Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Chemical and Biological Defense Program	Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	-	28.278	33.361	45.677	-	45.677	51.510	41.653	39.790	50.272	Continuing	Continuing
CA7: *CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV*	-	4.644	6.113	6.393	-	6.393	6.799	6.897	9.450	11.815	Continuing	Continuing
CM7: *HOMELAND DEFENSE (OP SYS DEV)*	-	1.878	1.627	1.652	-	1.652	4.454	4.454	4.437	4.437	Continuing	Continuing
CO7: *COLLECTIVE PROTECTION (OP SYS DEV)*	-	0.000	4.466	5.127	-	5.127	3.586	0.988	0.895	0.703	Continuing	Continuing
IP7: *INDIVIDUAL PROTECTION (OP SYS DEV)*	-	2.978	1.059	1.747	-	1.747	2.056	2.092	2.021	2.663	Continuing	Continuing
IS7: *INFORMATION SYSTEMS (OP SYS DEV)*	-	7.556	10.357	12.203	-	12.203	15.461	16.888	16.172	14.298	Continuing	Continuing
MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*	-	8.541	7.145	11.950	-	11.950	12.836	4.918	1.082	10.623	Continuing	Continuing
TE7: *TEST & EVALUATION (OP SYS DEV)*	-	2.681	2.594	6.605	-	6.605	6.318	5.416	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 Program that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

Efforts in this program element support the upgrade of fielded CB defense equipment against emerging chemical threat agents and toxic industrial chemicals. Specifically this program includes: (1) the upgrade and modernization of contamination avoidance systems; (2) the upgrade and modernization of homeland defense systems; (3) the upgrade and modernization of information systems; (4) the Software Support Activity (SSA); (5) the upgrade and modernization of medical systems; (6) upgrade and modernization of BSL3 systems; and (7) 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: FY 2018 Chemical and Biological Defense Program	Date: May 2017
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0607384BP *I CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	33.561	33.361	43.983	-	43.983
Current President's Budget	28.278	33.361	45.677	-	45.677
Total Adjustments	-5.283	0.000	1.694	-	1.694
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	0.000	-			
• Congressional Directed Transfers	0.000	-			
• Reprogrammings	-5.283	-			
• SBIR/STTR Transfer	0.000	-			
• Other Adjustments	0.000	-	1.694	-	1.694

Change Summary Explanation

Funding: FY18 - Initiate development ($7M) of additional FDA cleared medical diagnostic assay for the Alphavirus's (Eastern Equine Encephaltis/Venezuela Equine Encephalitis/Western Equine Encephalitis) and Orthopox (Variola major-Smallpox, Variola minor, Pan-Orthopox, Monkeypox). Adjustments due to fact-of-life changes ($5).

Schedule: N/A

Technical: N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
CA7: *CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV*	-	4.644	6.113	6.393	-	6.393	6.799	6.897	9.450	11.815	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides the technology upgrade and refresh effort for the Chemical Biological Radiological Nuclear Dismounted Reconnaissance Systems (CBRN DRS) with emerging technologies and capabilities which will address and mitigate equipment obsolescence.

The CBRN Dismounted Reconnaissance Systems (CBRN DRS) consists of portable, commercial and Government off-the-shelf equipment which provides personnel protection from current and emerging CBRN hazards through detection, identification, sample collection, decontamination, marking, and hazard reporting for CBRN threats. The CBRN DRS 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 program will address emerging CBRN threat requirements in order to provide an enhanced capability for the future. The CBRN DRS Inc 2 supports Dismounted Reconnaissance, Surveillance, and CBRN Sensitive Site Exploration missions which enables more detailed and near real-time CBRN information flow for the Warfighter.

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 2016	FY 2017	FY 2018
Title: 1) CBRN DRS	4.644	6.113	6.393
FY 2016 Accomplishments: Completed market analysis on Solid and Liquid Identification Kit (SLIK). Purchased components for testing for SLIK evaluation. Initiated testing for SLIK. Continued market analysis for additional components.			
FY 2017 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 2018 Plans:			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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 2016	FY 2017	FY 2018
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.			
Accomplishments/Planned Programs Subtotals	4.644	6.113	6.393

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

CBRN DISMOUNTED RECONNAISSANCE SYSTEMS

BA4: 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 in conjunction with their existing baseline CBRN DRS Inc 1 system. The ACS will be comprised of Government (GOTS) and commercial off-the-shelf (COTS) equipment to the greatest extent possible. The ACS will be used by Joint Technical Forces in conjunction to their CBRN DRS Inc 1 system to support Sensitive Site Exploitation. Requirements analysis will support Materiel Development Decision and study guidance for the Analysis of Alternatives (AoA). The AoA will identify potential solutions and support further requirements development, culminating in an approved Capabilities Development Document. Contracting efforts will be initiated under the Joint Enterprise Research, Development, Acquisition and Production Contracts. Contracting will cover a base period of performance for development/integration with options for Low-Rate and Full Rate Production (FRP).

BA7: 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-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
CM7: *HOMELAND DEFENSE (OP SYS DEV)*	-	1.878	1.627	1.652	-	1.652	4.454	4.454	4.437	4.437	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.

The Weapons of Mass Destruction Civil Support Team (WMD CST) Program supports the fielded system upgrade and ongoing assessment and acquisition of commercial off-the-shelf (COTS) and Government off-the-shelf (GOTS) analytical detection, protection, decontamination and sampling equipment for survey in order to expand/enhance the operational capabilities of the (57) WMD CST Teams.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: 1) WMD CST - Component Test and Evaluation	1.078	1.115	0.937
FY 2016 Accomplishments: Provided system-related test activities for NGB's Electro Static Discharge (ESD) System and the Area RAE Chemical Detection System, 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 2017 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 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.			
Title: 2) WMD CST - System Engineering and Program Management	0.800	0.512	0.715
FY 2016 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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 2016	FY 2017	FY 2018
Provided 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 2017 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 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).			
Accomplishments/Planned Programs Subtotals	1.878	1.627	1.652

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

WMD - CIVIL SUPPORT TEAMS (WMD CST)

The Weapons of Mass Destruction Civil Support Team Program (WMD-CST) is a COTS based program that supports the 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-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program			Date: May 2017
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	Project (Number/Name) CO7 / *COLLECTIVE PROTECTION (OP SYS DEV)*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
CO7: *COLLECTIVE PROTECTION (OP SYS DEV)*	-	0.000	4.466	5.127	-	5.127	3.586	0.988	0.895	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.

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 2016	FY 2017	FY 2018
Title: 1) MODPROT Collective Protection Modernization	-	-	0.800
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.			
FY 2018 Plans:			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CO7 / *COLLECTIVE PROTECTION (OP SYS DEV)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
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.			
Title: 2) JECP Field Leakage Test Capability ***Description:*** Improve field leakage test capability, simulate test methods and field operator procedures. ***FY 2017 Plans:*** Initiate development of a field leakage test capability. Evaluate existing laboratory test methods for application in the field. Down select designs, tracer materials and develop 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.	-	0.296	0.485
Title: 3) JECP Filtration Improvements ***Description:*** Improve M98 filter set capability. ***FY 2017 Plans:*** Initiate design and development of improved M98 filter set capability to meet additional chemical / biological (CB) and toxic industrial chemical (TIC) / toxic industrial material (TIM) protection requirements. Initiate preliminary testing and procure CB/TIC/ TIM materials for testing. ***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.	-	4.170	3.640
Title: 4) 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.	-	-	0.080
Title: 5) JECP Liner and Liner Restraint System Improvements ***Description:*** Tent kit liner and liner restraint system improvements.	-	-	0.122

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CO7 / *COLLECTIVE PROTECTION (OP SYS DEV)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
FY 2018 Plans: Continue updates to the drawing package and technical manuals. Implement engineering changes.			
Accomplishments/Planned Programs Subtotals	-	4.466	5.127

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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)

Strategy based on evolutionary development, based on a family of systems approach. After MS B, awarded competitive Cost Plus Incentive Fee (CPIF) contract to Science Applications International Corporation (now Leidos) in 2008 to build prototypes subjected to robust engineering developmental testing and Operational Assessment during the Engineering and Manufacturing Development (EMD) phase. After MS C, awarded a Firm Fixed Price (FFP) option to Leidos in September 2013 for Low Rate Initial Production (LRIP) systems to support formal Developmental Testing (DT) and Multi-Service Operational Test & Evaluation (MOT&E) events. In addition, a Fixed Price Incentive Firm Target (FPIF) option was awarded to Leidos in January 2014 to perform non-recurring engineering (NRE) and logistic product development associated with the LRIP system configurations. A post MS C Milestone Decision Authority Acquisition Decision Memorandum, dated March 2014, separated the program into two phases. Phase 2 systems will be developed as engineering changes to Phase 1 systems. The Full Rate Production (FRP) decision for Phase 1 systems, dated December 2016, addressed business case analysis results and approved a full and open competition build-to-print production task order under the Joint Enterprise Research, Development, Acquisition, and Production/Procurement Contract. Phase 2 systems will undergo limited developmental and operational testing and then pursue a MS C full rate production decision. BA7 funding develops incremental improvements to fielded JECP variants.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
IP7: *INDIVIDUAL PROTECTION (OP SYS DEV)*	-	2.978	1.059	1.747	-	1.747	2.056	2.092	2.021	2.663	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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 and transition the current chemical protective overboot to the Moulded AirBoss Lightweight Overboot (MULO), conduct a modernization effort of the Integrated Footwear System (IFS), conduct a modernization effort of the JSLIST Block 1 Glove Upgrade Flame Resistant (JB1GU FR) glove, and conduct 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) and conducting a Limited Users Evaluation (LUE) in support of the Alternative Source Qualification plan for a suitable replacement to the Alternative Footwear Solution. Filter upgrades will be provided for fielded Protection systems to enhance respiratory and ocular protection.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: 1) MODPROT Individual Protection Modernization ***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.	-	-	0.051
Title: 2) JSGPM ***Description:*** Advanced Respiratory Protection Initiative (ARPI) - M61 Filter Modernization ***FY 2016 Accomplishments:*** Built M61 and C2A1 filters using layered bed technology using Cobalt-Zinc, zirconium hydroxide, Argentum(Silver), TEDA (triethylene diamine)(CoZZAT) and improved carbon technology. Advanced the maturity of the CoZZAT and layered bed manufacturing processes. Conducted testing of the prototypes to include testing in relevant environments. Continued investigation of the impact of breathing cycles on the performance of the new media. ***FY 2017 Plans:***	2.978	1.059	1.696

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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 2016	FY 2017	FY 2018
Continue maturation of CoZZAT filters. Begin MOF filter bed design analysis and initial prototype builds as technology transitions from JSTO. Receive initial feasibility prototypes on the C2A1-size prototypes and initiate testing to determine manufacturability and integration. ***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.			
Accomplishments/Planned Programs Subtotals	2.978	1.059	1.747

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• JI0003: *JOINT SERVICE GENERAL PURPOSE MASK (JSGPM)*	60.184	55.118	48.493	-	48.493	16.927	18.166	0.000	0.000	0	198.888

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 AFS performance requirements.

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-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
IS7: *INFORMATION SYSTEMS (OP SYS DEV)*	-	7.556	10.357	12.203	-	12.203	15.461	16.888	16.172	14.298	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) the Biosurveillance Portal (BSP); (2) the Chemical Biological Radiological and Nuclear Information Systems (CBRN IS); (3) the Joint Effects Model (JEM); (4) the Joint Warning and Reporting Network (JWARN); and (5) the Software Support Activity (SSA).

CBRN IS aligns Joint Program Executive Office for Chemical Biological Defense (JPEO CBD) information technology in order to utilize a common software architecture, eliminate duplicative integration effort, produce interoperable system components, and minimize time-to-market of end user capability. JPEO CBD information technology is assembled from the inventory of available capability in place of the current paradigm where functionality only exists within the individual Joint Effects Model (JEM), Joint Warning and Report Network (JWARN), and Biosurveillance Portal (BSP) applications. CBRN IS aligns with the Joint Information Environment (JIE), such as milCloud, in order to field the integrated capabilities. The JIE is the cornerstone of the DoD's future - providing a secure information framework from our national senior leaders and joint force commanders, command and control forces that deliver responsive, decisive actions from any device; anytime and anywhere.

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 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 (MSB) decision by the Milestone Decision Authority 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 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 facilitate 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 BA5 funding to execute the development, testing and evaluation of capabilities to meet the defined program requirements. There will be two Production CDs and two Engineering Drops in FY17. 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 ensure 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 Bio-Surveillance and other critical CBRN information.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: 1) BSP Modernization Efforts	-	-	0.960
FY 2018 Plans: Initial authorization of BA7 funds will be utilized to modernize/upgrade program cloud host provider hardware and maintain			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
compatibility of previously delivered/fielded capabilities to ensure continuity of effort to the User.			
Title: 2) CBRN IS ***FY 2018 Plans:*** Continue installations of CBRN IS on milCloud and other data centers.	-	-	0.289
Title: 3) JEM Command and Control (C2) Modernization Efforts ***FY 2016 Accomplishments:*** Updated 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. ***FY 2017 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. ***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.	0.986	1.626	1.656
Title: 4) JEM Pre-Planned Product Improvement (P3I) ***FY 2016 Accomplishments:*** Tested and integrated 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 2017 Plans:*** 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	1.859	3.155	3.318

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
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 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.			
Title: 5) JWARN System Modernization/Update Development ***FY 2016 Accomplishments:*** Continued 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 2017 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 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.	2.698	3.361	3.858
Title: 6) JWARN Program Management Support ***FY 2016 Accomplishments:*** Continued JWARN program financial management, scheduling, planning and reporting support to modernization effort under the IT BOX construct and Agile Software development processes. ***FY 2017 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 Plans:***	0.499	0.606	0.533

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Continue JWARN program financial management, scheduling, planning and reporting support to modernization effort under the IT BOX construct and Agile Software development processes.			
Title: 7) JWARN IT BOX Test & Evaluation (T&E) ***FY 2016 Accomplishments:*** Completed required Governmental developmental and operational testing on JWARN software updates and modernization efforts under the IT BOX construct and Agile Software testing processes. ***FY 2017 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 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.	0.331	0.403	0.431
Title: 8) SSA Policies, Standards and Guidelines ***FY 2016 Accomplishments:*** Continued to support programs in the Interoperability and Supportability (I&S) certification, Information Support Plan (ISP), and Data and Service Exposure Verification and Registration. Updated existing programs and register new programs in the Army Portfolio Management Solution/Army Information Technology Registry (APMS/AITR). ***FY 2017 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 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).	0.257	0.254	0.244
Title: 9) SSA Integrated Architecture ***FY 2016 Accomplishments:***	0.251	0.265	0.254

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Continued to provide and update program of record integrated architectures and provide Net-Centric Policy implementation assistance. Continued to support CCSI updates. Continued to provide CCSI reference implementation. Supported the enterprise tools and common capabilities to ensure relevance across CBRN programs. ***FY 2017 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 Plans:*** Continue to provide and update program of record integrated architectures and provide Net-Centric Policy implementation assistance. Continue to support CCSI updates. Continue to provide CCSI reference implementation. Support the enterprise tools and common capabilities to ensure relevance across CBRN programs.			
Title: 10) SSA Chemical, Biological, Radiological, Nuclear (CBRN) Data Model ***FY 2016 Accomplishments:*** Achieved 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 2017 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 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.	0.251	0.247	0.237
Title: 11) SSA Cybersecurity/Information Assurance (CS/IA) ***FY 2016 Accomplishments:*** Continued to maintain proper Information Assurance accreditation of any system within the CBDP portfolio throughout its life-cycle. This includes periodic re-accreditation of JPEO CBDP systems. ***FY 2017 Plans:***	0.424	0.440	0.423

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
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 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.			
Accomplishments/Planned Programs Subtotals	7.556	10.357	12.203

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 utilizes the agile construct for software requirements management and development. The intent is to scan the programs within the JPEO CBD, DTRA, and other sources for IT assets that can be hosted in a cloud environment and provide a CBRN capability for the warfighter. Once a program has been identified for integration into CBRN IS, an evaluation will occur in order to see if any changes are necessary. Modifications will be completed in coordination with the developer of the capability in order to be in alignment with CBRN IS guidelines.

JOINT EFFECTS MODEL (JEM)

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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JEM Increment 2 acquisition will utilize the JROC's "IT Box" construct for software development. The intent is to provide the next generation of capability with current and future technologies, as stated in the IS ICD, in less time and 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 (MSB) decision by the Milestone Decision Authority 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 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 December 2013.

The current contractor for JEM Increment 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 FY17 will include scope for developing the remaining capabilities under the JEM 2.0 contract. The JEM follow-on contract will utilize full and open competition and will be 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 an single Build Decision and each CD will have an associated Fielding Decision.

JOINT WARNING & REPORTING NETWORK (JWARN)

JWARN Increment 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-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 (MSB) decision by the Milestone Decision Authority 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 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.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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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).

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: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BSP - SW S - BSP Modernization	MIPR	Various : Various	0.000	0.000		0.000		0.960	Dec 2017	-		0.960	Continuing	Continuing	0.000
JEM - SW S - Increment 1 - Modernization	C/CPAF	Northrop Grumman Corp. : San Diego, CA	6.972	2.845	Mar 2016	1.953	Mar 2017	0.000		-		0.000	Continuing	Continuing	0.000
JEM - SW S - Increment 2 - Modernization	C/CPAF	General Dynamics Information Technologies : Fairfax, VA	0.000	0.000		2.828	Apr 2017	4.974	Apr 2018	-		4.974	Continuing	Continuing	0.000
JWARN - SW S - Increment 1 - Modernization	C/CPAF	Northrop Grumman Corp. : Winter Park, FL	9.852	2.408	Mar 2016	0.705	Mar 2017	0.000		-		0.000	Continuing	Continuing	0.000
JWARN - SW S - Increment 2 - Modernization	C/CPAF	Northrop Grumman Corp. : Winter Park, FL	0.000	0.000		2.656	Mar 2017	3.858	Mar 2018	-		3.858	Continuing	Continuing	0.000
SSA - SW S - Development Services	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	2.257	0.460	Nov 2015	0.463	Dec 2016	0.445	Dec 2017	-		0.445	Continuing	Continuing	0.000
		Subtotal	19.081	5.713		8.605		10.237		-		10.237	-	-	0.000

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CBRN IS - ES S - milCloud support	MIPR	Various : Various	0.000	0.000		0.000		0.289	Dec 2017	-		0.289	Continuing	Continuing	0.000
JWARN - ES S - Increment 1 - Modernization	MIPR	Various : Various	0.000	0.424	Nov 2015	0.000		0.000		-		0.000	Continuing	Continuing	0.000
SSA - TD/D C - Information Assurance Activities	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	2.603	0.285	Nov 2015	0.279	Dec 2016	0.268	Dec 2017	-		0.268	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	2.603	0.709		0.279		0.557		-		0.557	-	-	0.000

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JWARN - OTE S - Increment 1 - FOT&E	MIPR	Various : Various	3.514	0.501	Nov 2015	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JWARN - OTE S - Increment 2	MIPR	Various : Various	0.000	0.000		0.403	Nov 2016	0.431	Dec 2017	-		0.431	Continuing	Continuing	0.000
SSA - OTHT S - Integration Verification and Valuation (IV&V)	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	2.418	0.438	Nov 2015	0.464	Dec 2016	0.445	Dec 2017	-		0.445	Continuing	Continuing	0.000
		Subtotal	5.932	0.939		0.867		0.876		-		0.876	-	-	0.000

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JWARN - PM/MS S - Program management	MIPR	Various : Various	1.109	0.195	Mar 2016	0.606	Dec 2016	0.533	Dec 2017	-		0.533	Continuing	Continuing	0.000
		Subtotal	1.109	0.195		0.606		0.533		-		0.533	-	-	0.000

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	28.725	7.556		10.357		12.203		-		12.203	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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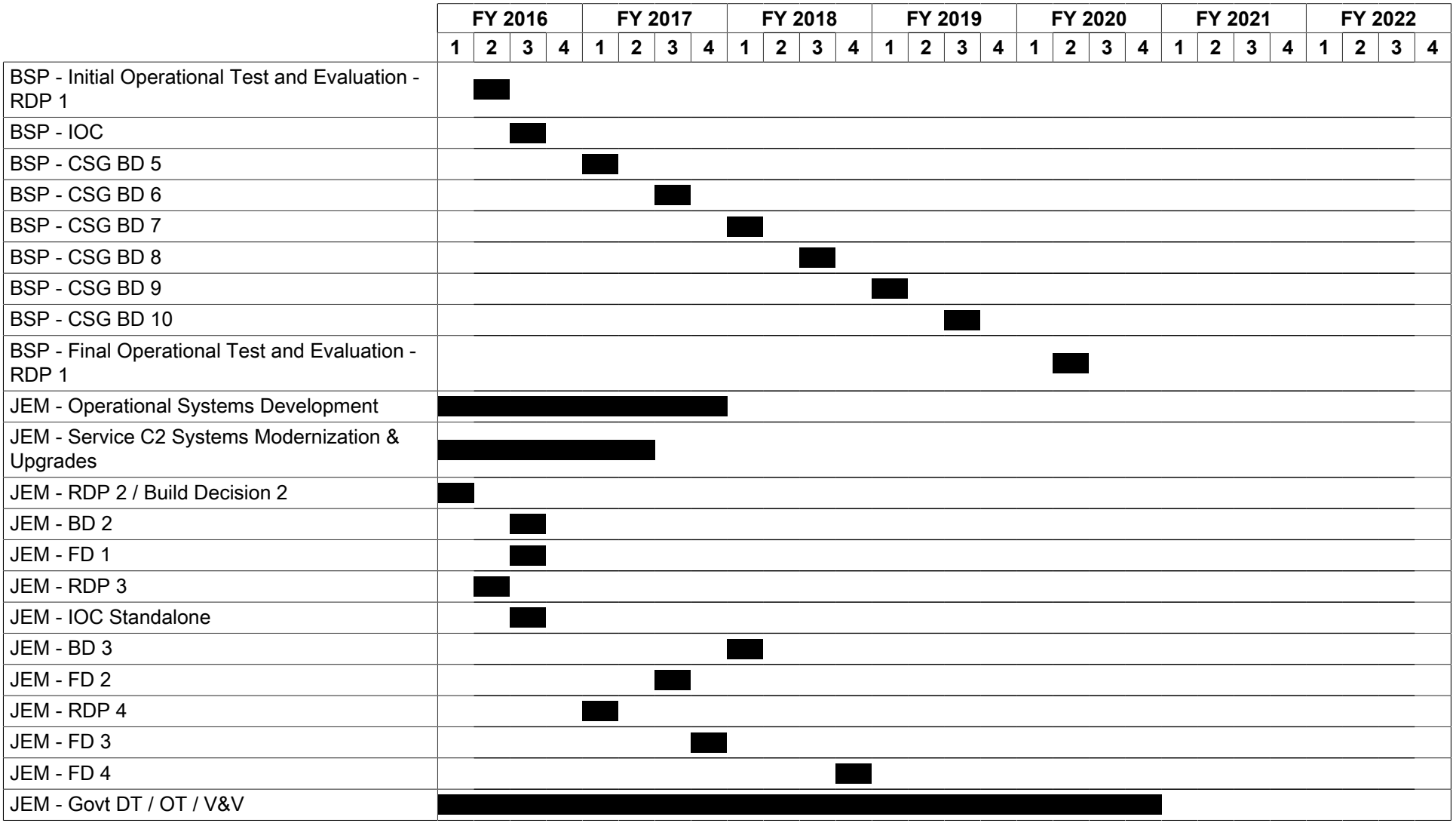

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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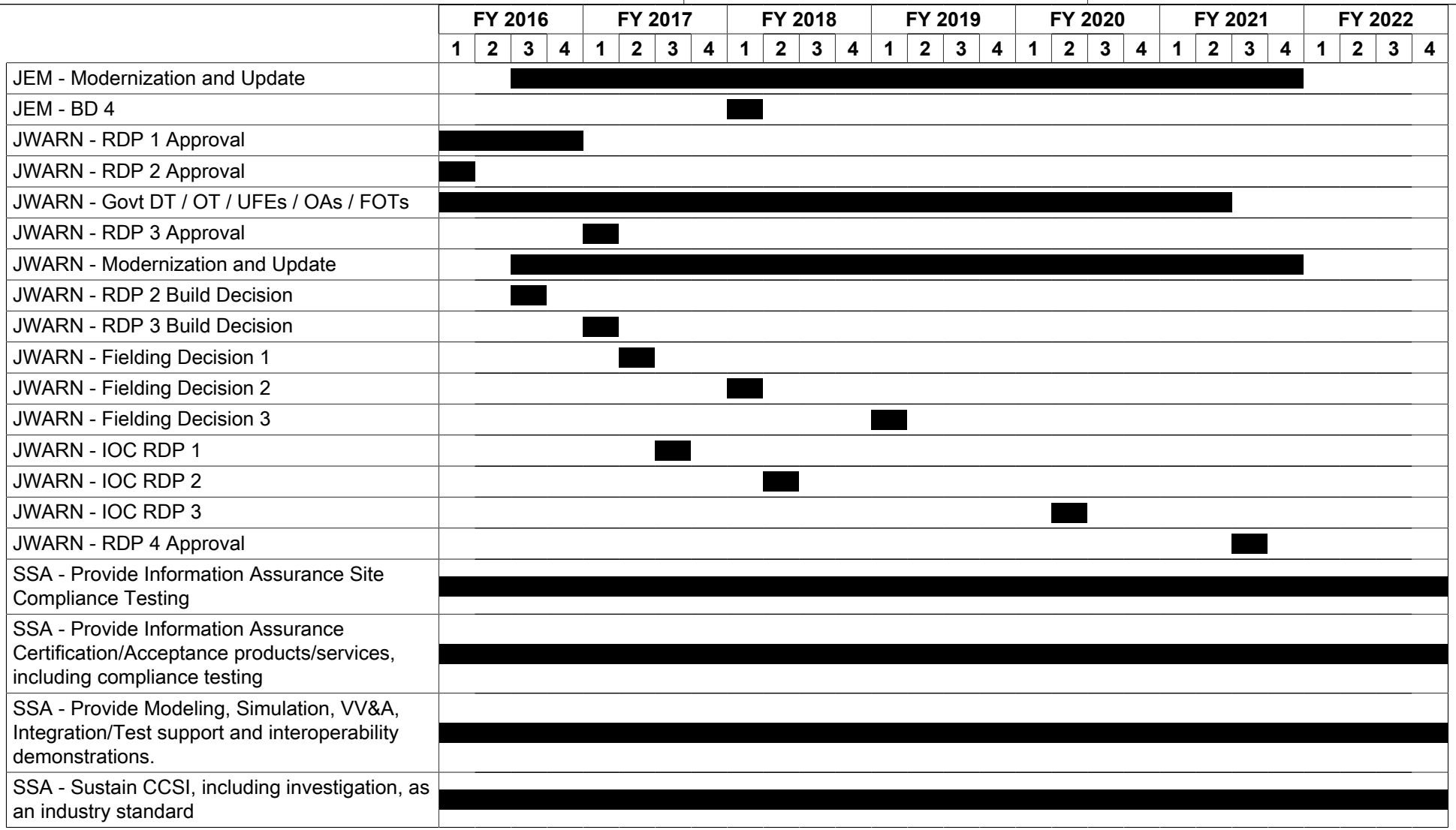

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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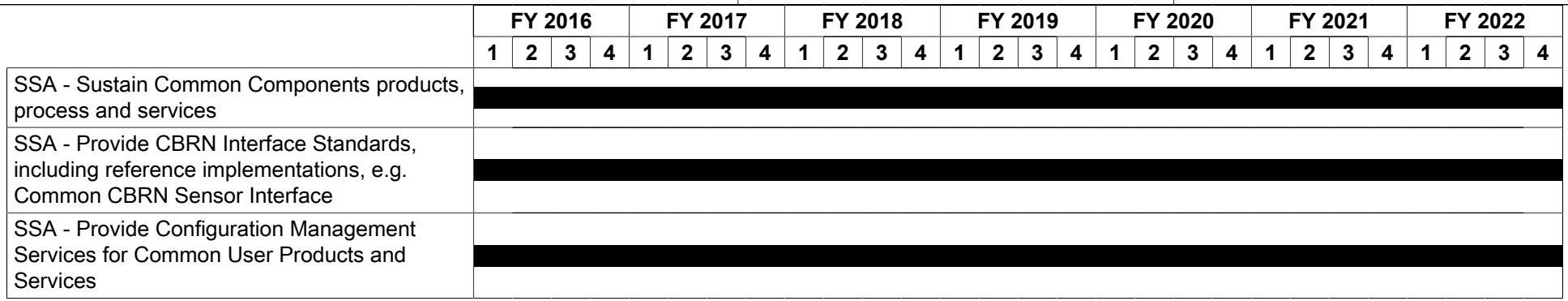

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *INFORMATION SYSTEMS (OP SYS DEV)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
BSP - Initial Operational Test and Evaluation - RDP 1	2	2016	2	2016
BSP - IOC	3	2016	3	2016
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
JEM - Operational Systems Development	1	2016	4	2017
JEM - Service C2 Systems Modernization & Upgrades	1	2016	2	2017
JEM - RDP 2 / Build Decision 2	1	2016	1	2016
JEM - BD 2	3	2016	3	2016
JEM - FD 1	3	2016	3	2016
JEM - RDP 3	2	2016	2	2016
JEM - IOC Standalone	3	2016	3	2016
JEM - BD 3	1	2018	1	2018
JEM - FD 2	3	2017	3	2017
JEM - RDP 4	1	2017	1	2017
JEM - FD 3	4	2017	4	2017
JEM - FD 4	4	2018	4	2018
JEM - Govt DT / OT / V&V	1	2016	4	2020

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JEM - Modernization and Update	3	2016	4	2021
JEM - BD 4	1	2018	1	2018
JWARN - RDP 1 Approval	1	2016	4	2016
JWARN - RDP 2 Approval	1	2016	1	2016
JWARN - Govt DT / OT / UFEs / OAs / FOTs	1	2016	2	2021
JWARN - RDP 3 Approval	1	2017	1	2017
JWARN - Modernization and Update	3	2016	4	2021
JWARN - RDP 2 Build Decision	3	2016	3	2016
JWARN - RDP 3 Build Decision	1	2017	1	2017
JWARN - Fielding Decision 1	2	2017	2	2017
JWARN - Fielding Decision 2	1	2018	1	2018
JWARN - Fielding Decision 3	1	2019	1	2019
JWARN - IOC RDP 1	3	2017	3	2017
JWARN - IOC RDP 2	2	2018	2	2018
JWARN - IOC RDP 3	2	2020	2	2020
JWARN - RDP 4 Approval	3	2021	3	2021
SSA - Provide Information Assurance Site Compliance Testing	1	2016	4	2022
SSA - Provide Information Assurance Certification/Acceptance products/services, including compliance testing	1	2016	4	2022
SSA - Provide Modeling, Simulation, VV&A, Integration/Test support and interoperability demonstrations.	1	2016	4	2022
SSA - Sustain CCSI, including investigation, as an industry standard	1	2016	4	2022
SSA - Sustain Common Components products, process and services	1	2016	4	2022
SSA - Provide CBRN Interface Standards, including reference implementations, e.g. Common CBRN Sensor Interface	1	2016	4	2022

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SSA - Provide Configuration Management Services for Common User Products and Services	1	2016	4	2022

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program			Date: May 2017
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COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*	-	8.541	7.145	11.950	-	11.950	12.836	4.918	1.082	10.623	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) suite.

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. JBAIDS efforts in FY18 will oversee the configuration management of the system to include the conduct of annual software security information assurance (IA) updates on fielded software, monitoring analyzer/laptop parts obsolescence, and development of pre-emergency use authorization (EUA) packages for FDA review.

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 (COD) and CBR situational awareness and disease surveillance as defined in the Common Analytical Laboratory (CALS) COD. 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 has a streamlined MS A to MS C Limited Deployment acquisition strategy. BA7 will be used to complete the development of assays initiated during the Technology Maturation and Risk Reduction (TMRR) phase and needed for JBAIDS replacement as well as fund the development of three objective assays (Burkholderia, Alpha Virus, and Orthopox).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: 1) Joint Biological Agent Identification and Diagnostic System (JBAIDS)	0.192	0.200	0.203
FY 2016 Accomplishments: Conducted efforts to ensure Department of Defense Information Assurance Risk Management Framework (DIARMF) and Federal Information Security Management Act (FISMA) compliance.			
FY 2017 Plans:			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Continue sustainment contract, software security and RMF FISMA. ***FY 2018 Plans:*** Continue sustainment contract, software security and RMF FISMA.			
Title: 2) JBAIDS ***Description:*** Continued Pre-EUA package development. ***FY 2016 Accomplishments:*** Continued development and submissions of Pre-EUA packages to the FDA. ***FY 2017 Plans:*** Continue development and submissions of Pre-EUA packages to the FDA. ***FY 2018 Plans:*** Continue development and submissions of Pre-EUA packages to the FDA.	0.130	0.200	0.203
Title: 3) JBAIDS ***FY 2016 Accomplishments:*** Maintained the Defense Logistics Agency Electronic-Cataloging capability. ***FY 2017 Plans:*** Maintain the Defense Logistics Agency Electronic-Cataloging capability. ***FY 2018 Plans:*** Maintain the Defense Logistics Agency Electronic-Cataloging capability.	0.100	0.051	0.052
Title: 4) NGDS - Increment 1 ***FY 2016 Accomplishments:*** Continued development of Plague, Tularemia, and Q-Fever IVD assays. ***FY 2017 Plans:*** Complete development of Plague, Tularemia, and Q-Fever IVD assays.	8.119	6.694	-
Title: 5) NGDS - Increment 1 ***FY 2018 Plans:***	-	-	11.492

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Initiate development of additional FDA cleared medical diagnostic assay for the Alphavirus's (Eastern Equine Encephaltis/ Venezuela Equine Encephalitis/Western Equine Encephalitis) and Orthopox (Variola major-Smallpox, Variola minor, Pan-Orthopox, Monkeypox).			
Accomplishments/Planned Programs Subtotals	8.541	7.145	11.950

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 program plans to conduct the annual JBAIDS Federal Information Security Management Act (FISMA) software compliance certification in addition to any logistics sustainment issues associated with parts obsolescence. The JBAIDS program will begin to prepare for the Risk Management Framework processes for FY16 information assurance. Additionally, the JBAIDS program office continues to partner with the US Army Medical Institute of Infectious Diseases (USAMRIID), other DoD and US Government laboratories to develop FDA Pre-Emergency Use Authorization (EUA) packages for biological warfare agents (BWA's) that could be used as biological warfare threats to DoD military forces.

NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)

The NGDS Increment 1 program has a streamlined MS A to MS C - Limited Deployment acquisition strategy. The NGDS Increment 1 is intended to replace the legacy Joint Biological Agent Identification and Diagnostic System (JBAIDS) beginning in FY17.

The NGDS Increment 2 program addresses CBRN agents and concepts of employment (COEs) that the NGDS Increment 1 Film Array does not address. More than one materiel solution is required to expand the scope of CBRN agent diagnostics across multiple echelons of care. NGDS Increment 2 will employ a system of systems approach to bridge identified capability gaps for man-portable diagnostics, complementary bench top diagnostics, chemical diagnostics, and handheld disposable diagnostics. NGDS Increment 2 will initiate engineering development 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 establish programs of record for bench top, chemical and handheld disposable diagnostic capability development, based on individual determinations of technology maturity to meet user requirements.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program			Date: May 2017
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGDS - Increment 1 - HW C - Assay Development	C/CPFF	BioFire Dx : Salt Lake City, UT	5.969	1.970	Dec 2015	2.391	Dec 2016	4.876	Dec 2017	-		4.876	Continuing	Continuing	0.000
		Subtotal	5.969	1.970		2.391		4.876		-		4.876	-	-	0.000

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGDS - ES S - Engineering Support	MIPR	Various : Various	0.350	0.958	Jan 2016	0.528	Jan 2017	2.527	Jun 2018	-		2.527	Continuing	Continuing	0.000
		Subtotal	0.350	0.958		0.528		2.527		-		2.527	-	-	0.000

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 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	0.848	0.130	Mar 2016	0.200	Mar 2017	0.203	Mar 2018	-		0.203	Continuing	Continuing	0.000
NGDS - DTE S - Operational Assessment/ MOT&E	MIPR	Various : Various	3.300	1.610	Jan 2016	1.556	Jan 2017	0.372	Jan 2018	-		0.372	Continuing	Continuing	0.000
		Subtotal	4.148	1.740		1.756		0.575		-		0.575	-	-	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JBAIDS - PM/MS S - Project Management	MIPR	Various : Various	1.619	0.100	Jan 2016	0.051	Jan 2017	0.052	Jan 2018	-		0.052	Continuing	Continuing	0.000
JBAIDS - PM/MS S - Sustainment contract: CLS, software updates	PO	Various : Various	0.597	0.192	Jan 2016	0.200	Jan 2017	0.203	Jan 2018	-		0.203	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		0.000		0.089	Jan 2018	-		0.089	Continuing	Continuing	0.000
NGDS - PM/MS S - Program Management Support	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.350	3.581	Jan 2016	2.219	Jan 2017	3.628	Jan 2018	-		3.628	Continuing	Continuing	0.000
		Subtotal	2.566	3.873		2.470		3.972		-		3.972	-	-	0.000

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.033	8.541		7.145		11.950		-		11.950	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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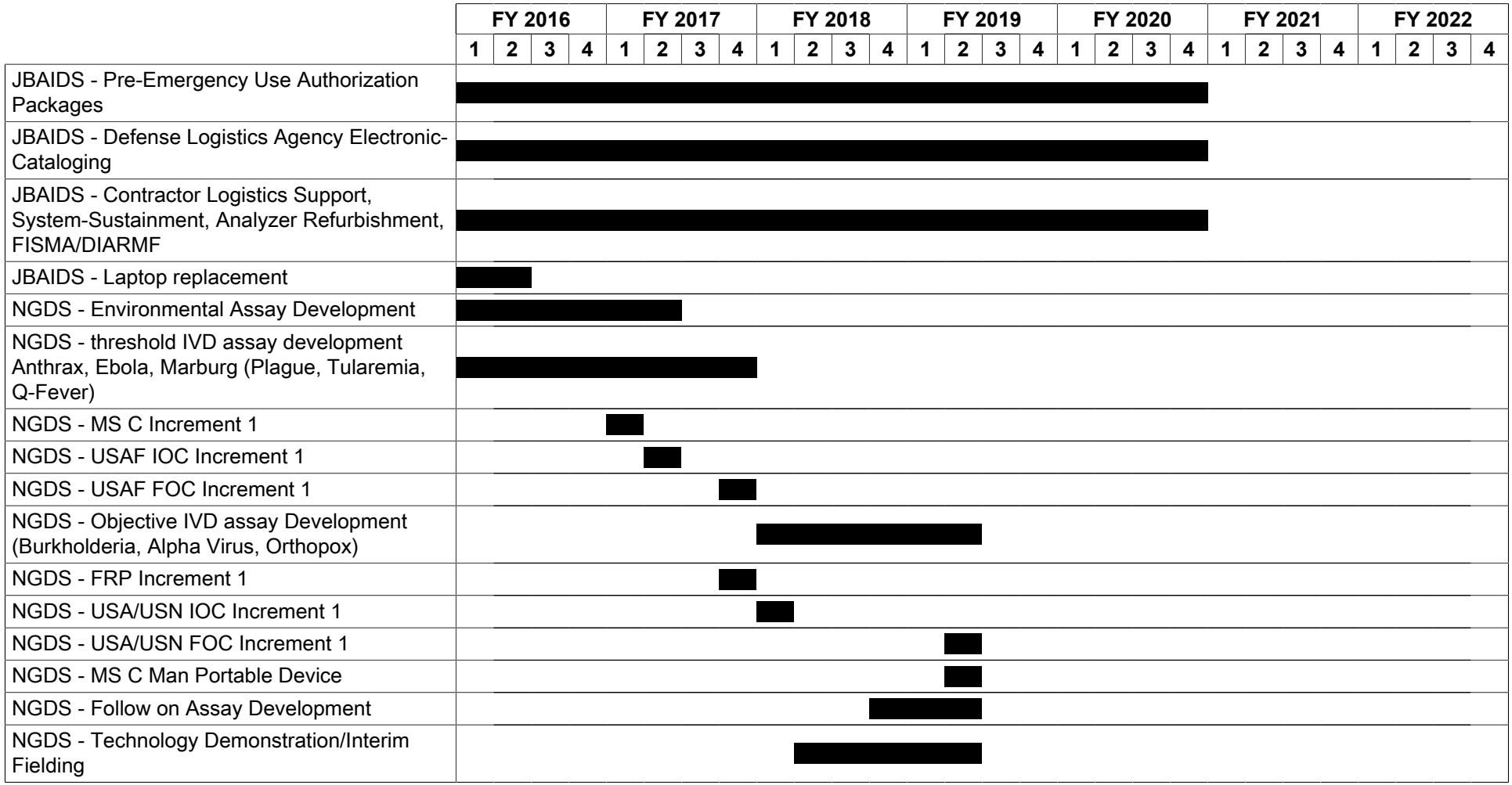

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JBAIDS - Pre-Emergency Use Authorization Packages	1	2016	4	2020
JBAIDS - Defense Logistics Agency Electronic-Cataloging	1	2016	4	2020
JBAIDS - Contractor Logistics Support, System-Sustainment, Analyzer Refurbishment, FISMA/DIARMF	1	2016	4	2020
JBAIDS - Laptop replacement	1	2016	2	2016
NGDS - Environmental Assay Development	1	2016	2	2017
NGDS - threshold IVD assay development Anthrax, Ebola, Marburg (Plague, Tularemia, Q-Fever)	1	2016	4	2017
NGDS - MS C Increment 1	1	2017	1	2017
NGDS - USAF IOC Increment 1	2	2017	2	2017
NGDS - USAF FOC Increment 1	4	2017	4	2017
NGDS - Objective IVD assay Development (Burkholderia, Alpha Virus, Orthopox)	1	2018	2	2019
NGDS - FRP Increment 1	4	2017	4	2017
NGDS - USA/USN IOC Increment 1	1	2018	1	2018
NGDS - USA/USN FOC Increment 1	2	2019	2	2019
NGDS - MS C Man Portable Device	2	2019	2	2019
NGDS - Follow on Assay Development	4	2018	2	2019
NGDS - Technology Demonstration/Interim Fielding	2	2018	2	2019

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program			Date: May 2017
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COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
TE7: *TEST & EVALUATION (OP SYS DEV)*	-	2.681	2.594	6.605	-	6.605	6.318	5.416	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) and Building 4165) at WDTC, (3) the CB Test Grid at WDTC, and (4) the Combined Chemical Test Facility (CCTF) at WDTC.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: 1) BTB UPGRADE ***Description:*** BTB Test LSTF Complex ***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.	-	-	0.925
Title: 2) BTB/ECBC - MRTFB - Life Sciences Test Facility (LSTF) ***FY 2016 Accomplishments:*** Continued to provide instrumentation and equipment to BTB-ECBC, in support of the CB Defense mission. Continued to provide for BSL-3 biological laboratory equipment for the LSTF Annex. Also provided for enhanced laboratory referee capability and enhancement of the biological decontamination capability. ***FY 2017 Plans:*** Will continue to provide instrumentation and equipment to BTB-ECBC, in support of the CB Defense mission. Will continue to provide for BSL-3 biological laboratory equipment for the LSTF Annex. Will provide for enhancement of the biological decontamination capability. Will also provide for enhanced laboratory referee capability and management.	0.816	0.509	-
Title: 3) WDTC - MRTFB - Major Test Chambers (MTF and Building 4165) ***FY 2016 Accomplishments:*** Provided for modernization of existing instrumentation and equipment in the major test chambers at WDTC, in support of the CB Defense mission. These chambers consist of the following: (1) the MTF, which is a unique test chamber in which agent	0.348	0.160	1.220

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
operation can be conducted on a large scale under environmental controls; (2) Building 4165, which houses updated surety test facilities and laboratories used for the testing of protective material, decontamination technologies, and detection systems with chemical agents and simulants; Modernization in the chambers included: (a) Continued enhancements of an aerosol generation and sampling capability; (b) Continued development of the agent fate aerosol capability; (c) Continued upgrades to agent surety monitor and analytical instrumentation; (d) Continued enhancements of Toxic Industrial Chemical (TIC) detection; and (e) Non-Traditional Agent (NTA) test and detection capability. ***FY 2017 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 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.			
Title: 4) WDTC - MRTFB - CB Test Grid ***FY 2016 Accomplishments:*** Enhanced existing instrumentation and equipment at multiple test grids (Target S, Downwind, Tower Outdoor Test Grids, etc.) at WDTC, in support of the CB Defense mission. DPG's vast area combined with its remote location allowed for all sizes of CB and explosive test events, including large scale TIC release capability, and was supported by a state of the art meteorological and referee capability. Continued modernization efforts included: (1) Continued upgrades to point and standoff field referee systems; (2) Development of agent to simulant correlation, dissemination equipment, and monitoring systems for additional field simulants; (3) Upgrade of grid communications and data analysis capabilities; (4) Enhanced aerosol dissemination systems; (5) Upgraded high speed cameras. Enhancements to Test Grid provided near real time data analysis and rapid test adaptation which minimized costs and increased the effectiveness of field testing. ***FY 2017 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 2018 Plans:***	0.415	1.051	1.384

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
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.			
Title: 5) WDTC - MRTFB - Combined Chemical Test Facility (CCTF) ***FY 2016 Accomplishments:*** Provided for continued revitalization and upgrade of existing instrumentation and equipment at the CCTF at WDTC in support of their chemical test mission. The CCTF tests the capability of detectors, decontaminants, and protective systems to defend against toxic chemical agents. Modernization resulted in improved test fixtures which reduced risk to personnel and provided improved test capabilities. ***FY 2017 Plans:*** 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 start in FY17. Modernization will continue to improve 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 2018 Plans:*** 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.	1.102	0.874	3.076
Accomplishments/Planned Programs Subtotals	2.681	2.594	6.605

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.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
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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.

E. Performance Metrics

N/A