezuela Equine Encephalitis/Western Equine Encephalitis) and Orthopox (Variola major-Smallpox, Variola minor, Pan-Orthopox, Monkeypox). Continue development of additional assays and sample validation protocols to meet JBAIDS equivalence ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	-	11.492	5.742
Accomplishments/Planned Programs Subtotals	6.999	11.950	9.850

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

JOINT BIO AGENT IDENT AND DIAG SYSTEM (JBAIDS)

JBAIDS is a commercial off-the-shelf capability to identify multiple biological agents and other pathogens of operations concern, to include environmental and FDA cleared in vitro diagnostic assays. JBAIDS also has pre-positioned Emergency Use Authorizations assays for the identification of low probability, high consequence pathogens in clinical samples that can be deployed in the event of a declared health emergency. The JBAIDS program is preparing for full replacement by NGDS Increment 1 systems, beginning in FY17.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)

The NGDS program was a MS A to MS C - Limited Deployment acquisition strategy, with MS C approval granted in Dec 2016 for limited production and fielding. NGDS 1 will replace the legacy Joint Biological Agent Identification and Diagnostic System (JBAIDS) beginning in FY17.

The NGDS 2 program addresses CBR agents and concepts of employment (COEs) that the NGDS 1 Film Array does not address. More than one materiel solution is required to expand the scope of CBR agent diagnostics across multiple echelons of care. NGDS 2 will employ a family of systems approach to bridge identified capability gaps for man-portable diagnostics, immunoassay diagnostics, and chemical diagnostics systems. NGDS 2 initiated prototyping of a man-portable diagnostic capability in FY17, while continuing to conduct risk reduction efforts for the other capabilities. Separate decisions will be utilized to proceed with further development and production for each capability, based on individual determinations of technology maturity to meet user requirements. Development efforts are anticipated to be cost-plus awards under the medical Other Transactions Authority (OTA), to take advantage of non-traditional Defense contractor offerings.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program			Date: February 2018
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)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGDS - NGDS 1 - HW C - Assay Development	C/CPFF	BioFire Dx : Salt Lake City, UT	7.939	2.820	Dec 2016	4.876	Dec 2017	3.761	Dec 2018	-		3.761	Continuing	Continuing	0.000
		Subtotal	7.939	2.820		4.876		3.761		-		3.761	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGDS - ES S - Engineering Support	MIPR	Various : Various	1.308	0.918	Jan 2017	2.527	Jun 2018	1.981	Feb 2019	-		1.981	Continuing	Continuing	0.000
		Subtotal	1.308	0.918		2.527		1.981		-		1.981	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JBAIDS - OTHT S - EUA packages	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	0.978	0.000	Mar 2017	0.203	Mar 2018	0.000		-		0.000	Continuing	Continuing	0.000
JBAIDS - OTHT S - EUA packages #2	MIPR	Defense Technical Information Center (DTIC) : Fort Belvoir, VA	0.000	0.068	Feb 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGDS - DTE S - Operational Assessment/ MOT&E	MIPR	Various : Various	4.910	0.789	Jan 2017	0.372	Jan 2018	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	5.888	0.857		0.575		0.000		-		0.000	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JBAIDS - PM/MS S - Project Management	MIPR	Various : Various	1.719	0.037	Jan 2017	0.052	Jan 2018	0.468	Jan 2019	-		0.468	Continuing	Continuing	0.000
JBAIDS - PM/MS S - Sustainment contract: CLS, software updates	PO	Various : Various	0.789	0.337	Jan 2017	0.203	Jan 2018	0.000	Jan 2019	-		0.000	Continuing	Continuing	0.000
NGDS - PM/MS C - PM/MS - Program Management Support	Allot	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	0.000	Jan 2017	0.089	Jan 2018	1.407	Jan 2019	-		1.407	Continuing	Continuing	0.000
NGDS - PM/MS S - Product Management Support	MIPR	Various : Various	0.000	1.673	Jan 2017	0.000		1.389	Jan 2019	-		1.389	Continuing	Continuing	0.000
NGDS - PM/MS S - Program Management Support	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	3.931	0.357	Jan 2017	3.628	Jan 2018	0.844	Jan 2019	-		0.844	Continuing	Continuing	0.000
		Subtotal	6.439	2.404		3.972		4.108		-		4.108	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	21.574	6.999		11.950		9.850		-		9.850	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

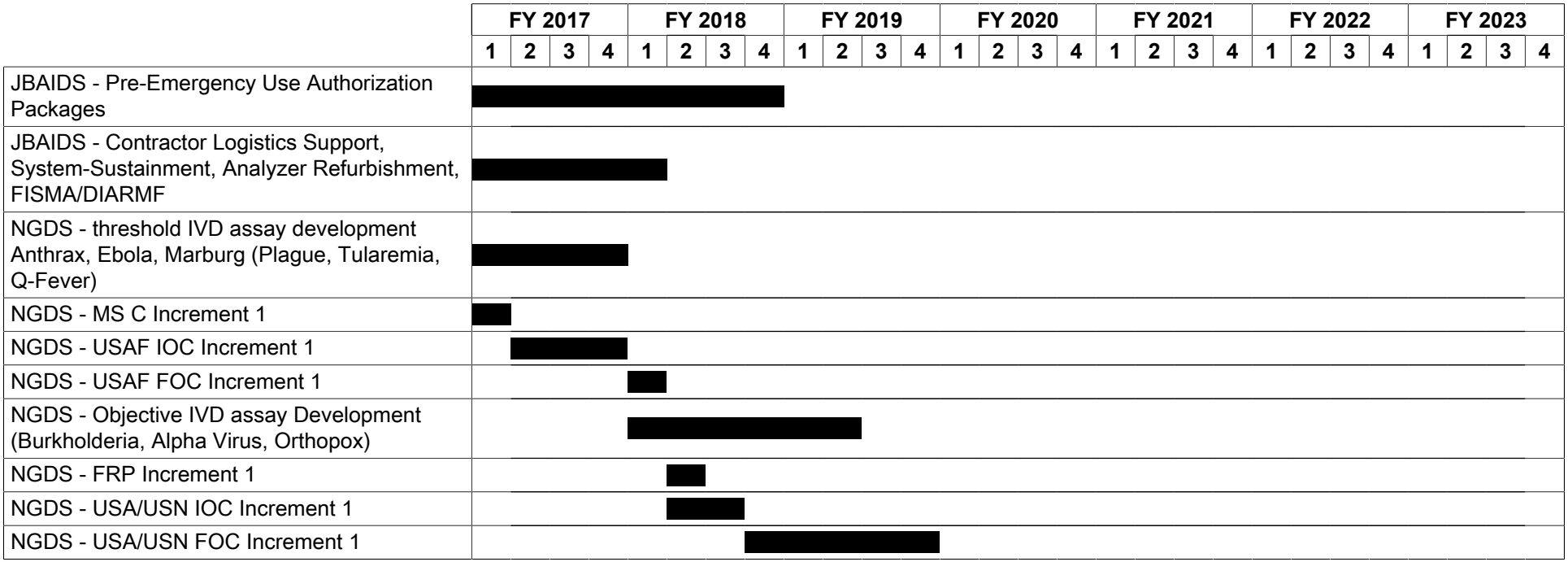

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MB7 / *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JBAIDS - Pre-Emergency Use Authorization Packages	1	2017	4	2018
JBAIDS - Contractor Logistics Support, System-Sustainment, Analyzer Refurbishment, FISMA/DIARMF	1	2017	1	2018
NGDS - threshold IVD assay development Anthrax, Ebola, Marburg (Plague, Tularemia, Q-Fever)	1	2017	4	2017
NGDS - MS C Increment 1	1	2017	1	2017
NGDS - USAF IOC Increment 1	2	2017	4	2017
NGDS - USAF FOC Increment 1	1	2018	1	2018
NGDS - Objective IVD assay Development (Burkholderia, Alpha Virus, Orthopox)	1	2018	2	2019
NGDS - FRP Increment 1	2	2018	2	2018
NGDS - USA/USN IOC Increment 1	2	2018	3	2018
NGDS - USA/USN FOC Increment 1	4	2018	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
TE7: *TEST & EVALUATION (OP SYS DEV)*	-	2.551	6.605	6.318	-	6.318	5.416	5.733	5.733	5.733	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides revitalization of existing instrumentation and technology upgrades to equipment at West Desert Test Center (WDTC) at Dugway Proving Ground (DPG), a Major Range and Test Facility Base (MRTFB), in support of their Chemical and Biological (CB) test mission. Included in these efforts are (1) the Life Sciences Test Facility (LSTF), which is the only U.S. laboratory equipped to test for aerosolized bio-safety level-3 (BSL-3) agents, (2) Major Test Chambers (Materiel Test Facility (MTF) which house the secondary containment modules (SCMs) for NTA testing, as well as other detector test chambers and Building 4165) at WDTC (which houses the small item decontamination test fixture, the dynamic test chamber and the Individual Protection Ensemble Mannequin System (IPEMS) chamber as well as several smaller labs (3) the CB Test Grid at WDTC which includes all dissemination, field referee equipment, and support equipment (generators, CP) and will include all upgraded test grid equipment transitioned from PD CCATTI and (4) the Combined Chemical Test Facility (CCTF) which includes the majority of chemical analytical equipment including Nuclear Magnetic Resonance (NMR) spectrometer, Gas Chromatograph (GC), GC-Mass Spectrometer (GC-MS), MS triple quads, Miniature Chemical Agent Monitoring System (MINICAMS), GASMETs, Liquid Chromatography MS (LCMS) and the majority of the laboratory hood space at WDTC.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) BTB UPGRADE	-	0.925	0.885
FY 2018 Plans: Continues to provide instrumentation and equipment to BTB-ECBC, in support of the CB Defense mission. Continues to provide for BSL-3 biological laboratory equipment for the LSTF Annex. Provides for enhancement of the biological decontamination capability. Provides for enhanced laboratory referee capability and management.			
FY 2019 Plans: Continues to provide instrumentation and equipment to BTB-ECBC, in support of the CB Defense mission. Continues to provide for BSL-3 biological laboratory equipment for the Lother Solomon Test Facility (LSTF) Annex. Provides for enhancement of the biological decontamination capability. Provides for enhanced laboratory referee capability and management.			
FY 2018 to FY 2019 Increase/Decrease Statement: Minor change due to routine program adjustments.			
Title: 2) ECBC-BTB - MRTFB	1.483	-	-
Title: 3) WDTC - MRTFB	0.030	1.220	1.087
Description: Major Test Chambers (MTF and Building 4165)			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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 2017	FY 2018	FY 2019
FY 2018 Plans: Modernization in the chambers will include: (a) Continued enhancements of an aerosol generation and sampling capability; (b) Additional upgrades to agent surety monitor and analytical instrumentation; (c) Continued enhancement of TIC detection; and (d) expanded NTA test and detection capability. ***FY 2019 Plans:*** Continue modernization of the chambers to include: (a) Enhancements of an aerosol generation and sampling capability; (b) Additional upgrades to agent surety monitor and analytical instrumentation; (c) Enhancement of TIC detection; and (d) expanded NTA test and detection capability. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 4) WDTC - MRTFB ***Description:*** CB Test Grid ***FY 2018 Plans:*** Continuing modernization efforts will include: (1) Enhancement of point and standoff field referee systems; (2) Upgrade of grid communications and data analysis capabilities; (3) Additional upgrades to enhance optic data collection. Enhancements to Test Grid will provide near real time data analysis and rapid test adaptation to minimize costs and increase the effectiveness of field testing. ***FY 2019 Plans:*** Continue modernization efforts to include: (1) Enhancement of point and standoff field referee systems; (2) Upgrade of grid communications and data analysis capabilities; (3) Additional upgrades to enhance optic data collection. Enhancements to Test Grid will provide near real time data analysis and rapid test adaptation to minimize costs and increase the effectiveness of field testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	0.446	1.384	1.358
Title: 5) WDTC - MRTFB ***Description:*** Combined Chemical Test Facility (CCTF) ***FY 2018 Plans:***	0.592	3.076	2.988

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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 2017	FY 2018	FY 2019
Will provide for continued revitalization and upgrade of existing instrumentation and equipment at the CCTF at WDTC in support of their chemical test mission. Upgrade of chemical laboratory fume hoods will continue in FY18. Modernization will result in improved test fixtures which will reduce risk to personnel and provide improved test capabilities. Will continue efforts to enhance NTA test capability in these fixtures. ***FY 2019 Plans:*** Provide for continued revitalization and upgrade of existing instrumentation and equipment at the CCTF at WDTC in support of their chemical test mission. Upgrade of chemical laboratory fume hoods will continue in FY19. Modernization will result in improved test fixtures which will reduce risk to personnel and provide improved test capabilities. Continue efforts to enhance NTA test capability in these fixtures. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Accomplishments/Planned Programs Subtotals	2.551	6.605	6.318

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

BIO TEST BRANCH T&E UPGRADE (BTB UPGRADE)

Test and evaluation Range Instrumentation/Technology Upgrades is a continuing project. It provides for technical upgrades to Bio Test Branch (ECBC) capabilities for Biological testing of DoD CB materiel, weapons, and weapons systems from concept through production. Technical and Facility upgrades will utilize full and open competition as appropriate through ECBC contract resources.

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. Upgrades will utilize MIPRS and contracts.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BTB UPGRADE - OTHT S - T&E Upgrade	C/FFP	TBD : TBD	0.000	0.000		0.925	Mar 2018	0.885	Apr 2019	-		0.885	Continuing	Continuing	0.000
T&E UPGRAD - OTHT S - Technology Upgrades - WDTC, UT	MIPR	Various : Various	19.545	2.551	Mar 2017	5.680	Mar 2018	5.433	Mar 2019	-		5.433	Continuing	Continuing	0.000
		Subtotal	19.545	2.551		6.605		6.318		-		6.318	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	19.545	2.551		6.605		6.318		-		6.318	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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)*

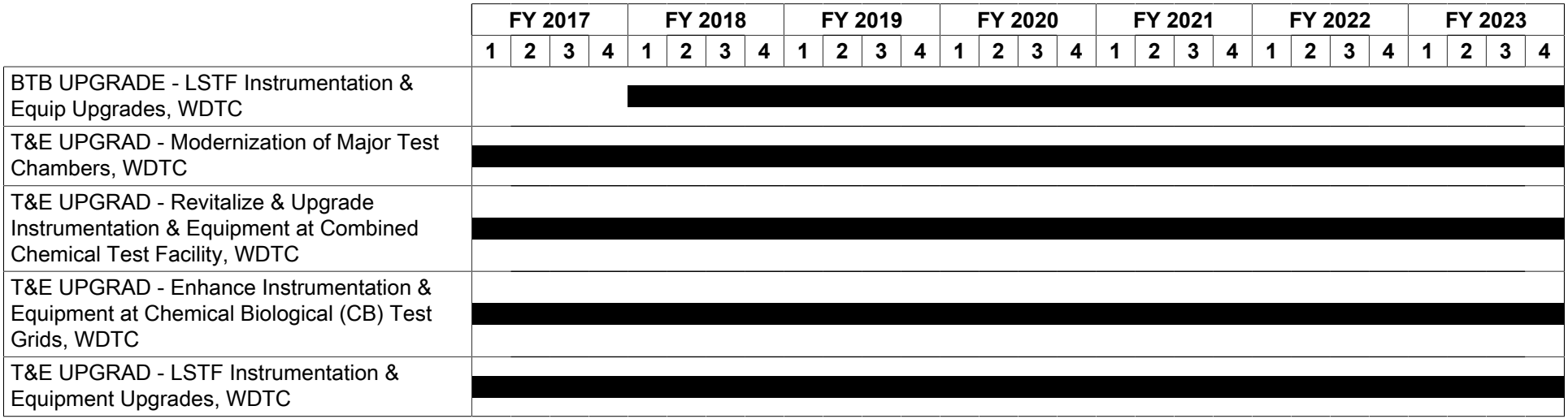

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** TE7 / *TEST & EVALUATION (OP SYS DEV)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
BTB UPGRADE - LSTF Instrumentation & Equip Upgrades, WDTC	1	2018	4	2023
T&E UPGRAD - Modernization of Major Test Chambers, WDTC	1	2017	4	2023
T&E UPGRAD - Revitalize & Upgrade Instrumentation & Equipment at Combined Chemical Test Facility, WDTC	1	2017	4	2023
T&E UPGRAD - Enhance Instrumentation & Equipment at Chemical Biological (CB) Test Grids, WDTC	1	2017	4	2023
T&E UPGRAD - LSTF Instrumentation & Equipment Upgrades, WDTC	1	2017	4	2023