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 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*

COST ($ in Millions)	Prior Years	FY 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	-	171.117	138.187	148.518	-	148.518	103.731	75.389	83.457	96.132	Continuing	Continuing
CA4: *CONTAMINATION AVOIDANCE (ACD&P)*	-	74.684	42.308	29.211	-	29.211	39.631	26.931	22.935	13.703	Continuing	Continuing
DE4: *DECONTAMINATION SYSTEMS (ACD&P)*	-	2.753	0.500	9.900	-	9.900	9.156	15.301	16.269	17.768	Continuing	Continuing
IP4: *INDIVIDUAL PROTECTION (ACD&P)*	-	5.473	3.235	5.145	-	5.145	0.000	0.000	2.949	5.604	Continuing	Continuing
IS4: *INFORMATION SYSTEMS (ACD&P)*	-	7.224	5.928	5.941	-	5.941	0.872	0.297	0.077	0.072	Continuing	Continuing
MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*	-	68.160	65.648	83.999	-	83.999	46.501	25.715	34.090	48.338	Continuing	Continuing
MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)*	-	1.060	5.681	5.165	-	5.165	0.990	1.975	1.972	7.098	Continuing	Continuing
TE4: *TEST & EVALUATION (ACD&P)*	-	11.763	14.887	9.157	-	9.157	6.581	5.170	5.165	3.549	Continuing	Continuing

A. Mission Description and Budget Item Justification

Operational forces have an immediate need to survive, safely operate, and sustain operations in a Chemical and Biological (CB) threat environment across the continuum of global, contingency, special operations/low intensity conflict, counternarcotics, and other high-risk missions. This program element supports the Advanced Component Development and Prototypes (ACD&P) of medical and non-medical CB defensive equipment and materiel. Congress directed centralized management of Department of Defense (DoD) medical and non-medical CB Defense initiatives. DoD missions for civil support operations have recently expanded and have resulted in providing focus to develop technologies to support CB counterterrorism initiatives. ADC&P is conducted for an array of chemical, biological, and toxin detection and warning systems providing early warning, collector concentrators, generic detection, improved reagents, and decontamination systems using solutions that will remove and/or detoxify contaminated materiel without damaging combat equipment, personnel, or the environment. CB sensors and diagnostics enhance the Departments environmental and medical surveillance efforts by improving the monitoring and surveillance of threats and forces preparing for and engaged in military operations. These efforts are required to enable military commanders and the Military Health System to prevent, treat, and mitigate threats to individual Service Members and military units. Integration of CB sensor and diagnostic data from the programs in this ACD&P will also be usable within the homeland security and Federal public health common operating pictures.

The Department of Defense is responsible for research, development, acquisition, and deployment of medical countermeasures to prevent or mitigate the health effects of CB threats to the Armed Forces and directs strategic planning for and oversight of programs to support medical countermeasures development and acquisition for

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

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

ACD&P also supports the development of updated test capabilities to evaluate Chemical, Biological, Radiological, and Nuclear Defense systems.

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

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	170.354	138.187	93.408	-	93.408
Current President's Budget	171.117	138.187	148.518	-	148.518
Total Adjustments	0.763	0.000	55.110	-	55.110
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	0.000	-			
• Congressional Directed Transfers	0.000	-			
• Reprogrammings	0.763	-			
• SBIR/STTR Transfer	0.000	-			
• Other Adjustments	0.000	-	55.110	-	55.110

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 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603884BP *I CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*

Change Summary Explanation

Funding: FY18 - Adjustments due to fact-of-life changes ($32M) to support advance multiple vaccine candidates for WEVEE, to support advance development of multiple Marburg vaccines to meet TMRR phase exit criteria, and to support Next Generation Anthrax acceleration. Adjustments ($22M) to support muiltiple programs successfully continue efforts in advanced development.

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 / 4	R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	Project (Number/Name) CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*	

COST ($ in Millions)	Prior Years	FY 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
CA4: *CONTAMINATION AVOIDANCE (ACD&P)*	-	74.684	42.308	29.211	-	29.211	39.631	26.931	22.935	13.703	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Contamination Avoidance Advanced Component Development and Prototypes (ACD&P) Project supports Component Advanced Development and System Integration (CAD/SI) of reconnaissance, detection, identification, and hazard prediction equipment, hardware, and software. 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 (TTPs). Individual efforts are: (1) Enhanced Capability Demonstration (ECD) Integrated Early Warning (IEW), (2) Enhanced Capability Demonstration (ECD) Joint Chemical Biological Radiological Nuclear Advanced Capability Sets (JCACS), (3) Manned Mounted Platform Radiological Detection System, (4) Reactive Chemistry Orthogonal Surface and Environmental Threat Ticket Array (ROSETTA), (5) Biosurveillance (BSV), (6) Chemical Biological Radiological Nuclear, Dismounted Reconnaissance Sets Inc 2 (CBRN DRS Inc 2), (7) Next Generation Chemical Detector (NGCD), (8) Non-Traditional Agent (NTA) Defense.

The Joint Force requires tactical, enhanced, and integrated Chemical Biological Radiological and Nuclear (CBRN) detection, protection, contamination mitigation, contamination characterization, situational awareness, and hazard understanding early warning capability and decision tools to provide operational commanders time and space to mitigate Weapons of Mass Destruction (WMD) effects. The Enhanced Capability Demonstration (ECD) Integrated Early Warning (IEW) will demonstrate these capabilities by enabling Joint operators to locate, track, identify, characterize, sample, digitally report, protect against, and mitigate CBRN threats by merging situational awareness to create understanding. The ECD IEW will integrate advanced technologies to provide capability sets of equipment and situational awareness decision tools to protect against and mitigate the effects of contamination when operating in a CBRN environment.

The Joint Force requires enhanced and integrated Chemical Biological Radiological Nuclear (CBRN) protection, contamination mitigation, contamination characterization, and situational awareness capability sets to mitigate the effects of Weapons of Mass Destruction (WMD). The ECD JCACS will demonstrate these capabilities by enabling Joint operators to locate, identify, characterize, sample, digitally report, protect against, and mitigate CBRN threats. The ECD JCACS will integrate advanced technologies to provide capability sets of equipment and situational awareness tools to protect against and mitigate the effects of contamination during WMD interdiction and site characterization missions.

(MMPRDS) provides ruggedized, networkable detectors with a wide operating range of detection, including prompt neutron/gamma, for integration into vehicles, fixed sites, and ships. It replaces the obsolescent UDR-13 and AN/VDR-2 for mounted operations, providing warning and situational awareness for crews and personnel, and enables mounted RN surveillance and reconnaissance for platforms such as the NBCRV.

The ROSETTA as a FY18 new start is a chemistry based sensor to provide chemical detection and identification capability to the Warfighter. ROSETTA will provide improved surface hazard detection by developing an array of reactive chemistries onto a sampling ticket format to update the currently fielded M256A2. The M256A2 technology data package will be updated with an engineering change proposal to create a new M256A3 kit.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

Biosurveillance (BSV) programs provide a set of capabilities that acquire, integrate, and analyze medical, environmental, and incident management data using existing and next generation systems, medical and non-medical sample collection tools and identifiers/diagnostics; and transition hardware/software tools and devices as residuals from the Biosurveillance Joint United States Force Korea (USFK) Portal and Integrated Threat Recognition (JUPITR) Advanced Technology Demonstration (ATD). BSV will align the biosurveillance efforts across DoD and national strategies. BSV will scope and influence BSV capabilities as products to meet Warfighter requirements through innovative management of key BSV initiatives. BSV requirements address medical and physical CBRN mission needs spanned in over eleven requirements documents and through Combatant Commander (COCOM) identified needs. BSV supports Joint US Forces Korea (USFK) Portal and Integrated Threat recognition (JUPITR) ATD, JUONS CC-0557, and Analytical Framework which find, demonstrate, transition, and transfer the best operational concepts and technology solutions in support of a holistic approach to countering CB threats from the laboratory to operational use and theater confirmation of a CB Event. JUPITR ATD consists of four legs; Early Warning (EW), Biological Identification Capabilities Sets (BICS), Assessment of Environmental Detectors (AED), and Biosurveillance Portal (BSP). The JUPITR ATD provides the USFK with a holistic biosurveillance capability to provide early warning, detection, collection, identification, and theater confirmation of a CB event. The JUPITR ATD consists of filling capability gaps through information sharing and communication systems and detection/diagnostic systems for the USFK. Outputs will focus on proving component, CONOPS, and subsystem transition into relevant technologies that are currently programs of record (PORs) to include global-BSP, Next Generation Diagnostic System (NGDS), Joint Biological Tactical Detection System (JBTDS) and CALS. Systems used in Operational Demonstration will be left behind with a two year sustainment plan for continuing use. Whole system live agent test (WSLAT) of AED units will support the Joint Project Manager for Nuclear Biological Chemical Contamination Avoidance business case analysis for maritime and fixed site Point Biological Detection.

The CBRN DRS Inc 2 will provide additional capability, not present in CBRN DRS Inc 1, for detection and identification of CBRN threats, personal protective equipment (PPE), and increased situation awareness through networking and communication of the hazard to support follow on technical forces conducting sensitive site assessment and elimination operations. It will enhance the capability fielded in CBRN DRS Inc 1 to conduct dismounted CBRN reconnaissance, WMD detection or denial, characterization of hazardous material events or accidents, and sensitive site elimination. CBRN Inc 2 will allow follow on technical forces to conduct longer duration missions, field confirmatory CBRN identification, and reach back communications. The CBRN Inc 2 configurations will be tailored to meet individual Service mission tasks.

The NGCD program is several detection systems for vapor and aerosol monitoring (NGCD 1), location of liquid and solids on surfaces (NGCD 2) and sampling of multiplephases of matter (NGCD 3). NGCD will detect and identify non-traditional agents, chemical warfare agents (CWAs), toxic industrial chemicals (TICs) in the air and on surfaces. The NGCD will provide improved NTA/CWA/TIC selectivity and sensitivity on multiple platforms as well as multiple environments. There are four capability areas, of which three; NGCD 1 Detector Alarm, NGCD 2 Survey Detector and NGCD 3 Sample Analysis are in the Technical Maturation and Risk Reduction Phase. The fourth capability, NGCD 4 Individual Detector - personal chemical detection is still in material solution analysis. These sensors will improve detection, consequence management and reconnaissance, and weapons of mass destruction (WMD) interdiction capabilities. The scope of the project includes detection of chemicals a few feet away from the detector as well as the sampling point of the detector.

The NTA Defense program supports chemical and biological (CB) defense acquisition programs throughout entire acquisition process to address emerging threat requirements across the full spectrum of commodities. Dedicated initiatives and projects transition information, technologies, and capabilities into acquisition options/ efforts (Programs of Record, Enhanced Capability Demonstrations, and Accelerated Acquisition) that account for the breadth and depth of emerging threats which span

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

the full range of military missions. The NTA Defense program provides essential enablers such as threat understanding; operational impacts of performance trades; and comprehensive, integrated, and layered defense concepts against emerging threats. The program supports a balanced portfolio which targets capabilities to reduce operational and tactical risk from technology gaps inherent from emerging threats. Additional efforts in conducting systems engineering analysis will occur in order to identify and consolidate capability knowledge gaps and prioritize required investments.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: 1) IEW ECD ***Description:*** Initiate Early Warning capability integration for remote CBRN and Non-CBRN sensors, robotic platforms, unattended sensors, and decision support. ***FY 2018 Plans:*** Initiate Early Warning capability integration for remote CBRN and Non-CBRN sensors, robotic platforms, unattended sensors, and decision support.	-	-	3.098
Title: 2) IEW ECD ***Description:*** Initiate Early Warning capability RDT&E test article procurement and assessment for remote CBRN and Non-CBRN sensors, robotic platforms, unattended sensors, and decision support. ***FY 2018 Plans:*** Initiate Early Warning capability RDT&E test article procurement and assessment for remote CBRN and Non-CBRN sensors, robotic platforms, unattended sensors, and decision support.	-	-	2.500
Title: 3) JCACS ECD ***Description:*** Purchase test articles, initiate tests and test preparation on the equipment list, support residual materiel. ***FY 2018 Plans:*** Purchase test articles, initiate tests and test preparation on the equipment list, support residual materiel.	-	-	9.433
Title: 4) MMPRDS - Program Management ***Description:*** Provide Program Management Support ***FY 2018 Plans:*** Initiate Government program management and Integrated Product Team (IPT) support.	-	-	0.177
Title: 5) MMPRDS - System Engineering ***Description:*** Provide system engineering support to the MMPDRS program.	-	-	0.219

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
FY 2018 Plans: Provide system engineering support for the program.			
Title: 6) ROSETTA ***Description:*** Provide system engineering design. ***FY 2018 Plans:*** Initiate development of colorimetric sensor.	-	-	0.350
Title: 7) ROSETTA ***Description:*** Management Services ***FY 2018 Plans:*** Initiate Government strategic planning, systems engineering, and program management.	-	-	0.145
Title: 8) BSV ***Description:*** Biosurveillance Analytical Framework (AF) ***FY 2016 Accomplishments:*** Established a System Integration Lab (SIL) with an operational Closed Restricted Network (CRN).	1.331	-	-
Title: 9) BSV ***Description:*** Combined Joint Task Force-Operation Inherent Resolve (CJTF-OIR) Joint Urgent Operational Need (JUON) CC-0557 ***FY 2016 Accomplishments:*** Investigated and tested potential material solutions to address specific CB threats, work focused on the immediate Chemical threats within certain Forward Operating Bases (FOBs).	2.300	-	-
Title: 10) BSV ***Description:*** Biosurveillance Joint United Forces Korea Portal and Integrated Threat Reduction (JUPITR) Advanced Technology Demonstration (ATD) - Biological Identification Capability Sets (BICS). ***FY 2016 Accomplishments:***	3.579	0.421	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Continued to provide residual capability for the Biological Identification Capability Sets (BICS) under the BSV USFK JUPITR ATD. ***FY 2017 Plans:*** Continue to support residual capability for the BICS under the BSV USFK JUPITR ATD.			
Title: 11) BSV ***Description:*** Biosurveillance Joint United Forces Korea Portal and Integrated Threat Reduction (JUPITR) Advanced Technology Demonstration (ATD) - Assessment of Environmental Detectors (AED). ***FY 2016 Accomplishments:*** Continued to provide residual capability for JUPITR Technologies specifically the Assessment of Environmental Detectors (AED). ***FY 2017 Plans:*** Continue to support residual capabilities at Busan for JUPITR Technologies specifically the AED.	1.514	0.740	-
Title: 12) BSV ***Description:*** Biosurveillance Joint United Forces Korea Portal and Integrated Threat Reduction (JUPITR) Advanced Technology Demonstration (ATD) - Early Warning (EW). ***FY 2016 Accomplishments:*** Continued to provide residual capability and conduct an integration assessment for the Early Warning (EW) component under the BSV USFK JUPITR ATD. ***FY 2017 Plans:*** Continue to support residual capability for the EW components under the BSV USFK JUPITR ATD.	13.549	0.400	-
Title: 13) BSV ***Description:*** Biosurveillance Joint United Forces Korea Portal and Integrated Threat Reduction (JUPITR) Advanced Technology Demonstration (ATD) - Biosurveillance Portal (BSP). ***FY 2016 Accomplishments:*** Continued to provide residual capability for the Biosurveillance Portal (BSP) under the BSV USFK JUPITR ATD. ***FY 2017 Plans:*** Continue to support residual capability for the BSP under the BSV USFK JUPITR ATD.	2.911	0.306	-
Title: 14) BSV	1.050	1.839	8.768

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Description: Biosurveillance Joint United Forces Korea Portal and Integrated Threat Reduction (JUPITR) Advanced Technology Demonstration (ATD) - residual capability and operational demonstration test support. ***FY 2016 Accomplishments:*** Continued to provide residual capability and operational demonstration test support for AED, EW, BSP and BICS within the USFK JUPITR ATD. ***FY 2017 Plans:*** Continue to provide residual capability (through contractor logistics support) and operational demonstration test support for AED, EW, BSP and BICS for Busan Pier 8 JUPITR ATD. Initiate Camp Humphreys JUPITR system deployment. ***FY 2018 Plans:*** Continue to provide residual capability (through contractor logistics support) and operational demonstration test support for AED, EW, BSP and BICS for Busan Pier 8 JUPITR ATD. Complete Camp Humphreys JUPITR system deployment.			
Title: 15) BSV ***Description:*** Biosurveillance Joint United Forces Korea Portal and Integrated Threat Reduction (JUPITR) Advanced Technology Demonstration (ATD) - ATD efforts. ***FY 2016 Accomplishments:*** Continued to support the ATD efforts and overall transition of technologies to programs of record. Supported program management and systems engineering to ensure integration across residual capabilities for AED, EW, BSP and BICS within the USFK JUPITR ATD. ***FY 2017 Plans:*** Continue to support the ATD efforts and overall transition of technologies to programs of record. Supports program management and systems engineering to ensure integration across residual capabilities for AED, EW, BSP and BICS within the USFK JUPITR ATD.	4.915	0.247	-
Title: 16) CBRN DRS Inc 2 ***Description:*** CBRN DRS Inc 2 - Design testing and review. ***FY 2018 Plans:*** Initiate Engineering Design Testing (EDT), and complete Preliminary Design Review (PDR).	-	-	0.985
Title: 17) NGCD	4.146	8.541	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Description: Test Events ***FY 2016 Accomplishments:*** Completed Brassboard testing. Initiated Final prototype testing and Early Operational Assessment (EOA). ***FY 2017 Plans:*** Complete Final Prototype testing. Initiate manufacturing and affordability assessment.			
Title: 18) NGCD ***Description:*** NGCD 1 - Smiths Detection Contract ***FY 2016 Accomplishments:*** Completed maturation of Brassboard system. Continued performing system engineering, technical management, technology experimentation, system design, and support Government testing. Awarded option to develop Final prototype RDT&E test articles (five systems). ***FY 2017 Plans:*** Continue performing system engineering, technical management, technology experimentation, system design, and support Government testing.	0.847	0.619	-
Title: 19) NGCD ***Description:*** NGCD 1 - Signature Science Contract ***FY 2016 Accomplishments:*** Completed maturation of Brassboard system. Continued performing system engineering, technical management, technology experimentation, system design, and support Government testing. Awarded option to develop Final prototype RDT&E test articles (five systems). ***FY 2017 Plans:*** Continue performing system engineering, technical management, technology experimentation, system design, and support Government testing.	4.058	1.854	-
Title: 20) NGCD ***Description:*** NGCD 1 - Chemring Chemhound Contract ***FY 2016 Accomplishments:***	2.710	1.169	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Completed maturation of Brassboard system. Continued performing system engineering, technical management, technology experimentation, system design, and support Government testing. Awarded option to develop Final prototype RDT&E test articles (five systems). ***FY 2017 Plans:*** Continue performing system engineering, technical management, technology experimentation, system design, and support Government testing.			
Title: 21) NGCD ***Description:*** NGCD 2 - Chemring Trace Contamination Surface Detector Contract ***FY 2016 Accomplishments:*** Completed maturation of Brassboard system. Continued performing system engineering, technical management, technology experimentation, system design, and support Government testing. Awarded option to develop Final prototype RDT&E test articles (five systems). ***FY 2017 Plans:*** Continue performing system engineering, technical management, technology experimentation, system design, and support Government testing.	1.650	1.525	-
Title: 22) NGCD ***Description:*** NGCD 2 - FLIR/NOMADICS Contract ***FY 2016 Accomplishments:*** Completed maturation of Brassboard system. Continued performing system engineering, technical management, technology experimentation, system design, and support Government testing. Awarded option to develop Final prototype RDT&E test articles(five systems). ***FY 2017 Plans:*** Continue performing system engineering, technical management, technology experimentation, system design, and support Government testing.	2.948	2.153	-
Title: 23) NGCD ***Description:*** NGCD 2 - ChemImage Contract ***FY 2016 Accomplishments:***	4.336	1.926	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Completed maturation of Brassboard system. Continued performing system engineering, technical management, technology experimentation, system design, and support Government testing. Awarded option to develop Final prototype RDT&E test articles (five systems). ***FY 2017 Plans:*** Continue performing system engineering, technical management, technology experimentation, system design, and support Government testing.			
Title: 24) NGCD ***Description:*** NGCD 3 - Bruker Contract ***FY 2016 Accomplishments:*** Completed maturation of Brassboard system. Continued performing system engineering, technical management, technology experimentation, system design, and support Government testing. Awarded option to develop Final prototype RDT&E test articles (five systems). ***FY 2017 Plans:*** Continue performing system engineering, technical management, technology experimentation, system design, and support Government testing.	1.411	0.992	-
Title: 25) NGCD ***Description:*** NGCD 3 - Chemring MARS Contract ***FY 2016 Accomplishments:*** Completed maturation of Brassboard system. Continued performing system engineering, technical management, technology experimentation, system design, and support Government testing. Awarded option to develop Final prototype RDT&E test articles (five systems). ***FY 2017 Plans:*** Continue performing system engineering, technical management, technology experimentation, system design, and support Government testing.	2.728	1.576	-
Title: 26) NGCD ***Description:*** NGCD 3 - Battelle Contract ***FY 2016 Accomplishments:***	2.797	2.085	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Completed maturation of Brassboard system. Continued performing system engineering, technical management, technology experimentation, system design, and support Government testing. Awarded option to develop Final prototype RDT&E test articles(five systems). ***FY 2017 Plans:*** Continue performing system engineering, technical management, technology experimentation, system design, and support Government testing.			
Title: 27) NGCD ***Description:*** Management Services for Four Capabilities ***FY 2016 Accomplishments:*** Continued Government Integrated Product Development Team, program management, systems engineering and IPT support (NGCD 1-3). ***FY 2017 Plans:*** Continue Government Integrated Product Development Team, program management, systems engineering and IPT support. ***FY 2018 Plans:*** Continue Government and contracted Integrated Product Development Team, program management, systems engineering and IPT support (NGCD 4 only; transition NGCD 1-3 to BA5). FY 18-22 POM was first year to break out capabilities	15.238	10.234	1.037
Title: 28) NGCD ***FY 2017 Plans:*** Continue to evaluate transitional technology from S&T.	-	3.000	-
Title: 29) NTA Defense ***Description:*** Technology Assessments ***FY 2016 Accomplishments:*** Initiated testing/characterization of Commercial Off The Shelf (COTS) CB systems to determine potential technology candidates for inclusion into program acquisition strategies to support emerging threat priorities. ***FY 2017 Plans:*** Continue testing / characterization of emerging Commercial Off The Shelf (COTS) technologies to determine potential candidates for inclusion into advanced and emerging threat test and experimentation activities. ***FY 2018 Plans:***	0.666	0.884	1.657

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Continue testing/characterization of emerging Commercial Off The Shelf (COTS) technologies to determine potential candidates for inclusion into advanced and emerging threat test and experimentation activities. Continue characterization testing to meet current and anticipated capability needs of JPEO programs of record. Leveraging of previous investment in Design of Experiment and detection algorithms to support program testing and risk reduction.			
Title: 30) NTA Defense ***Description:*** Threat Understanding/ATD Front End Analysis ***FY 2017 Plans:*** Conduct analysis of threat understanding for additional threat classes to enable refinement of technology and capability gaps identified during mission analysis. Conduct planning for expanded threat characterization and initiate execution. Conduct front end analysis to support future Multi Threat Multi Commodity ATDs and experimentation.	-	0.920	-
Title: 31) NTA Defense ***Description:*** Systems Engineering ***FY 2017 Plans:*** Conduct mission modeling and incorporate emerging technology to refine advanced threat investment strategies. ***FY 2018 Plans:*** Conduct mission modeling and incorporate emerging technology to refine advanced threat investment strategies.	-	0.537	0.472
Title: 32) NTA Defense ***Description:*** Strategic Coordination ***FY 2017 Plans:*** Conduct NTA Library transition readiness to the CB Effects Manual. Update and maintain NTA Library. Conduct development of the Integrated Acquisition Portal for analysis to support refinement of investment strategies. ***FY 2018 Plans:*** Initiate transition to CB-1 Effects Manual Update and maintain NTA Library.	-	0.340	0.370
Accomplishments/Planned Programs Subtotals	74.684	42.308	29.211

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program			Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 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
• CA5: *CONTAMINATION AVOIDANCE (EMD)*	55.468	50.203	127.499	-	127.499	150.657	96.220	52.480	35.941	Continuing	Continuing
• JF0100: *JOINT CHEMICAL AGENT DETECTOR (JCAD)*	27.134	7.547	4.253	-	4.253	3.500	0.000	0.000	0.000	0	42.434
• JF0104: *NEXT GEN CHEMICAL DETECTOR (NGCD)*	0.000	2.378	0.000	-	0.000	1.722	15.872	61.516	86.432	Continuing	Continuing
• MC0100: *JOINT NBC RECONNAISSANCE SYSTEM (JNBCRS)*	12.900	1.956	0.500	-	0.500	0.000	0.000	0.000	7.655	Continuing	Continuing
• MC0101: *CBRN DISMOUNTED RECONNAISSANCE SYSTEMS (CBRN DRS)*	111.248	90.094	94.424	-	94.424	93.269	59.358	45.924	55.062	Continuing	Continuing
• MX0001: *JOINT BIO TACTICAL DETECTION SYSTEM (JBTDS)*	0.000	0.000	0.000	-	0.000	0.000	46.724	68.825	75.502	Continuing	Continuing

Remarks

D. Acquisition Strategy

ENHANCED CAPABILITY DEMO INTEGRATED EARLY WARNING (ECD IEW)

The Enhanced Capability Demonstration Integrated Early Warning (ECD IEW) will conduct an analysis of alternatives and leverage the DTRA IEW ATD to procure developmental equipment for experimentation and demonstration to reduce risk and inform supporting materiel solutions, CONOPS TTPs, Non-CBRN sensors, and requirements to provide operational commanders time and space for freedom to maneuver and action. The ECD IEW will utilize Table Top Exercises (TTX), Operational Demonstrations, and other test events to provide cross commodity equipment sets evaluation leading to the operational deployment to a unit to be determined, with two years of sustainment, further requirements development, CBDP program of record insertion, and concepts of employment.

ENHANCED CAPABILITY DEMONSTRATION JOINT CBRNE ADV CAPABILITY SETS (ECD JCACS)

The Enhanced Capability Demonstration (ECD) Joint Chemical Biological Radiological Nuclear Advanced Capability Sets (JCACS) is an ECD that requires various sets of equipment to be evaluated during Army Warfighting Assessments (AWA) and other test events. The acquisition strategy uses existing task-order contracts (including support contracts) and existing supply contracts from Programs of Record to acquire the equipment and technical support required for the effort. Additionally, other Government Agencies and Federally Funded Research and Development Centers will be used to provide development, testing and technical support.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

MOUNTED MANNED PLATFORM RADIOLOGICAL DETECTION SYSTEM (MMPRDS)

The Mounted Manned Platform Radiological Detection System (MMPRDS) leverages technology transition with the Defense Threat Reduction Agency (DTRA) J9 NT to expedite technology maturation. DTRA-developed systems will provide component-level test data in support of Milestone B, after which Engineering Manufacturing Development (EMD) contracts will be awarded for exterior-mounted and interior-mounted vehicle sensors. Milestone C will be supported at least in part by joint evaluation with the NBCRV Sensor Suite Upgrade program. Based on market research, available COTS solutions for interior-mounted vehicle sensors may result in further acquisition streamlining for a portion of the solution set.

REACTIVE CHEMISTRY ORTHOGONAL SURFACE AND ENVIRONMENTAL THREAT TICKET ARRAY (ROSETTA)

The Reactive Chemistry Orthogonal Surface and Environmental Threat Ticket Array (ROSETTA) will use a streamlined acquisition strategy. This approach is based on the technology that will transition from the Science and Technology efforts. An Engineering Change Proposal (ECP) will be prepared to augment the M256A2 Kits. Full and Open Competition will be utilized.

BIOSURVEILLANCE (BSV)

BSV is a set of capabilities that acquire, integrate, and analyze medical, environmental, and incident management data using existing and next generation systems, medical and non-medical sample collection tools and identifiers/diagnostics. These capabilities will transition as residuals from the Biosurveillance Joint United States Force Korea (USFK) Portal and Integrated Threat Recognition (JUPITR) Advanced Technology Demonstration (ATD). The JUPITR system of systems will be released to Busan Pier 8 and Camp Humphreys with a two year paid sustainment. Lessons learned, technologies, concepts of employment from the ATD will be transitioned to the programs of record associated with the CBDP (such as G-BSP, EMBD, NGDS, JBTDS & CALS).

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

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

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.

NEXT GENERATION CHEMICAL DETECTOR (NGCD)

System Engineering and market survey results suggested the most effective way to develop NGCD was to divide the program into four unique capabilities to detect and identify the full spectrum of chemical compounds in all phases of matter. There are four capability areas, of which three; NGCD 1, NGCD 2 and NGCD 3 were awarded contracts in the Technical Maturation and Risk Reduction Phase. The fourth capability - personal chemical detection is still in technology development. The Government awarded ten (10) contracts in June 2014 to support Technology Maturation Risk Reduction (TMRR) acquisition phase activities in three of the four capability areas: three (3) contracts for the NGCD 1 capability, four (4) contracts for the NGCD 2 capability, and three (3) contracts for the NGCD 3 capability; only 9 are still under contract. Full and Open competition will be used to award at MS B Engineering and Manufacturing Development (EMD) contracts with production options for each capability.

NON TRADITIONAL AGENT DEFENSE (NTA DEFENSE)

The Non-Traditional Agent (NTA) Defense program supports the Chemical Biological Defense Program (CBDP) to develop countermeasures for all emerging threats across all commodities. The NTA Defense program consists of a number of projects and initiatives through various types of contract actions (full and open competition, task order/modifications, DLA) that enhance the CBDP's portfolio and mission and feed directly into Programs of Record, Enhanced Capability Demonstrations, and Acquisition Programs. NTA Defense efforts: (1) evaluate COTS and GOTS technologies and systems, (2) conduct demonstrations and experiments, (3) integrate Intelligence Community threat analysis, operational risk analysis with systems technical performance to identify technologies or systems that can be rapidly developed, and deployed, and/or transitioned to an Acquisition Program for technology insertion or derive an Engineering Change Proposal (ECP) to a fielded system, and (4) provide coordination of DoD, interagency, international NTA projects.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

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
ECD JCACS - HW - Product Development	MIPR	Various : Various	0.000	0.000		0.000		4.770	Mar 2018	-		4.770	Continuing	Continuing	0.000
ROSETTA - HW S - ROSETTA	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.350	Feb 2018	-		0.350	Continuing	Continuing	0.000
BSV - HW S - JUONS CC-0557 M908 Testing	C/CPFF	Battelle Memorial Institute : Aberdeen, MD	0.000	0.155	Aug 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
BSV - HW S - JUONS CC-0557 AP4C Purchase for Testing	MIPR	Proengin : Plantation, FL	0.000	0.048	Jul 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
BSV - HW S - Analytical Framework SW/HW	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.417	May 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGCD - HW S - Prototype System Design #1 (NGCD 1)	C/CPIF	Smiths Detection : Edgewood, MD	1.478	0.847	Dec 2015	0.619	Jun 2017	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - HW S - Prototype System Design #2 (NGCD 1)	C/CPIF	Signature Science : Austin, TX	6.435	4.058	Dec 2015	1.854	Jun 2017	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - HW S - Prototype System Design #3 (NGCD 1)	C/CPIF	Chemring Chemhound : Charlotte, NC	3.224	2.710	Dec 2015	1.169	Jun 2017	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - HW S - Prototype System Design #1 (NGCD 2)	C/CPIF	Chemring TCSD : Charlotte, NC	3.957	1.650	Jan 2016	1.525	Jun 2017	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - HW S - Prototype System Design #2 (NGCD 2)	C/CPIF	FLIR/Nomadics : Stillwater, OK	5.981	2.948	Jan 2016	2.153	Jun 2017	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - HW S - Prototype System Design #3 (NGCD 2)	C/CPIF	ChemImage : Pittsburgh, PA	4.334	4.116	Jan 2016	1.926	Jun 2017	0.000		-		0.000	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

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
NGCD - HW S - Prototype System Design #1 (NGCD 3)	C/CPIF	Bruker Detection Corp. : Billerica, MA	3.451	1.911	Jan 2016	0.992	Jun 2017	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - HW S - Prototype System Design #2 (NGCD 3)	C/CPIF	Chemring MARS : Charlotte, NC	4.200	3.278	Jan 2016	1.576	Jun 2017	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - HW S - Prototype System Design #3 (NGCD 3)	C/CPIF	Battelle Memorial Institute : Columbus, OH	4.951	2.297	Jan 2016	2.085	Jun 2017	0.000		-		0.000	Continuing	Continuing	0.000
NTA DEFENSE - HW S - NTA Defense	C/CPFF	MA Institute of Tech - Lincoln Labs (MIT-LL) : Lexington, MA	0.000	0.150	May 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NTA DEFENSE - HW S - COTS Characterization	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.465	Mar 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NTA DEFENSE - HW S - Technology Assessments	MIPR	Various : Various	0.000	0.000		0.545	Mar 2017	1.246	Mar 2018	-		1.246	Continuing	Continuing	0.000
NTA DEFENSE - HW S - Strategic Coordination	MIPR	Various : Various	0.000	0.000		0.210	Mar 2017	0.257	Mar 2018	-		0.257	Continuing	Continuing	0.000
NTA DEFENSE - HW S - Systems Engineering	MIPR	Various : Various	0.000	0.000		0.330	Mar 2017	0.330	Mar 2018	-		0.330	Continuing	Continuing	0.000
NTA DEFENSE - NHW S - Threat Understanding	MIPR	Various : Various	0.000	0.000		0.380	Mar 2017	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	38.011	25.050		15.364		6.953		-		6.953	-	-	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
ECD IEW - Mission Analysis	FFRDC	MA Institute of Tech - Lincoln Labs (MIT-LL) : Lexington, MA	0.000	0.000		0.000		1.000	Oct 2017	-		1.000	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program			Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*	

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
ECD IEW - Acquistion, Integration and decision tool demonstration	C/CPFF	TBD : TBD	0.000	0.000		0.000		1.500	Oct 2017	-		1.500	Continuing	Continuing	0.000
ECD IEW - System Integration	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.500	Oct 2017	-		0.500	Continuing	Continuing	0.000
MMPRDS - ES C - Engineering Support	MIPR	JPM Guardian : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.219	Oct 2017	-		0.219	Continuing	Continuing	0.000
BSV - ES S - JUONS CC-0557 Test Planning and Execution	MIPR	Various : Various	0.000	0.059	Aug 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
BSV - ES S - JUONS CC-0557 Test Range Access for S/K III Challenge	MIPR	West Desert Test Center : Dugway, UT	0.000	1.341	Aug 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
BSV - ES S - Analytical Framework	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.080	May 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
BSV - TD/D C - BSP residual purchase and sustainment	C/CPFF	Johns Hopkins University - Applied Physics Lab : Laurel, MD	0.000	3.798	Jan 2016	0.528	Jan 2017	0.538	Jan 2018	-		0.538	Continuing	Continuing	0.000
BSV - ES S - Early Warning sustainment costs for software package	C/CPFF	Johns Hopkins University - Applied Physics Lab : Laurel, MD	0.000	7.769	Nov 2015	0.000		0.000		-		0.000	Continuing	Continuing	0.000
BSV - ES S - Early Warning sustainment costs for software package #2	MIPR	Science Applications International Corporation (SAIC) : Abingdon, MD	0.000	4.300	Nov 2015	0.000		0.000		-		0.000	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

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
BSV - ES S - Assessment of Environmental Detectors (6 systems at OSAN)	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	2.402	Jan 2016	0.962	Jan 2017	1.745	Jan 2018	-		1.745	Continuing	Continuing	0.000
BSV - TD/D C - Biological Identification Capability Sets sustainment assays	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	4.467	Oct 2015	0.642	Nov 2016	0.856	Jan 2018	-		0.856	Continuing	Continuing	0.000
BSV - ES S - Early Warning sustainment costs for software package #3	MIPR	Various : Various	0.000	2.368	Oct 2015	0.626	Jan 2017	4.534	Jan 2018	-		4.534	Continuing	Continuing	0.000
NGCD - ES S - Joint Service T&E/SE IPT	MIPR	Various : Various	2.460	1.591	Nov 2015	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NTA DEFENSE - ES S - Integrated Product Team	MIPR	Various : Various	0.000	0.000		0.170	Mar 2017	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	2.460	28.175		2.928		10.892		-		10.892	-	-	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
ECD IEW - IEW TTX & OP DEMOs	MIPR	Various : Various	0.000	0.000		0.000		1.000	Oct 2017	-		1.000	Continuing	Continuing	0.000
ECD JCACS - DTE - Test and Evaluation	MIPR	Various : Various	0.000	0.000		0.000		3.100	Apr 2018	-		3.100	Continuing	Continuing	0.000
BSV - DTE S - JUONS CC-0557 Test Development and Evaluation	MIPR	Army Test and Evaluation Command (ATEC) : Aberdeen Proving Ground, MD	0.000	0.381	Aug 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
BSV - OTE S - Operational Assessment	MIPR	Army Test and Evaluation Command (ATEC) :	0.000	0.000		0.100	Jun 2017	0.000		-		0.000	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

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
		Aberdeen Proving Ground, MD													
BSV - DTE S - Cyber Testing, Developmental Testing, Busan Event	MIPR	Army Test and Evaluation Command (ATEC) : Aberdeen Proving Ground, MD	0.000	1.269	Nov 2015	0.000		0.000		-		0.000	Continuing	Continuing	0.000
CBRN DRS - DTE - CBRN DRS Inc 2 Test and Evaluation	MIPR	Various : Various	0.000	0.000		0.000		0.835	Nov 2017	-		0.835	Continuing	Continuing	0.000
NGCD - 3M Test	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	3.125	0.500	Jun 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGCD - Blind Test	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	1.780	Jan 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGCD - Early Operational Assessment (EOA)	MIPR	Operational Test Command (OTC) : Ft. Hood, TX	0.000	0.666	Sep 2016	1.200	Nov 2016	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - OTHT C - DT/OT Chemical Chamber	MIPR	West Desert Test Center : Dugway, UT	0.000	0.000		3.898	Nov 2016	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - OTHT SB - MIL-STD 810G	MIPR	West Desert Test Center : Dugway, UT	0.000	0.000		0.800	Nov 2016	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - OTHT SB - False Alarm Testing	MIPR	Operational Test Command (OTC) : Ft. Hood, TX	0.000	0.000		0.600	Dec 2016	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - OTHT SB - CARD/SPIRES Test	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		1.143	Feb 2017	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - OTHT SB - Chemical Purchase	MIPR	Edgewood Chemical Biological Center	0.000	0.500	Mar 2016	0.900	Mar 2017	0.000		-		0.000	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

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
		(ECBC) : Aberdeen Proving Ground, MD													
NGCD - OTHT SB - Final Prototype Test	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.700	Oct 2015	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NTA DEFENSE - HW S - Threat Understanding	MIPR	Various : Various	0.000	0.000		0.200	Mar 2017	0.000		-		0.000	Continuing	Continuing	0.000
NTA DEFENSE - DTE S - NTA Defense-Field Experimentation	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.051	Mar 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	3.125	5.847		8.841		4.935		-		4.935	-	-	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
ECD IEW - IEW - PM/ MS S - Labor and Travel Support	MIPR	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.750	Oct 2017	-		0.750	Continuing	Continuing	0.000
ECD IEW - IEW - PM/MS S - ECBC Matrix Govt labor	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.500	Oct 2017	-		0.500	Continuing	Continuing	0.000
ECD IEW - IEW - PM/MS S - ECBC ECD Team	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.348	Oct 2017	-		0.348	Continuing	Continuing	0.000
ECD JCACS - PM-Program Management and System Engineering Support	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO,	0.000	0.000		0.000		1.563	Dec 2017	-		1.563	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

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
		Aberdeen Proving Ground, MD													
MMPRDS - PM/MS C - Program Management	MIPR	JPM Guardian : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.177	Oct 2017	-		0.177	Continuing	Continuing	0.000
ROSETTA - PM/MS C - ROSETTA	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.145	Nov 2017	-		0.145	Continuing	Continuing	0.000
BSV - PM/MS S - JUONS CC-0557 Test Analysis Support	MIPR	Various : Various	0.000	0.316	Aug 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
BSV - PM/MS S - Analytical Framework	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.834	May 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
BSV - PM/MS S - BMO Labor & Travel Support	MIPR	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	0.504	Aug 2016	0.454	Nov 2016	0.454	Jan 2018	-		0.454	Continuing	Continuing	0.000
BSV - PM/MS S - ECBC ATD Team	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.641	Mar 2016	0.641	Jan 2017	0.641	Jan 2018	-		0.641	Continuing	Continuing	0.000
CBRN DRS - PM - CBRN DRS Inc 2-PM/MS-Program Management and System Engineering Support	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.150	Dec 2017	-		0.150	Continuing	Continuing	0.000
NGCD - PM/MS S - Program Management	MIPR	JPM NBC Contamination Avoidance (JPM	11.865	13.317	Nov 2015	13.234	Nov 2016	1.037	Nov 2017	-		1.037	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

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
and Systems Engineering Support		NBC CA) : JPEO, Aberdeen Proving Ground, MD													
NTA DEFENSE - PM/MSS - Program Management Support	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.846	Mar 2017	0.666	Dec 2017	-		0.666	Continuing	Continuing	0.000
		Subtotal	11.865	15.612		15.175		6.431		-		6.431	-	-	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	55.461	74.684		42.308		29.211		-		29.211	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

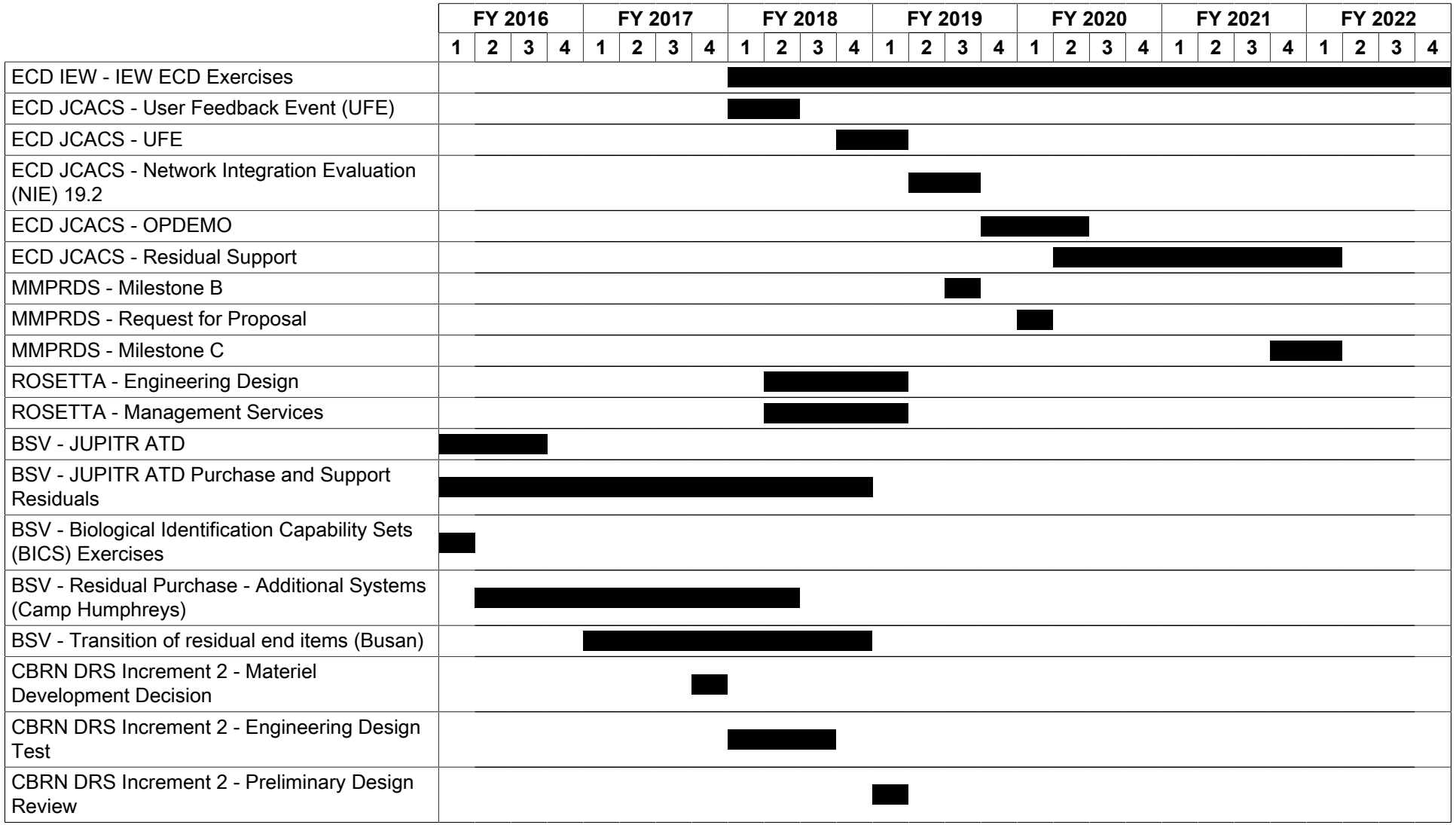

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

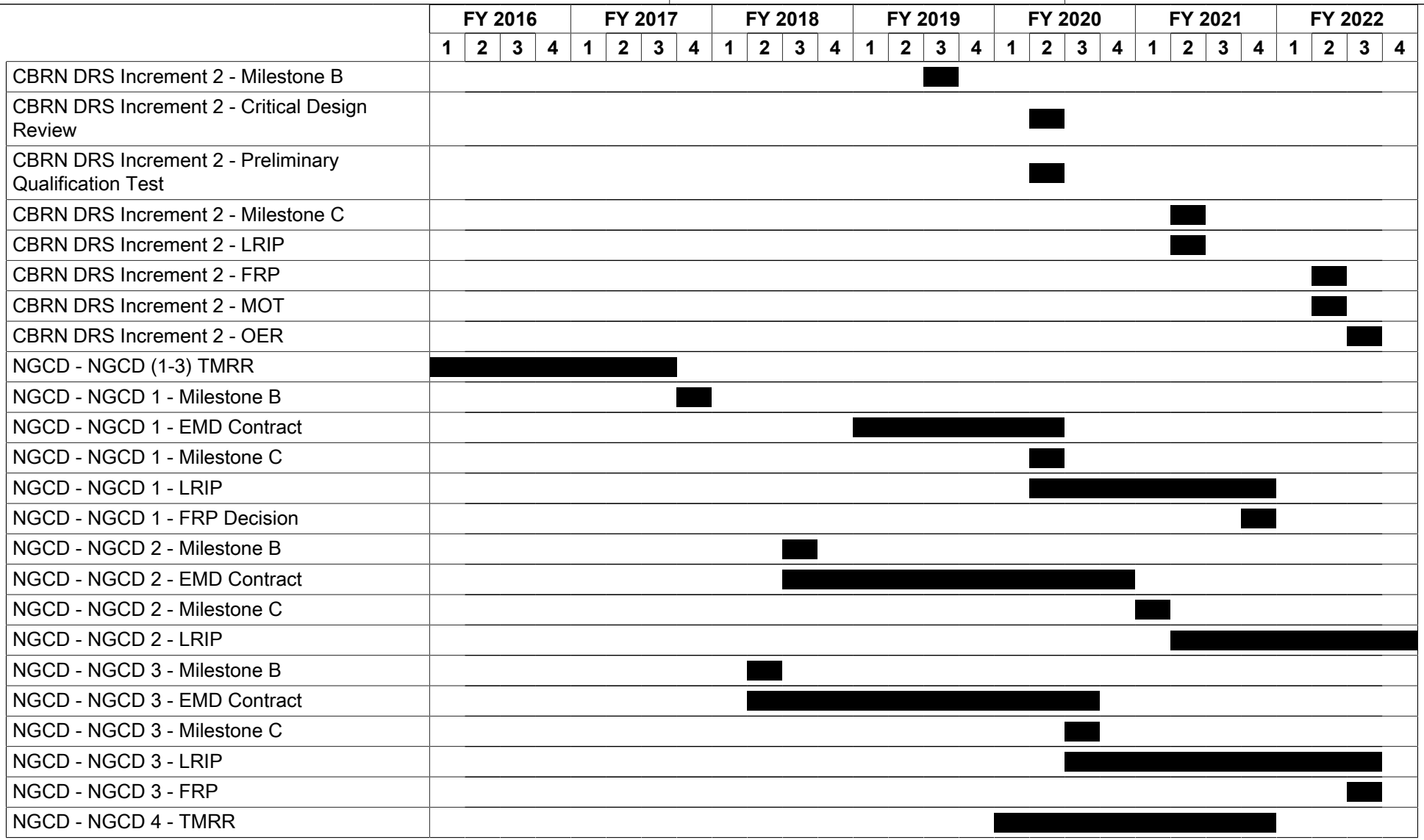

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

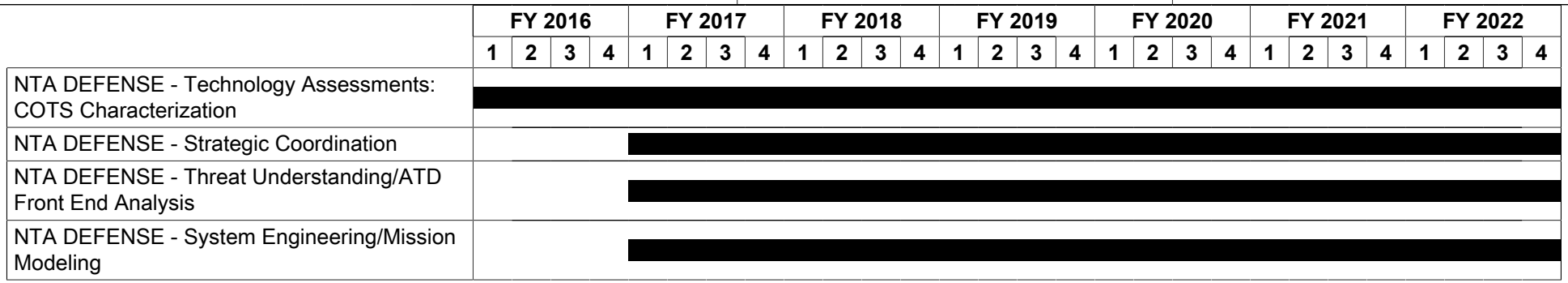

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ECD IEW - IEW ECD Exercises	1	2018	4	2022
ECD JCACS - User Feedback Event (UFE)	1	2018	2	2018
ECD JCACS - UFE	4	2018	1	2019
ECD JCACS - Network Integration Evaluation (NIE) 19.2	2	2019	3	2019
ECD JCACS - OPDEMO	4	2019	2	2020
ECD JCACS - Residual Support	2	2020	1	2022
MMPRDS - Milestone B	3	2019	3	2019
MMPRDS - Request for Proposal	1	2020	1	2020
MMPRDS - Milestone C	4	2021	1	2022
ROSETTA - Engineering Design	2	2018	1	2019
ROSETTA - Management Services	2	2018	1	2019
BSV - JUPITR ATD	1	2016	3	2016
BSV - JUPITR ATD Purchase and Support Residuals	1	2016	4	2018
BSV - Biological Identification Capability Sets (BICS) Exercises	1	2016	1	2016
BSV - Residual Purchase - Additional Systems (Camp Humphreys)	2	2016	2	2018
BSV - Transition of residual end items (Busan)	1	2017	4	2018
CBRN DRS Increment 2 - Materiel Development Decision	4	2017	4	2017
CBRN DRS Increment 2 - Engineering Design Test	1	2018	3	2018
CBRN DRS Increment 2 - Preliminary Design Review	1	2019	1	2019
CBRN DRS Increment 2 - Milestone B	3	2019	3	2019
CBRN DRS Increment 2 - Critical Design Review	2	2020	2	2020
CBRN DRS Increment 2 - Preliminary Qualification Test	2	2020	2	2020

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *CONTAMINATION AVOIDANCE (ACD&P)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CBRN DRS Increment 2 - Milestone C	2	2021	2	2021
CBRN DRS Increment 2 - LRIP	2	2021	2	2021
CBRN DRS Increment 2 - FRP	2	2022	2	2022
CBRN DRS Increment 2 - MOT	2	2022	2	2022
CBRN DRS Increment 2 - OER	3	2022	3	2022
NGCD - NGCD (1-3) TMRR	1	2016	3	2017
NGCD - NGCD 1 - Milestone B	4	2017	4	2017
NGCD - NGCD 1 - EMD Contract	1	2019	2	2020
NGCD - NGCD 1 - Milestone C	2	2020	2	2020
NGCD - NGCD 1 - LRIP	2	2020	4	2021
NGCD - NGCD 1 - FRP Decision	4	2021	4	2021
NGCD - NGCD 2 - Milestone B	3	2018	3	2018
NGCD - NGCD 2 - EMD Contract	3	2018	4	2020
NGCD - NGCD 2 - Milestone C	1	2021	1	2021
NGCD - NGCD 2 - LRIP	2	2021	4	2022
NGCD - NGCD 3 - Milestone B	2	2018	2	2018
NGCD - NGCD 3 - EMD Contract	2	2018	3	2020
NGCD - NGCD 3 - Milestone C	3	2020	3	2020
NGCD - NGCD 3 - LRIP	3	2020	3	2022
NGCD - NGCD 3 - FRP	3	2022	3	2022
NGCD - NGCD 4 - TMRR	1	2020	4	2021
NTA DEFENSE - Technology Assessments: COTS Characterization	1	2016	4	2022
NTA DEFENSE - Strategic Coordination	1	2017	4	2022
NTA DEFENSE - Threat Understanding/ATD Front End Analysis	1	2017	4	2022
NTA DEFENSE - System Engineering/Mission Modeling	1	2017	4	2022

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program			Date: May 2017
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	Project (Number/Name) DE4 / *DECONTAMINATION SYSTEMS (ACD&P)*	

COST ($ in Millions)	Prior Years	FY 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
DE4: *DECONTAMINATION SYSTEMS (ACD&P)*	-	2.753	0.500	9.900	-	9.900	9.156	15.301	16.269	17.768	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports the development of Contamination Mitigation (ConMit) systems utilizing solutions that will remove and/or detoxify contaminated material without damaging combat equipment, personnel, or the environment. ConMit systems provide a force restoration capability for units that become contaminated. Development efforts will provide systems that reduce operational impact and logistics burden, reduce sustainment costs, increase safety, and minimize environmental effects associated with decontamination and contamination mitigation operations. Experimentation and demonstration will be used in this phase to reduce risk and inform supporting materiel solutions, CONOPS and Tactics, Techniques, and Procedures (TTPs).

The programs supported under this Project include (1) Contaminated Human Remains System (CHRS), (2) Tactical Disablement System (TACDS), and (3) Joint Biological Agent Decontamination System (JBADS).

The CHRS is a follow-on to the Contaminated Human Remains Pouch (CHRP). The CHRS will address two capabilities identified within the Contamination Mitigation (ConMit) Initial Capabilities Document: a Contaminated Human Remains Transfer Case (CHRT) packaging solution to safely repatriate chemical, biological, or radiological contaminated human remains to the Continental United States and a sustainable Contaminated Human Remains Decontamination System (CHRDS) to reduce the hazard to warfighters by decontaminating chemical, biological, or radiological contaminated human remains.

The CHRT is a containment system which will protect personnel from the hazards associated with transporting human remains that are potentially contaminated with chemical, biological or radiological agents and Toxic Industrial Materials (TIM) without posing additional risk to the handlers or the environment in accordance with federal and international transportation standards.

The CHRDS is a system of tents, plumbing, generators, and medical equipment necessary to establish a decontamination site to perform decontamination, identification, and packaging of contaminated human remains for further disposition. The CHRDS will reduce the hazards associated with contaminated human remains through decontamination of remains and enable positive identification of remains for the Armed Forces Medical Examiner before packaging in a CHRT.

The TACDS, a new start, shall be designed to meet the warfighters chemical materials of concern (CMOC) destruction needs. This system will provide a new deployable tactical disablement capability for small quantities of chemical and biological warfare materiel in bulk agent containers and munitions, used in an operational environment. DoD's Countering Weapons of Mass Destruction (CWMD) Strategy enables early action through pathway defeat, shaping the environment to dissuade actors from pursuing WMD. The strategy also asserts the Department must respond effectively to WMD crises when called upon. The TACDS program will ultimately develop, integrate, test and produce a family of systems (FoS) which enable the Warfighter to Identify, Defeat, Disable, and Dispose of small quantities of Chemical

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *DECONTAMINATION SYSTEMS (ACD&P)*

Warfare Materials (CWM) or Biological Warfare Materials (BWM) in both bulk container(s) and assembled munitions. TACDS will consist of two capabilities; (1) Rapid Defeat System - Munitions, and (2) Rapid Defeat System - Agent.

The JBADS will provide the capability to conduct biological and chemical agent decontamination of the interior and exterior of aircraft and vehicle platforms. The capabilities will be provided in two increments. Increment I will provide thorough biological decontamination of the interior and exterior of cargo aircraft. The JBADS Increment I is a capability set that will include a shelter to encapsulate an airframe, a decontamination delivery system (e.g. hot-humid air-blower, etc.), environmental control and monitoring system(s), and other ancillary components required to ensure efficacious biological agent decontamination. It will provide the capability to decontaminate biologically contaminated airframes to safe levels and allow more rapid return to service. Increment II will expand upon the Increment I capability set. Increment II will develop multiple decontaminants and modular designs to address various platforms and chemical agent decontamination.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: 1) CHRS - CHRT ***FY 2017 Plans:*** Prepare documentation for and conduct Milestone A review for the Contaminated Human Remains Transfer Case (CHRT) to verify Service Requirements, assess market research, provide an independent cost estimate and validate Acquisition Strategy. Conduct an industry day to communicate the acquisition strategy for the CHRT to commercial vendors and provide context to an upcoming Request for Proposal for remains packaging solutions. ***FY 2018 Plans:*** Award contract to CHRT vendor(s) to develop a solution to meet all packaging and transport requirements, conduct System Requirements Review, begin competive prototyping, and continue product development for both program components.	-	0.500	3.210
Title: 2) CHRS - CHRDS ***FY 2018 Plans:*** Award contract to develop a solution to identify system integrator for CHRDS, conduct System Requirements Review, begin competive prototyping, and continue product development for both program components.	-	-	4.215
Title: 3) TACDS ***FY 2018 Plans:*** Prepare Pre-Milestone A acquisition documents.	-	-	0.701
Title: 4) TACDS ***FY 2018 Plans:*** Develop lifecycle sustainment plan.	-	-	0.825
Title: 5) TACDS ***FY 2018 Plans:***	-	-	0.825

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *DECONTAMINATION SYSTEMS (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Develop a Request for Proposal (RFP) and Statement of Work (SOW) for Technology Maturation and Risk Reduction (TMRR) contract.			
Title: 6) TACDS ***FY 2018 Plans:*** Provide System Engineering and Program Management.	-	-	0.124
Title: 7) JBADS - System Design Support ***FY 2016 Accomplishments:*** Initiated developmental testing (DT) to evaluate the efficacy of chemical agent hot air decontamination on several materials of interest.	1.142	-	-
Title: 8) JBADS - Prototype ***FY 2016 Accomplishments:*** Designed, fabricated, constructed and operated one prototype to assess the feasibility of a forward deployed and mobile chemical and biological decontamination capability.	1.611	-	-
Accomplishments/Planned Programs Subtotals	2.753	0.500	9.900

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
• DE5: *DECONTAMINATION SYSTEMS (EMD)*	16.015	9.984	15.686	-	15.686	13.074	12.461	11.253	10.543	Continuing	Continuing
• JD0050: *DECONTAMINATION FAMILY OF SYSTEMS (DFoS)*	0.000	7.602	7.285	-	7.285	12.035	13.414	10.869	9.645	Continuing	Continuing
• JD0063: *CONTAMINATED HUMAN REMAINS POUCH (CHRP)*	1.100	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0	1.100
• JD0070: *JOINT BIOLOGICAL AGENT DECONTAMINATION SYSTEM (JBADS)*	0.000	3.000	4.827	-	4.827	1.000	24.648	2.377	1.364	Continuing	Continuing

Remarks

D. Acquisition Strategy

CONTAMINATED HUMAN REMAINS SYSTEM (CHRS)

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *DECONTAMINATION SYSTEMS (ACD&P)*

The CHRS will consist of two separate approaches for the Contaminated Human Remains Transfer Case (CHRT) and the Contaminated Human Remains Decontamination System (CHRDS). The CHRT will use Competitive Prototyping (CP) to evaluate multiple alternatives in the Technology Maturation and Risk Reduction phase (Minimum TRL level of 4) that can meet the Contamination Mitigation (ConMit) ICD requirements. A solution will be chosen at Milestone B and developed under a cost plus incentive fee contract in the Engineering Manufacturing Development phase with incentives for weight reduction and processing time. The CHRDS will consist of a request for proposal to assemble Commercial Off the Shelf (COTS) and Government Off the Shelf (GOTS) components for a Contaminated Human Remains Decontamination System using a best value firm-fixed price contracting strategy.

TACTICAL DISABLEMENT SYSTEM (TACDS)

(1) The Tactical Disablement System (TACDS) shall be designed to meet the warfighters Chemical Materials of Concern (CMOC) destruction needs. Utilizing mature technologies, the TACDS program will take an incremental approach towards the development, integration, test and production of a family of systems (FoS). Developmental efforts in the Technology Maturation and Risk Reduction Phase (TMRR), as well as, the Engineering and Manufacturing Development Phase (EMD) will be contracted through full and open competition.

(2) The Production & Deployment Phase and the Operations and Support Phase would be a separate full and open competition as well.

JOINT BIOLOGICAL AGENT DECONTAMINATION SYSTEM (JBADS)

For Increment I, the program will leverage the Joint Biological Agent Decontamination System Joint Capability Demonstration (JCTD) and prior testing of candidate technologies to support a Milestone B decision in Engineering and Manufacturing Development (EMD), then a first article build to be retrofitted for fielding, if necessary, after a successful Operational Test and Fielding Decision.

JBADS Increment II will expand the biological agent decontamination capability to other platforms such as tactical and rotary wing aircraft, as well as ground vehicles. In addition, Increment II will provide chemical agent decontamination capabilities. Increment II will enter the acquisition process at Milestone B and a full and open Cost Plus Fixed Fee contract will be awarded to conduct the EMD phase. Candidate technologies will be evaluated during EMD to determine the most cost effective combination of biological and chemical agent decontamination for a variety of platforms. Following Milestone C/LRIP decision, a single, Firm Fixed Price production contract with full and open competition will be awarded.

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 / 4	R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	Project (Number/Name) IP4 / *INDIVIDUAL PROTECTION (ACD&P)*	

COST ($ in Millions)	Prior Years	FY 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
IP4: *INDIVIDUAL PROTECTION (ACD&P)*	-	5.473	3.235	5.145	-	5.145	0.000	0.000	2.949	5.604	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides for Advanced Component Development and Prototypes (ACD&P). 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 Uniform Integrated Protection Ensemble Increment 2 (UIPE Increment 2).

The UIPE Increment 2 program will develop, procure, and field a Family of Systems (FoS) that provides tailorable, full body, percutaneous protection. The FoS will address all Department of Defense mission profiles that could encounter chemical, biological, radiological and nuclear threats, to include contingency and humanitarian operations. The ability to integrate with and protect individual Warfighter kits as part of the protective ensemble will be a critical function of solutions. This will give the Warfighters the ability to perform their mission functions in a CBRN environment while preserving their Warfighter kit to the maximum extent possible after departing a CBRN environment. The FoS will be developed based on Service mission profiles that will be agreed upon by Stakeholders.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: 1) UIPE - Increment 2	5.473	3.235	5.145
Description: Concept Design Evaluation/Technology Maturation and Risk Reduction			
FY 2016 Accomplishments: Performed a collaborative analysis of alternatives with Army Materiel Systems Analysis Activity to identify Warfighter needs in chemical and biological protective clothing. Participated in an enhanced concept demonstration with Services to gain user feedback. Completed initial trade space analysis on materials that will inform a down select decision of viable material and closure candidates and inform requirements development. Initiated garment design concept activities. Awarded a contract to develop a Challenge competition that will seek innovative design solutions from non-traditional sources. Designed, fabricated, and developed thirty (30) prototype Tactical Advanced Threat Protective Ensembles (TATPE) to support Concept Demonstrations to assess the ensembles' ability to meet user requirements, evaluate component integration, identify potential trade space, and refine system design. Conducted Milestone A decision.			
FY 2017 Plans:			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IP4 / *INDIVIDUAL PROTECTION (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Continue design concept activities. Begin concept development and design and begin preliminary testing on materials and prototypes. Conduct Systems Requirements Review (SRR), and Joint Independent Logistics Self-Assessment. ***FY 2018 Plans:*** Initiate and complete Gated Material Test to determine capability solutions that will enter into the Design Phase. Activites scheduled in the Design Phase include: Perform Design Verification Testing, Review Prototype Designs, Detailed Design, and Design Lockdown.			
Accomplishments/Planned Programs Subtotals	5.473	3.235	5.145

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
• IP5: *INDIVIDUAL PROTECTION (EMD)*	19.720	11.427	14.481	-	14.481	9.953	5.471	4.709	3.556	Continuing	Continuing
• JI0002: *JS AIRCREW MASK (JSAM)*	2.705	52.284	36.782	-	36.782	54.775	60.278	63.806	63.110	Continuing	Continuing
• 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
• MA0401: *CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE (UIPE)*	32.872	13.525	10.990	-	10.990	13.064	16.769	19.336	71.335	Continuing	Continuing

Remarks

D. Acquisition Strategy

CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE (UIPE)

The UIPE Increment 2 Family of Systems (FoS) will use an evolutionary acquisition strategy to develop a FoS that will provide the Warfighter percutaneous protection from operationally relevant traditional and non-traditional CBRN threats. The FoS will be developed based on Service mission profiles with the goal being to minimize operational burden and provide improved fit, function, and integration with the current Warfighter kits compared to legacy systems. Pre-Milestone A activities included the exploration of available state of the art technologies through market research, Requests for Information, and a challenge competition; shaping realistic requirements by exploring trade space of novel technologies; and identified protection offered by non-chemical biological (CB) combat gear. The Technology Maturation and Risk Reduction (TMRR) phase will reduce technology, engineering, integration, and life-cycle cost risk. During this phase, the program will focus on forming mission profile areas designed to narrow the focus of solutions designed specifically for a certain Warfighter functional area. UIPE Increment 2 is a FoS and, therefore, will not be a

single solution designed to have one suit meet the majority of Warfighter functions. Early testing will aide in deciding what is possible for each mission profile area and feed information in to the trade space analysis. Developmental/Operational Testing will assess the ability of the solution to meet requirements, determine contractual compliance with the Performance Specifications, demonstrate system technical performance in accordance with the operational requirements, and demonstrate performance in realistic conditions. An Other Transaction Authority (OTA) contracting approach will be used to procure informational white papers during the TMRR phase, prototypes, and test articles of possible solutions. The OTA consists of a consortium of all potential Industry, research institutions, and non-traditional government that could be potential solvers for the program. Procurement will be through either the OTA or a more traditional contracting vehicle. In special circumstances, procurement may be awarded under the OTA if the contract falls under the procedures pursuant to the rules and regulations specified for this OTA. Otherwise, a production contract will be awarded via a more traditional contracting vehicle.

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 / 4					R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*				Project (Number/Name) IS4 / *INFORMATION SYSTEMS (ACD&P)*			
COST ($ in Millions)	**Prior Years**	**FY 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**
IS4: *INFORMATION SYSTEMS (ACD&P)*	-	7.224	5.928	5.941	-	5.941	0.872	0.297	0.077	0.072	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides for Advanced Component Development and Prototypes (ACD&P) responsible for providing the information architecture and applications for shaping the battlespace against the Chemical, Biological, Radiological and Nuclear (CBRN) threat. 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 Joint Effects Model (JEM); (3) the Joint Warning and Reporting Network (JWARN); and (4) the Software Support Activity (SSA).

The Biosurveillance Portal (BSP) is an 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 Joint Effects Model (JEM) is a web-based software application that supplies the Department of Defense (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 increments 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: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

The Joint Warning and Reporting Network (JWARN) is an accredited Department of Defense (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 an over-lay of NBC 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.

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 Program Management	0.373	0.379	0.382
FY 2016 Accomplishments: Managed oversight of technology development and transition efforts for new technologies and capabilities designed to satisfy BSP requirements. ***FY 2017 Plans:*** Continue management and oversight of technology development and transition efforts for new technologies and capabilities designed to satisfy BSP requirements. ***FY 2018 Plans:*** Continue management and oversight of technology development and transition efforts for new technologies and capabilities designed to satisfy BSP requirements.			
Title: 2) BSP Product Development	0.687	0.721	0.693

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
FY 2016 Accomplishments: Prototyped, developed, and evaluated new technologies, models, and tools from both internal and external developers for transition into BSP. ***FY 2017 Plans:*** Continue prototyping, developing, and evaluating new technologies, models, and tools from both internal and external developers for transition into BSP. Two planned technology transitions from the Tech Base in FY17 and two in FY18. ***FY 2018 Plans:*** Continue prototyping, developing, and evaluating new technologies, models, and tools from both internal and external developers for transition into BSP. Two planned technology transitions from the Tech Base in FY17 and two in FY18.			
Title: 3) JEM Increment 2 - Prototyping and Development ***FY 2016 Accomplishments:*** Developed JEM Increment 2 software capabilities defined in Requirements Definition Package 1 (RDP 1). RDP 1 is the JEM Increment 2 Standalone Capabilities package considered the JEM Increment 2 Baseline. It contains all the JEM Increment 1 capabilities plus additional Incident Source Models (ISMs)(Missile Intercept, High Altitude Release, Nuclear Reactor Facility Release). Performed integration into C2 systems as defined in Requirements Definition Package 2. RDP-2 is the package that takes RDP 1 and integrates it with various C2 Host Systems (MilCloud, Army, GCCS-J, etc.). Began software development of capabilities defined in Requirements Definition Package 3 that support Science and Technology community use of JEM Increment 2 software. RDP 3 is a package dedicated to Analytical Support for the "super user" group. ***FY 2017 Plans:*** Complete development and integration of capability JEM Increment 2 software development of capabilities defined in Requirements Definition Package 1. Continue integration into C2 systems as defined in Requirements Definition Package 2 (RDP 2) which is the C2 Integration RDP, as Service command and control hosts become available for integration. RDP-2 defines requirements to integrate baseline capabilities into a version that can be fielded on service C2 systems. Continue development of capabilities defined in Requirements Definition Package 3 that support Science and Technology community use of JEM Increment 2 software. Begin integration of emerging science and technology capabilities received from Advanced Technical Development (ATD) phase and defined in Requirements Definition Package 3 and 4. ***FY 2018 Plans:*** Continue integration of emerging science and technology capabilities received from Advanced Technical Development (ATD) phase and defined in Requirements Definition Package 3 and 4.	1.184	0.592	0.115
Title: 4) JEM Increment 2 - Test & Evaluation (T&E)	1.201	0.246	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
FY 2016 Accomplishments: Conducted lab based OT and limited scope service specific IOT&E to support fielding of software with additional capability in 1QTR FY17. Conduct Service C2 Follow-on Test and Evaluation (FOT&E) which will allow for IOC of JEM Increment 2 on service C2 systems in 1QTR FY17. ***FY 2017 Plans:*** Continue Government development test on newly integrated models received from the Tech Base. Continue lab based warfighter events to assess usability and suitability of implementation of new models.			
Title: 5) JEM Increment 2 - Management Support ***FY 2016 Accomplishments:*** Completed Fielding Decision and IOC of Stand Alone capabilities of JEM Increment 2 in 1QTR FY16. Performed program/ financial management, costing, contracting, scheduling and acquisition oversight support for JEM Increment 2. ***FY 2017 Plans:*** Continue to perform program/financial management, costing, contracting, scheduling and acquisition oversight support for JEM Increment 2. Continue to manage transition of mature science and technology from into the JEM increment 2 program.	0.323	0.242	-
Title: 6) JEM Increment 2 - Technical Support ***FY 2016 Accomplishments:*** Developed VV&A package for JEM Increment 2. ***FY 2017 Plans:*** Update VV&A plans and perform V&V to ensure models are mature enough to be integrated into the JEM Increment 2 baseline.	0.553	0.257	-
Title: 7) JWARN Increment 2 - Prototyping ***FY 2016 Accomplishments:*** Continued software prototyping efforts supporting JWARN baseline development. ***FY 2017 Plans:*** Continue software prototyping efforts supporting JWARN development for all three Requirements Definition Packages (RDPs). ***FY 2018 Plans:*** Continue software prototyping efforts supporting JWARN development for all three Requirements Definition Packages (RDPs).	0.755	0.918	0.834
Title: 8) JWARN Increment 2 - Product Development ***FY 2016 Accomplishments:***	0.334	0.420	1.383

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Continued JWARN Technology Demonstrations and User Assessments to evaluate and prove component and subsystem maturity of critical science and technology, system performance, and validate requirements within the IT BOX construct and Agile Process developed software prototype(s). ***FY 2017 Plans:*** Continue JWARN Technology Demonstrations and User Assessments to evaluate and prove component and subsystem maturity of critical science and technology, system performance, and validate requirements within the IT BOX construct and Agile Process developed software prototype(s). ***FY 2018 Plans:*** Continue JWARN Technology Demonstrations and User Assessments to evaluate and prove component and subsystem maturity of critical science and technology, system performance, and validate requirements within the IT BOX construct and Agile Process developed software prototype(s).			
Title: 9) JWARN Increment 2 - Test and Evaluation (T&E) ***FY 2016 Accomplishments:*** Continued Government developmental testing and analysis of component and subsystem maturity, to include Technology Readiness Assessment(s), of software submitted for evaluation during prototyping. Continue the DoD Information Assurance Certification and Accreditation and Joint Interoperability Certification process. Conduct Initial Operational Test and Evaluation (IOT&E) of Capability Drops 1.1 and 1.2 for the USA, USMC and USAF. ***FY 2017 Plans:*** Continue Government developmental testing and analysis of component and subsystem maturity, to include Technology Readiness Assessment(s), of software submitted for evaluation during prototyping. Continue the DoD Information Assurance Certification and Accreditation and Joint Interoperability Certification process. Conduct Initial Operational Test and Evaluation (IOT&E) of Capability Drops 1.3 for USA, USMC, USAF and 2.1 for USA, USMC, USAF, and USN. ***FY 2018 Plans:*** Continue Government developmental testing and analysis of component and subsystem maturity, to include Technology Readiness Assessment(s), of software submitted for evaluation during prototyping. Continue the DoD Information Assurance Certification and Accreditation and Joint Interoperability Certification process. Conduct Operational Test and Evaluation (OT&E) of Capability Drop (CD) 1.4 for USA, USMC, USAF and (CD) 2.2 & 2.3 for USA and Joint C2 Host Systems.	0.443	0.556	0.744
Title: 10) JWARN Increment 2 - Program Management Support ***FY 2016 Accomplishments:***	0.494	0.620	0.657

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Provided strategic, tactical planning, program/financial management, costing, contracting, scheduling, acquisition oversight, and milestone documentation for the program within IT BOX construct and Agile Software development process. ***FY 2017 Plans:*** Provide strategic, tactical planning, program/financial management, costing, contracting, scheduling, acquisition oversight, and milestone documentation for the program within IT BOX construct and Agile Software development process. Re-compete contract for prime developer. ***FY 2018 Plans:*** Continue to provide strategic, tactical planning, program/financial management, costing, contracting, scheduling, acquisition oversight, and milestone documentation for the program within IT BOX construct and Agile Software development process. Award Re-compete contract for prime developer.			
Title: 11) JWARN Increment 2 - Technical Support ***FY 2016 Accomplishments:*** Continued providing engineering and technical support for JWARN development under the IT BOX construct and Agile Software development processes. Continued independent system verification, validation, and class type accreditation as required. ***FY 2017 Plans:*** Continue to provide engineering and technical support for JWARN development under the IT BOX construct and Agile Software development processes. Continue independent system verification, validation, and class type accreditation as required. ***FY 2018 Plans:*** Continue to provide engineering and technical support for JWARN development under the IT BOX construct and Agile Software development processes. Continue independent system verification, validation, and class type accreditation as required.	0.778	0.877	1.037
Title: 12) SSA Integrated Architecture ***FY 2016 Accomplishments:*** Modified the integrated Architecture on host platforms, documented the infrastructure and technical standards, and developed an iteration of the acquisition IA strategy. ***FY 2017 Plans:*** Continue required modifications to the integrated Architecture on host platforms and document the infrastructure and technical standards, developing an acquisition Cybersecurity/IA strategy. ***FY 2018 Plans:***	0.099	0.100	0.096

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Continue required modifications to the integrated Architecture on host platforms and document the infrastructure and technical standards, developing an acquisition Cybersecurity/IA strategy.			
Accomplishments/Planned Programs Subtotals	7.224	5.928	5.941

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
• IS5: *INFORMATION SYSTEMS (EMD)*	20.043	27.323	25.677	-	25.677	23.281	22.542	18.221	14.006	Continuing	Continuing
• IS7: *INFORMATION SYSTEMS (OP SYS DEV)*	7.556	10.357	12.203	-	12.203	15.552	16.951	16.492	15.163	Continuing	Continuing
• G47101: *JOINT WARNING & REPORTING NETWORK (JWARN)*	0.000	3.889	0.981	-	0.981	0.502	0.445	0.400	0.375	Continuing	Continuing
• JC0208: *JOINT EFFECTS MODEL (JEM)*	3.316	3.069	0.983	-	0.983	0.911	0.696	0.731	0.746	Continuing	Continuing
• JS5230: *SOFTWARE SUPPORT ACTIVITY (SSA)*	0.100	0.300	0.096	-	0.096	0.094	0.082	0.075	0.071	Continuing	Continuing
• JX0301: *BIOSURVELLENCE PORTAL (BSP)*	1.620	1.220	1.171	-	1.171	1.148	1.133	1.018	0.716	Continuing	Continuing

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.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

JOINT EFFECTS MODEL (JEM)

JEM Increment 2 acquisition will utilize the JROC's "IT Box" construct for software development. The intent is to provide the next generation of capability with current and future technologies, as stated in the IS ICD, in less time and 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

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *INFORMATION SYSTEMS (ACD&P)*

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).

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-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program			Date: May 2017
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	Project (Number/Name) MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*	

COST ($ in Millions)	Prior Years	FY 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
MB4: *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*	-	68.160	65.648	83.999	-	83.999	46.501	25.715	34.090	48.338	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

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

The Antiviral Therapeutics (AV TX) Program will combine the efforts of the Emerging Infectious Diseases Therapeutics Program and the Hemorrhagic Fever Virus Program into a consolidated effort to develop and deliver FDA approved antiviral therapeutics for the warfighter, beginning in FY17. Drug products will be developed targeting the pathogens on the biological warfare threat lists, such as Ebola. This includes viruses of interest from the following families: Filoviridae, Alphaviridae, Arenaviridae, Bunyaviridae, and Flaviviridae. Developed antiviral therapeutics will be employed after suspected or confirmed exposure to the relevant threat agents and AV TX MCMs will ameliorate the effect of threat agents to the warfighter. In the event of a natural occurring outbreak, antiviral therapeutics can be provided to ensure freedom of operation.

The Medical Countermeasure BSL-4 GLP Test and Evaluation capability performs T&E and provides the essential data packages to support US Food and Drug Administration approval of leading biodefense medical countermeasure candidates to protect the Warfighter and the Nation. This capability provides dedicated capacity for DoD to conduct biosafety level-4 (BSL-4) Good Laboratory Practice (cGLP) T&E studies to meet programmatic needs following all applicable regulatory, biosurety, and safety standards.

The Agile Medical Paradigm (AMP) is the CBDP's strategic framework to accelerate the delivery of MCMs. To achieve this goal the DOD is establishing a medical countermeasures platform (MCMPT) capability. The goal of the MCMPT is to counter a variety of threat agents using standardized discovery, design, manufacturing, and testing processes to reduce the MCM development risks. Efforts will center on leveraging the DoD's Advanced Development Manufacturing (ADM) facility and developing robust manufacturing processes.

The Countermeasures for Multi-Drug Resistance-Bacterial (CMDR-B) program develops medical countermeasures (MCMs) for Service members for protection against multi-drug resistant (MDR) bacteria, including Biological Warfare Agents (BWAs) and organisms that are genetically modified to be MDR and resulting bio-toxins. The resulting product(s) will be US Food and Drug Administration (FDA)-approved to prevent or minimize effects of MDR bacterial exposures.

The NGDS Family of Systems program provides Chemical, Biological and Radiological (CBR) threat and infectious disease diagnostic capabilities across several echelons of care, as well as for environmental sample analysis as part of the Common Analytical Laboratory System (CALS). The NGDS Increment 1 provides an U.S. Food and Drug Administration (FDA)-cleared reusable, portable biological pathogen diagnostic system to Army, Air Force and Navy deployable Combat Health

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

Support units, to support near real-time patient treatment decision making, force health protection decision making and CBRN situational awareness. NGDS Increment 2 will complement NGDS Increment 1 by developing diagnostics for unmet biological pathogen and toxin threats, chemical and radiological exposures, and to provide capability to lower echelons of care.

The Department of Defense (DoD) supports the Technology Maturation and Risk Reduction (TMRR) phase for vaccines that are directed against validated biological warfare (BW) weapons to include bacteria, viruses, and toxins of biological origin. Effective medical countermeasures are urgently needed to negate the threat of these biological warfare (BW) agents. Vaccines have been identified as the most efficient countermeasure against the validated threat of BW weapons.

The Filovirus Vaccine (VAC FILO) Program develops vaccines that will offer protection against the threat of Ebola and Marburg viruses. The program office is prioritizing the development and delivery of a licensed Marburg vaccine while S&T further develops Ebola vaccine candidates to meet the DoD requirement. The current budget supports development of multiple Marburg prototypes to protect against the BW threat through TMRR phase. The DoD anticipates that the Food and Drug Administration (FDA) will approve a vaccine using the Animal Rule, which allows for the demonstration of efficacy in a relevant animal model(s).

The Ricin toxin is a validated bioweapon threat that is lethal, available and easily produced. The Ricin vaccine program (VAC Ricin) supports one DoD vaccine candidate including manufacturing cGMP lots; and the continuation of animal model and assay development studies. The Ricin Vaccine will protect the Warfighter against aerosolized exposure to ricin toxin.

The Western, Eastern, and Venezuelan Equine Encephalitis (VAC WEVEE) Vaccine program initiated competitive prototypes in FY13 to reduce program risk, and is developing multiple prototypes through the Technology Development Phase. The Western, Eastern, and Venezuelan Equine Encephalitis (VAC WEVEE) Vaccine will protect the Warfighter against aerosolized exposure to three strains of alphaviruses; western, eastern and Venezuelan equine encephalitis viruses. The program office is prioritizing the development and delivery of a licensed VEE vaccine.

Anthrax is a validated bioweapon threat for which the Force is being vaccinated against. The current anthrax dose schedule requires up to 6 doses to be fully protective. Health and Human Services has developed a next generation vaccine for post exposure to anthrax. The DoD is seeking to leverage HHS development efforts and extend the label to pre-exposure to anthrax. This will allow both the civilian and military populations to maintain the same standard of care.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: 1) MCMPT	-	-	0.500
FY 2018 Plans: Initiate development of standardized design capabilities to support a rapid response.			
Title: 2) BSL-4 GLP T&E	6.118	6.454	5.885
FY 2016 Accomplishments: Continued to provide strategic planning, program management, and scheduling for GLP BSL-4 T&E capability, conducted secondary capability assessments, developed and implemented CONOPS and plans for transition to new facility, conducted GLP			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
BSL-4 T&E medical countermeasure studies in a safe and secure environment, implemented electronic scheduling tool, PCR Core fully implemented, developed Data Management System, hired additional personnel, and fully validated four instruments. ***FY 2017 Plans:*** Conduct two GLP BSL-4 T&E medical countermeasure non-human primate studies in a safe and secure environment, continue to establish core capabilities, continue validation of supporting assays, provide strategic planning, program management, and scheduling for GLP BSL-4 T&E capability, develop CONOPS and plans for transition to new facility. ***FY 2018 Plans:*** Conduct two GLP BSL-4 T&E medical countermeasure non-human primate studies in a safe and secure environment, implement laboratory draw-down and transition to new facility, continue to provide strategic planning, program management, and scheduling for GLP BSL-4 T&E capability.			
Title: 3) CMDR-B ***FY 2016 Accomplishments:*** Established Cooperative Teaming Agreement (CoTA) with Defense Threat Reduction Agency (DTRA) for the efficacy testing of drug, Gepotidican, for Non-Human Primate Pivotal Animal Efficacy Testing for anthrax and tularemia; established partnership with Department of Health and Human Services/Biomedical Advanced Research and Development Authority (DHHS/BARDA) for the manufacture of developmental drug product that will support a Pre-Emergency Use Authorization (EUA) Package for a plague therapeutic for post-exposure protection and treatment; developed anti-bacterial Request for Prototype Proposal (RPP) for the Other Transaction Authority (OTA) Consortium; and in partnership with DTRA, funded activities that evaluated the pharmacokinetics of Omadacycline, a novel antibacterial, in non-human primates and for studies to assess efficacy for treatment of inhalation plague. ***FY 2017 Plans:*** Continue the development of one or more MCM against MDR bacteria against one or more of the bacterial BWA (e.g., Bacillus anthracis, Yersinia pestis, Brucella spp., Burkholderia mallei, Francisella tularensis, and Burkholderia pseudomallei). Efforts will include IND Filing and Pilot Animal Studies.	6.711	3.135	-
Title: 4) CMDR-B ***FY 2018 Plans:*** Complete the manufacture of developmental drug product that will support a Pre-EUA Package for Y. Pestis.	-	-	5.162
Title: 5) CMDR-B ***FY 2018 Plans:***	-	-	3.163

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Award anti-bacterial therapeutics prototype proposals under the JPM MCS OTA Consortium.			
Title: 6) NGDS 2 Family of Systems ***FY 2018 Plans:*** Develop and mature prototypes for Chemical Agent Diagnostics. Develop and mature single-use, disposable assays for BW targets.	-	-	4.950
Title: 7) VAC FILO ***FY 2016 Accomplishments:*** Continued and completed non-clinical efficacy and safety studies for competitive multiple candidates. ***FY 2017 Plans:*** Complete toxicology safety studies for multiple prototypes. Analyze clinical and nonclinical immunological data to establish a correlate of protection for each vaccine prototype. ***FY 2018 Plans:*** Continue clinical and nonclinical immunological testing to establish a correlate of protection for each Marburg vaccine prototype.	7.237	2.700	4.646
Title: 8) VAC FILO ***FY 2016 Accomplishments:*** Completed formulation development, assay qualification and cGMP pilot scale production of competitive candidates. Initiated stability testing. ***FY 2017 Plans:*** Complete assay qualification efforts in support of clinical trials. Continue stability testing. ***FY 2018 Plans:*** Optimize manufacturing processes for each Marburg vaccine prototype. Continue stability testing.	9.250	3.518	5.600
Title: 9) VAC FILO ***FY 2016 Accomplishments:*** Conducted pre-IND meeting with FDA on second prototype. Finalized and submitted IND to the FDA for competitive prototypes. Initiated Phase 1 clinical trials for competitive prototypes. Initiated and completed trivalent Phase 1 clinical trial. ***FY 2017 Plans:***	9.243	2.500	5.000

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Continue phase 1 clinical study reports for each clinical trial conducted by 1QFY17 in support of Milestone B in 2QFY17. Conduct End of Phase 1 meetings with the FDA. ***FY 2018 Plans:*** Continue Phase 1 clinical trials for each Marburg vaccine prototype.			
Title: 10) VAC FILO ***FY 2016 Accomplishments:*** Continued to provide strategic/tactical planning, Government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. ***FY 2017 Plans:*** Continue to provide strategic/tactical planning, Government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support. ***FY 2018 Plans:*** Continue to provide strategic/tactical planning, Government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight and technical support.	4.859	1.000	2.500
Title: 11) VAC NGA ***Description:*** Label indication extension of Nuthrax ***FY 2018 Plans:*** Extend the label to pre-exposure to anthrax	-	-	1.282
Title: 12) VAC RIC ***FY 2016 Accomplishments:*** Continued stability testing of GMP material. Initiated manufacturing technology transfer to the ADM capability. ***FY 2017 Plans:*** Continue stability testing of GMP material. Continue manufacturing technology transfer to the ADM capability. Continue animal model and assay development. ***FY 2018 Plans:*** Complete stability testing of GMP material which began in 2014 at University of Nebraska Lincoln and USARMIID. Finish manufacturing technology transfer to the ADM capability.	2.590	1.173	0.495
Title: 13) VAC WEVEE	8.716	3.227	4.911

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
FY 2016 Accomplishments: Continued non-clinical safety, efficacy and IND-enabling studies for competitive candidates. ***FY 2017 Plans:*** Continue non-clinical safety, efficacy and IND-enabling studies for competitive prototypes. Utilize DOD ADM to release Phase I Clinical Trial material for Virus Like Particle (VLP) vaccine prototype. Initiate Phase 1 Clinical Trial for the VLP vaccine prototype. ***FY 2018 Plans:*** Complete non-clnical safety, efficacy and IND-enabling studies for competitive prototypes. Continue Phase 1 Clinical Trail for the VLP vaccine prototype. Tech transfer manufacturing process for VLP vaccine candidate to the DOD ADM.			
Title: 14) VAC WEVEE ***FY 2016 Accomplishments:*** Continued small-scale manufacturing process development, and initiate GMP manufacturing for Virus Replicon Particle (VRP) prototype. ***FY 2017 Plans:*** Complete cGMP production of bulk drug substance and formulation efforts. Initiate cGMP production of final drug product for competitive prototypes to support Phase 1 clinical trials. Complete assay development and initiate assay qualification efforts. ***FY 2018 Plans:*** Continue Phase 1 Clinical Trial for Virus Replicon Particle (VRP) candidate.	8.565	3.800	5.182
Title: 15) VAC WEVEE ***FY 2016 Accomplishments:*** Initiated non-clinical toxicology study performed for VLP candidate. ***FY 2017 Plans:*** Submit IND for additional prototypes and continue Phase 1 Clinical Trial. ***FY 2018 Plans:*** Continue Phase 1 Clinical Trials for competitive prototypes.	3.748	2.000	6.500
Title: 16) VAC WEVEE ***FY 2016 Accomplishments:***	1.123	2.390	2.480

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Continued strategic/tactical planning, Government system engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, regulatory and technical support. ***FY 2017 Plans:*** Continue strategic/tactical planning, Government system engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, regulatory and technical support. ***FY 2018 Plans:*** Continue strategic/tactical planning, Government system engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, regulatory and technical support.			
Title: 17) AV TX - Candidate 2 ***FY 2017 Plans:*** Conduct source selection activities and award contract for antiviral therapeutic countermeasure. Conduct pilot aerosol efficacy studies in a BSL 4. Conduct Phase 1 clinical safety trials and relevant toxicity studies. Initiate manufacturing process optimization activities for scale-up to meet DoD production requirements. Initiate Non-Human Primate (NHP) model enhancement to support approval under the FDA Animal Rule.	-	33.751	-
Title: 18) AV TX Candidate 2 ***FY 2018 Plans:*** Initiate dose ranging and additional efficacy studies in non-human primates (NHPs) for the treatment of Filovirus infections.	-	-	13.077
Title: 19) AV TX Enabling Technology ***FY 2018 Plans:*** Continue studies to identify biomarkers in NHPs exposed to Alpha viruses, and demonstration of relevance of the NHP model.	-	-	2.756
Title: 20) AV TX Enabling Technology ***FY 2018 Plans:*** Continue refinement of the marmoset model for inhalational Filovirus infections and testing of medical countermeasures (MCM) against infections.	-	-	2.213
Title: 21) AV TX Enabling Technology ***FY 2018 Plans:*** Continue pipeline drug screening to identify new candidates and accelerate product development in non-human primates.	-	-	7.697
Accomplishments/Planned Programs Subtotals	68.160	65.648	83.999

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program			Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 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
• MB5: *MEDICAL BIOLOGICAL DEFENSE (EMD)*	80.412	106.223	136.553	-	136.553	107.315	141.385	170.160	146.138	Continuing	Continuing
• MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*	8.541	7.145	11.950	-	11.950	9.850	3.728	6.060	6.532	Continuing	Continuing
• JM2222: *BIOSCAVENGER (BSCAV)*	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	3.943	Continuing	Continuing
• JM6677: *ADVANCED ANTICONVULSANT SYSTEM (AAS)*	0.000	0.000	0.000	-	0.000	0.360	0.360	2.700	2.700	Continuing	Continuing
• JM8788: *NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)*	3.300	7.395	6.938	-	6.938	5.842	2.919	4.826	2.644	Continuing	Continuing
• JX0005: *DOD BIOLOGICAL VACCINE PROCUREMENT (VACCINES)*	0.185	0.185	0.183	-	0.183	0.183	0.183	0.182	0.182	Continuing	Continuing
• JX0210: *DEFENSE BIOLOGICAL PRODUCTS ASSURANCE PROGRAM (DBPAP)*	1.005	1.005	0.995	-	0.995	0.975	0.972	0.874	0.788	Continuing	Continuing

Remarks

D. Acquisition Strategy

MCM PLATFORM TECHNOLOGIES (MCMPT)

The goal of the MCMPT is to counter a variety of threat agents using standardized discovery, design, manufacturing, and testing processes to reduce the MCM development risks. BA5 Efforts will focus on establishing advanced platform technologies within the DoD's Advanced Development Manufacturing (ADM) facility and evaluating that capability through nonclinical and clinical testing. The early stage efforts (BA4) are to develop standardized design capabilities to support a rapid response. Once established, future programs will be able to leverage this capability for the development of specific medical countermeasures. It is anticipated that these efforts will leverage the Other Transactions Authority through the medical OTA consortium.

BSL4 GOOD LABORATORY PRACTICES TEST & EVALUATION (BSL4 GLP T&E)

The Medical Countermeasure Systems (MCM) BSL-4 T&E capability continues to utilize and maintain the existing and planned new US Army Medical Research Institute of Infectious Diseases (USAMRIID) facility and staff. MCM BSL-4 T&E support costs during Phase 3 and beyond will be offset by costs from specific MCM development

programs where possible. The period of FY16 and beyond will continue secondary capability assessments and refinements and will focus on transition of the capability to the new USAMRIID facility, after which Full Operational Capability (FOC) will be reached.

COUNTERMEASURES FOR DRUG RESISTANT BACTERIA (CMDR-B)

The CMDR-B Program develops MCMs for MDR (multi-drug resistant) bacteria, including BWAs and organisms that are genetically modified to be MDR and resulting bio-toxins. The resulting product(s) will be US FDA approved to prevent or minimize effects from MDR bacterial exposures. The CMDR-B program will follow an integrated product development process, and undergo independent regulatory affairs processes to achieve an FDA approved drug. The CMDR-B program is establishing collaborative relationships with DoD, other USG entities, and commercial partners in order to populate the MDR pipeline which will help reduce program risk, potentially lower program cost, and accelerate delivery of MCMs to the Warfighter. Leveraging collaborative Department of Defense (DoD), United States Government, and industry efforts will reduce program risk, lower program cost, and accelerate the delivery of therapeutics to the Warfighter. The program has established a translational team with the Joint Science and Technology Office for animal model work and pipeline candidates that could transition to CMDR-B for Advanced Development. The CMDR-B program also has a partnership with DHHS/BARDA to manufacture developmental drug product that will support an Interim Fielding Capability for a plague therapeutic for post-exposure protection and treatment. The CMDR-B program intends to have a Milestone B Decision Review in 1QFY19. Results from the program investment in Non-Human Primate Pivotal efficacy testing, conducted in TMRR phase, in FY17 may result in Technical Readiness Level (TRL) 8 mature candidates being ready for further development; therefore the CMDR-B program is likely to request the MS B Decision Review moved up to FY18.

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.

FILOVIRUS (VAC FILO)

The Filovirus Vaccine Program acquisition strategy supports the development of multiple vaccines through the Technology Maturation and Risk Reduction (TMRR) phase that will offer protection against the threat of Ebola and Marburg viruses. During this phase a manufacturing process is developed. This process will be used to produce current Good Manufacturing Practices (cGMP) lots suitable for Phase 1 clinical trials. In addition, animal safety and efficacy studies will be conducted to support an Investigational New Drug (IND) submission to the FDA and conduct Phase 1 clinical trials. These efforts will support a MS B decision and entry into the

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

Engineering, Manufacturing, and Development (EMD) phase. At Milestone B (MS B), the best Marburg vaccine prototype will be selected through a full and open competition to transition to the Engineering and Manufacturing Development (EMD) phase with the delivery of an FDA licensed Marburg vaccine. It is anticipated that the EMD phase contract will be a mix of Cost Plus and Fixed Price. In addition, the program office may leverage the Advanced Development and Manufacturing capability, and other DoD agencies and laboratories to include the United States Army Medical Research Institute of Infectious Diseases (USAMRIID). Following a successful MS B, the program will conduct manufacturing qualification/validation, expanded clinical and nonclinical testing, and assay qualification and validation efforts. These efforts will support the Biological Licensure Application (BLA) submission to the Food and Drug Administration (FDA) and licensure of a Marburg vaccine.

NEXT GENERATION ANTHRAX VACCINE (VAC NGA)

The next Generation anthrax vaccine program strategy supports extending the label indication on the Health and Human Services AVA vaccine, Nuthrax. This effort will result in a vaccine product that has an improved on-set of protection with reduction in the number of doses needed to confer protection. The label extension will allow the vaccine to be used for a pre-exposure event to anthrax which aligns with the current DoD vaccine policies. During the TMRR phase of development, efforts will focus on conducting non-clinical dose range finding studies to determine the optimal dose to support the pre-exposure indication. In the EMD phase of development, activities will include demonstration of a consistent manufacturing process for the pre-exposure dose and conduct Phase 3 human safety clinical trials. It is anticipated that the EMD phase contract will be a mix of Cost Plus and Fixed Price. These efforts will support the Biological Licensure Application (BLA) submission to the Food and Drug Administration (FDA) and licensure of a next generation vaccine.

RICIN VACCINE (VAC RIC)

The Ricin Vaccine Program acquisition strategy supports the development of a single vaccine through the Technology Maturation and Risk Reduction (TMRR) phase that will offer protection against the threat of aerosolized ricin toxin. The Government will serve as the integrator during the TMRR phase by managing and coordinating the various vaccine development efforts. Additionally, the Program Office will partner with DoD agencies and laboratories to include U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID).

WESTERN EASTERN VENEZUELAN EQUINE ENCEPH VACCINE (VAC WEVEE)

The WEVEE acquisition strategy uses a parallel evaluation of Virus Replicon Particle (VRP) and Virus Like Particle (VLP) vaccine prototypes through a Phase 1 clinical trials to achieve competitive prototyping in the Technology Development phase. Several potential decision points will be used to assess the prototypes for possible down select. The schedule is based on a down select to one prototype. The Government will serve as the integrator during this phase by managing and coordinating the various vaccine development efforts. At MS B, the best prototype will be selected through a full and open competition to transition to the Engineering and Manufacturing Development (EMD) phase, with delivery of a FDA-licensed WEVEE vaccine. The development efforts will be a Cost Plus and Firm Fixed Price CLINs. Additionally, the Program Office will partner with Health and Human Services/National Institute of Allergies and Infectious Diseases (HHS/NIAID), DoD agencies, and laboratories to include U.S. Army Medical Research Institute of Infectious Diseases (USMRIID). This DoD program is the Public Health Emergency Medical Countermeasures lead for the advanced development of this vaccine and is leveraging expertise across the Federal and International sectors to ensure programmatic success.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

ANTI-VIRAL THERAPEUTICS (AV TX)

The acquisition strategy combined the HFV and EID TX Program efforts beginning in FY17, into a single program to develop and deliver FDA approved antiviral countermeasures. Independent market research conducted in FY15 identified multiple candidates appropriate for advanced development at varying stages of maturity. A source selection was conducted targeting award in FY16. Candidates selected for entry into the EMD phase of development will be executed under the Antiviral Therapeutic program in FY17. Candidates selected which are appropriate for entry into the TMRR phase will be deferred for award until FY17 when BA4 funding is available to the program. The overall regulatory approach of the program remains to pursue development of products to FDA approval under the Animal Rule. The program will conduct human clinical safety studies, pilot and pivotal animal efficacy, and toxicology studies, required for FDA approval. The performers will submit New Drug Applications/Biologic License Agreements for the therapeutics during the EMD Phase. During the Production and Deployment phase, full rate manufacturing and stockpile production will be pursued. If the FDA mandates post-marketing surveillance studies, they will be conducted during Production and Deployment.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

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
MCMPT - HW S - Rapid Response	C/CPFF	TBD : TBD	0.000	0.000		0.000		0.450	Jan 2018	-		0.450	Continuing	Continuing	0.000
CMDR-B - CMDR-B - Advanced Development Contract 1	C/CPIF	Glaxo Smith Kline : Columbia, MD	0.000	2.700	Sep 2016	2.221	May 2017	6.407	Feb 2018	-		6.407	Continuing	Continuing	0.000
CMDR-B - Pharmacokinetic studies of pathogens of interest and animal efficacy studies.	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	0.000	1.736	Nov 2015	0.000		0.000		-		0.000	Continuing	Continuing	0.000
CMDR-B - GSK Manufacturing	Various	Health and Human Services : Washington, DC	0.000	1.737	Sep 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGDS - HW C - NGDS 2 Develop and mature prototypes for Chemical Agent Diagnostics	Various	TBD : TBD	0.000	0.000		0.000		4.950	Mar 2018	-		4.950	Continuing	Continuing	0.000
VAC FILO - HW S - Non Clinical Studies	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	15.143	2.487	Dec 2015	2.700	Dec 2016	4.114	Dec 2017	-		4.114	Continuing	Continuing	0.000
VAC FILO - SW GFPR - Manufacturing Multiple Prototypes	MIPR	Various : Various	4.169	8.685	Mar 2016	0.000		3.200	Dec 2017	-		3.200	Continuing	Continuing	0.000
VAC RIC - SW GFPR - Manufacturing Tech Transfer, animal model & assay development	Various	Various : Various	1.700	0.000		0.280	Mar 2017	0.240	Dec 2017	-		0.240	Continuing	Continuing	0.000
VAC WEVEE - HW S - Manufacturing and Process Development	MIPR	National Institute of Allergy & Infectious Diseases : Bethesda, MD	16.559	3.398	Dec 2015	3.300	Dec 2017	0.090	Dec 2017	-		0.090	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

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
VAC WEVEE - HW S - Manufacturing and Process Development #2	MIPR	Battelle Memorial Institute : Columbus, OH	0.560	3.170	Dec 2015	1.000	Dec 2016	5.820	Dec 2017	-		5.820	Continuing	Continuing	0.000
AV TX - Candidate 2 - Pilot Aerosol Animal Efficacy Studies	C/CPIF	TBD : TBD	0.000	0.000		8.229	Mar 2017	0.000		-		0.000	Continuing	Continuing	0.000
AV TX - Candidate 2 - Manufacturing Process Optimization and Scale Up	C/FP	TBD : TBD	0.000	0.000		10.084	Dec 2016	0.000		-		0.000	Continuing	Continuing	0.000
AV TX - Candidate 2 - Phase 1 Safety Trials	C/CPIF	TBD : TBD	0.000	0.000		8.055	Mar 2017	0.000		-		0.000	Continuing	Continuing	0.000
AV TX - Candidate 2 - Non Human Primate Animal Model Enhancement	C/CPIF	TBD : TBD	0.000	0.000		3.118	Mar 2017	0.000		-		0.000	Continuing	Continuing	0.000
AV TX - Candidate 2 - Pilot Aerosol Animal Efficacy Studies #2	C/FP	Gilead Sciences : San Francisco, CA	0.000	0.000		0.000		10.062	Mar 2018	-		10.062	Continuing	Continuing	0.000
AV TX - Candidate 2 - Manufacturing Process Optimization and Scale Up	C/CPIF	University of Pittsburgh : Pittsburgh, PA	0.000	0.000		0.000		2.120	Dec 2017	-		2.120	Continuing	Continuing	0.000
AV TX - Candidate 2 - Phase 1 Safety Trials #2	C/CPIF	Defense Science & Technology Lab (DSTL) : Salisbury Wiltshire, UK	0.000	0.000		0.000		1.703	Mar 2018	-		1.703	Continuing	Continuing	0.000
AV TX - Candidate 2 - Non Human Primate Animal Model Enhancement #2	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	0.000	0.000		0.000		5.923	Mar 2018	-		5.923	Continuing	Continuing	0.000
		Subtotal	38.131	23.913		38.987		45.079		-		45.079	-	-	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

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
VAC FILO - ES S - Regulatory Integration (Environmental and FDA Documentation) and Delivery System	MIPR	US Army Medical Materiel Development Activity (USAMMDA) : Fort Detrick, MD	2.728	0.300	Dec 2015	0.350	Dec 2016	0.160	Dec 2017	-		0.160	Continuing	Continuing	0.000
VAC RIC - ES S - Regulatory Integration	MIPR	US Army Medical Materiel Development Activity (USAMMDA) : Fort Detrick, MD	0.282	0.160	Dec 2015	0.090	Dec 2016	0.000		-		0.000	Continuing	Continuing	0.000
VAC WEVEE - ES S - Regulatory Integration	MIPR	National Institute of Allergy & Infectious Diseases : Bethesda, MD	2.878	0.100	Dec 2015	0.150	Dec 2016	0.600	Dec 2017	-		0.600	Continuing	Continuing	0.000
VAC WEVEE - ES S - Regulatory Integration #2	MIPR	US Army Medical Materiel Development Activity (USAMMDA) : Fort Detrick, MD	0.170	0.123	Dec 2015	0.150	Dec 2016	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	6.058	0.683		0.740		0.760		-		0.760	-	-	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
BSL4 GLP T&E - DTE SB - T&E Facility	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	11.631	6.118	Dec 2015	6.454	Dec 2016	5.885	Dec 2017	-		5.885	Continuing	Continuing	0.000
VAC FILO - OTHT SB - Testing, Evaluation, and Clinical Trials	MIPR	Battelle Memorial Institute : Columbus, OH	29.587	7.730	Dec 2015	3.300	Dec 2016	5.424	Dec 2017	-		5.424	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

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
VAC FILO - OTE C - Assay Development Prototype 1	C/CPIF	Various : Various	5.792	4.857	Dec 2015	2.000	Dec 2016	0.000		-		0.000	Continuing	Continuing	0.000
VAC FILO - OTE C - Assay Development Prototype 2	C/CPIF	Various : Various	5.856	2.200	Dec 2015	0.368	Mar 2017	0.000		-		0.000	Continuing	Continuing	0.000
VAC FILO - OTHT SB - Testing, Evaluation, and Clinical Trials#2, #3	C/CPIF	Various : Various	0.000	1.650	Mar 2016	0.000		3.437	Dec 2017	-		3.437	Continuing	Continuing	0.000
VAC NGA - DTE C - Non-Clinical Testing	C/CPFF	TBD : TBD	0.000	0.000		0.000		1.000	Jan 2018	-		1.000	Continuing	Continuing	0.000
VAC RIC - OTHT C - Phase 1b Clinical Study	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	1.450	0.000		0.803	Dec 2016	0.000		-		0.000	Continuing	Continuing	0.000
VAC RIC - OTHT C - Stability Testing	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	1.901	0.000		0.000		0.255	Dec 2017	-		0.255	Continuing	Continuing	0.000
VAC RIC - DTE C - Manufacturing Tech Transfer	Various	Various : Various	0.000	2.430	Jan 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
VAC WEVEE - OTE C - Test and Evaluation Assay Development	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	8.619	5.453	Dec 2015	0.000		0.000		-		0.000	Continuing	Continuing	0.000
VAC WEVEE - OTE C - Test and Evaluation Assay Development #2	MIPR	Battelle Memorial Institute : Columbus, OH	6.527	5.260	Dec 2015	4.500	Dec 2016	6.000	Dec 2017	-		6.000	Continuing	Continuing	0.000
VAC WEVEE - OTE C - Clinical Trial (Prototype)	MIPR	Various : Various	2.170	0.900	Dec 2015	0.000		4.000	Dec 2017	-		4.000	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

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
		Subtotal	73.533	36.598		17.425		26.001		-		26.001	-	-	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
MCMPT - PM/MS S - Management	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.000	0.000		0.000		0.050	Jan 2018	-		0.050	Continuing	Continuing	0.000
CMDR-B - PM/MS SB - Management Support	Allot	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.215	0.000		0.223	Jan 2017	0.441	Jan 2018	-		0.441	Continuing	Continuing	0.000
CMDR-B - PM/MS SB - Management Support #2	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Belvoir, VA	0.177	0.215	Jan 2016	0.140	Jan 2017	0.218	Jan 2018	-		0.218	Continuing	Continuing	0.000
CMDR-B - PM/MS SB - Management Support #3	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.082	0.000		0.170	Jan 2017	0.563	Jan 2018	-		0.563	Continuing	Continuing	0.000
CMDR-B - PM/MS C - Contractor Systems Engineering/ Program Management Support	C/FP	Various : Various	0.000	0.323	Jan 2016	0.381	Jan 2017	0.696	Jan 2018	-		0.696	Continuing	Continuing	0.000
VAC FILO - PM/MS - Joint Vaccine Acquisition Program Management	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	3.140	0.250	Dec 2015	1.000	Dec 2016	1.411	Dec 2017	-		1.411	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program			Date: May 2017
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	Project (Number/Name) MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*	

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
VAC FILO - PM/MS S - Program Management/ Program Manager Support	Allot	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	5.993	2.430	Dec 2015	0.000		0.000		-		0.000	Continuing	Continuing	0.000
VAC NGA - PM/MS SB - Management Support	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.000	0.000		0.000		0.282	Nov 2017	-		0.282	Continuing	Continuing	0.000
VAC WEVEE - PM/MS S - Program Manager Support	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	1.317	1.344	Dec 2015	1.000	Dec 2016	2.000	Dec 2017	-		2.000	Continuing	Continuing	0.000
VAC WEVEE - PM/MS C - Contractor Systems Engineering Program Support	Allot	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	1.432	1.405	Mar 2016	1.317	Dec 2016	0.000		-		0.000	Continuing	Continuing	0.000
VAC WEVEE - PM/MS S - Joint Vaccine Acquisition Program Management	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.455	0.999	Dec 2015	0.000		0.563	Dec 2017	-		0.563	Continuing	Continuing	0.000
AV TX - Candidate 2 - PM/MS - SB - Management Support	Allot	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	0.000		1.330	Jan 2017	1.365	Jan 2018	-		1.365	Continuing	Continuing	0.000
AV TX - Candidate 2 - PM/MS - SB - Management Support #2	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.000	0.000		1.013	Jan 2017	1.742	Jan 2018	-		1.742	Continuing	Continuing	0.000
AV TX - Candidate 2 - PM/MS - SB - Management Support #3	Allot	JPM Medical Countermeasure Systems (JPM	0.000	0.000		0.585	Jan 2017	0.676	Jan 2018	-		0.676	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

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
		MCS) : Fort Belvoir, VA													
AV TX - Candidate 2 - PM/ MS - SB Management Support	C/FP	Various : Various	0.000	0.000		1.337	Jan 2017	2.152	Jan 2018	-		2.152	Continuing	Continuing	0.000
		Subtotal	12.811	6.966		8.496		12.159		-		12.159	-	-	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	130.533	68.160		65.648		83.999		-		83.999	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

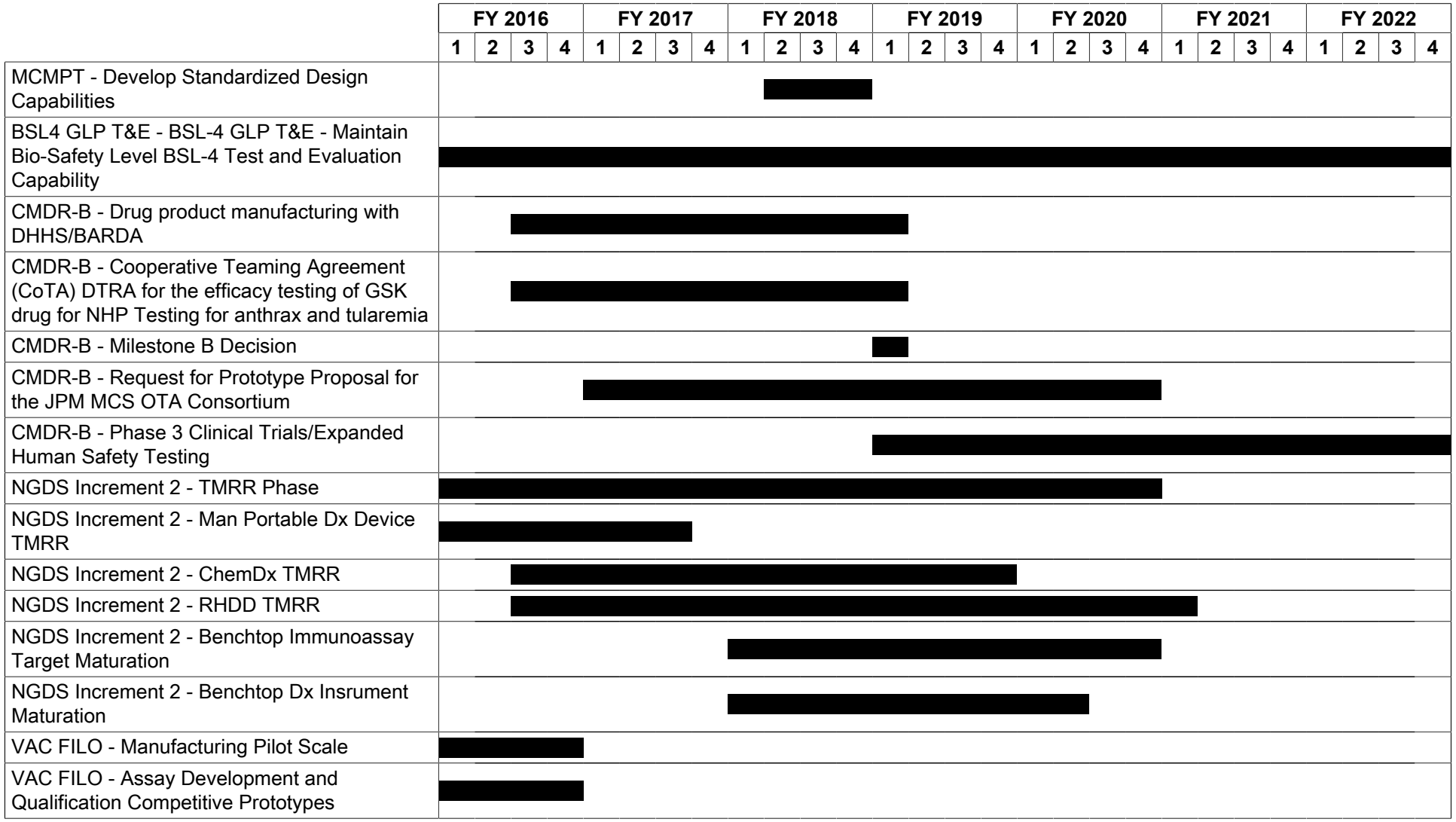

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

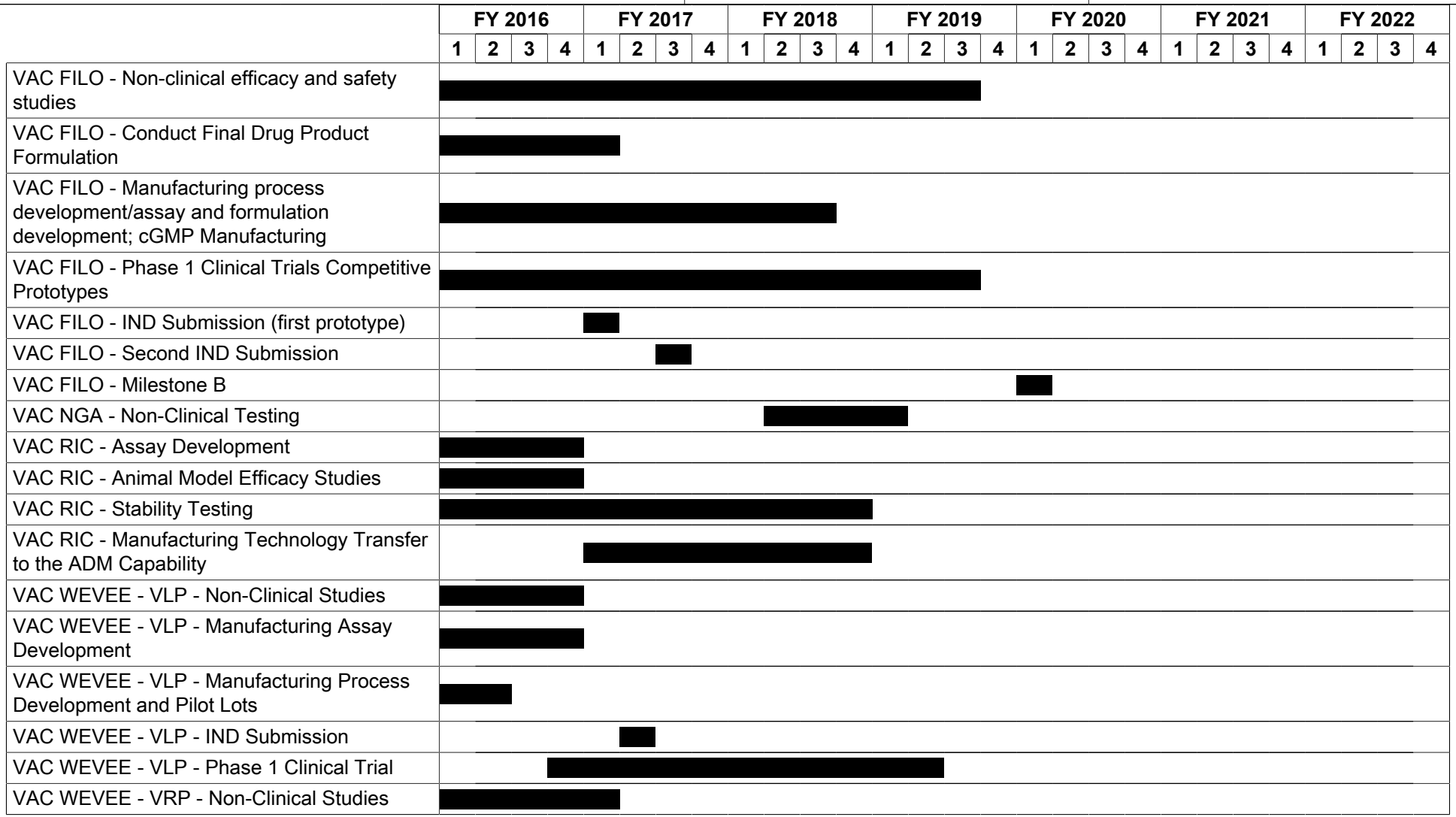

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

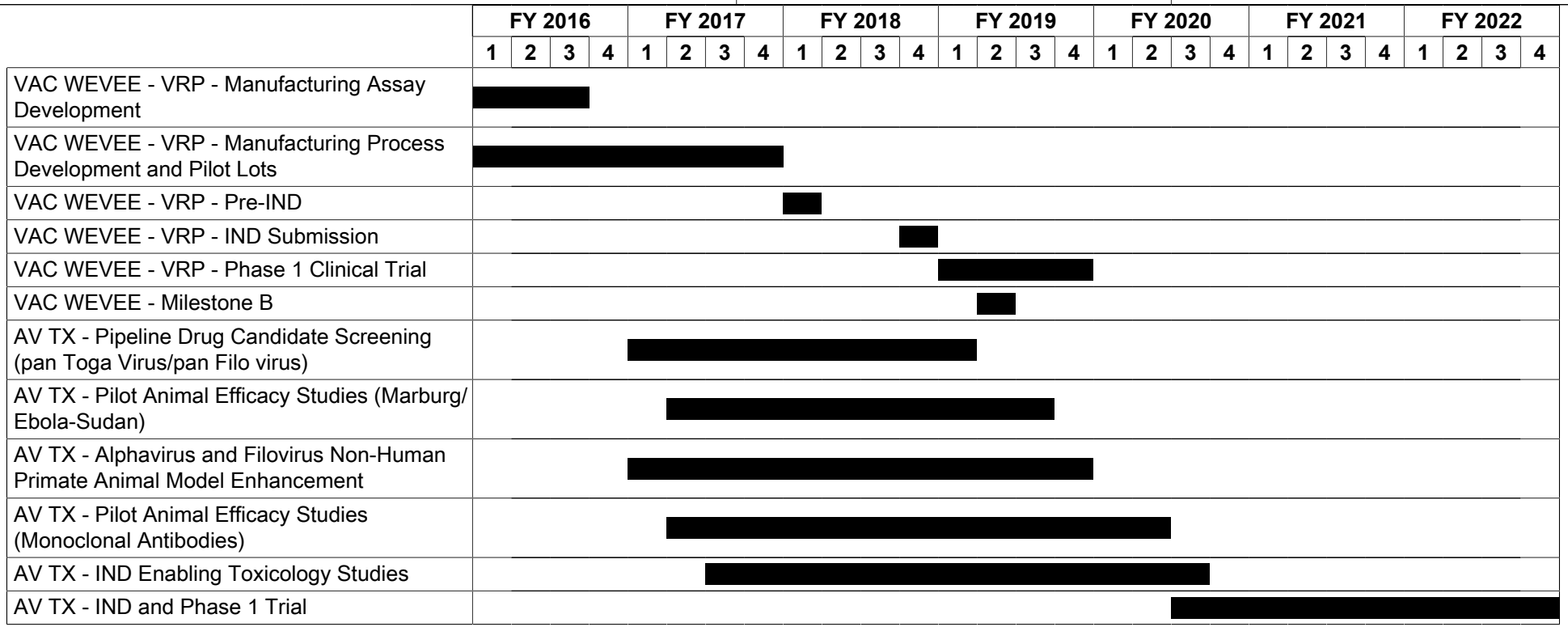

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MCMPT - Develop Standardized Design Capabilities	2	2018	4	2018
BSL4 GLP T&E - BSL-4 GLP T&E - Maintain Bio-Safety Level BSL-4 Test and Evaluation Capability	1	2016	4	2022
CMDR-B - Drug product manufacturing with DHHS/BARDA	3	2016	1	2019
CMDR-B - Cooperative Teaming Agreement (CoTA) DTRA for the efficacy testing of GSK drug for NHP Testing for anthrax and tularemia	3	2016	1	2019
CMDR-B - Milestone B Decision	1	2019	1	2019
CMDR-B - Request for Prototype Proposal for the JPM MCS OTA Consortium	1	2017	4	2020
CMDR-B - Phase 3 Clinical Trials/Expanded Human Safety Testing	1	2019	4	2022
NGDS Increment 2 - TMRR Phase	1	2016	4	2020
NGDS Increment 2 - Man Portable Dx Device TMRR	1	2016	3	2017
NGDS Increment 2 - ChemDx TMRR	3	2016	4	2019
NGDS Increment 2 - RHDD TMRR	3	2016	1	2021
NGDS Increment 2 - Benchtop Immunoassay Target Maturation	1	2018	4	2020
NGDS Increment 2 - Benchtop Dx Insrument Maturation	1	2018	2	2020
VAC FILO - Manufacturing Pilot Scale	1	2016	4	2016
VAC FILO - Assay Development and Qualification Competitive Prototypes	1	2016	4	2016
VAC FILO - Non-clinical efficacy and safety studies	1	2016	3	2019
VAC FILO - Conduct Final Drug Product Formulation	1	2016	1	2017
VAC FILO - Manufacturing process development/assay and formulation development; cGMP Manufacturing	1	2016	3	2018
VAC FILO - Phase 1 Clinical Trials Competitive Prototypes	1	2016	3	2019
VAC FILO - IND Submission (first prototype)	1	2017	1	2017

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *MEDICAL BIOLOGICAL DEFENSE (ACD&P)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
VAC FILO - Second IND Submission	3	2017	3	2017
VAC FILO - Milestone B	1	2020	1	2020
VAC NGA - Non-Clinical Testing	2	2018	1	2019
VAC RIC - Assay Development	1	2016	4	2016
VAC RIC - Animal Model Efficacy Studies	1	2016	4	2016
VAC RIC - Stability Testing	1	2016	4	2018
VAC RIC - Manufacturing Technology Transfer to the ADM Capability	1	2017	4	2018
VAC WEVEE - VLP - Non-Clinical Studies	1	2016	4	2016
VAC WEVEE - VLP - Manufacturing Assay Development	1	2016	4	2016
VAC WEVEE - VLP - Manufacturing Process Development and Pilot Lots	1	2016	2	2016
VAC WEVEE - VLP - IND Submission	2	2017	2	2017
VAC WEVEE - VLP - Phase 1 Clinical Trial	4	2016	2	2019
VAC WEVEE - VRP - Non-Clinical Studies	1	2016	1	2017
VAC WEVEE - VRP - Manufacturing Assay Development	1	2016	3	2016
VAC WEVEE - VRP - Manufacturing Process Development and Pilot Lots	1	2016	4	2017
VAC WEVEE - VRP - Pre-IND	1	2018	1	2018
VAC WEVEE - VRP - IND Submission	4	2018	4	2018
VAC WEVEE - VRP - Phase 1 Clinical Trial	1	2019	4	2019
VAC WEVEE - Milestone B	2	2019	2	2019
AV TX - Pipeline Drug Candidate Screening (pan Toga Virus/pan Filo virus)	1	2017	1	2019
AV TX - Pilot Animal Efficacy Studies (Marburg/Ebola-Sudan)	2	2017	3	2019
AV TX - Alphavirus and Filovirus Non-Human Primate Animal Model Enhancement	1	2017	4	2019
AV TX - Pilot Animal Efficacy Studies (Monoclonal Antibodies)	2	2017	2	2020
AV TX - IND Enabling Toxicology Studies	3	2017	3	2020
AV TX - IND and Phase 1 Trial	3	2020	4	2022

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program			Date: May 2017
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	Project (Number/Name) MC4 / *MEDICAL CHEMICAL DEFENSE (ACD&P)*	

COST ($ in Millions)	Prior Years	FY 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
MC4: *MEDICAL CHEMICAL DEFENSE (ACD&P)*	-	1.060	5.681	5.165	-	5.165	0.990	1.975	1.972	7.098	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides for the development of medical materiel and other medical equipment items necessary for the Technology Maturation and Risk Reduction phase of the acquisition life cycle for the advanced development of Medical Countermeasures (MCMs) for chemical warfare agents including diagnostic equipment, prophylactic, pre-treatment, and therapeutic drugs, and individual/casualty decontamination compounds. A family-of-systems approach for medical defense against chemical warfare agents is required to provide protection, to sustain performance in a chemical environment, and to provide for self-aid/buddy-aid and medical treatment of chemical casualties. Fielding of prophylactic, pre-treatment, and therapeutic drugs and medical devices requires Food and Drug Administration (FDA) approval. Given the family-of-systems approach for development of chemical MCMs for the treatment of nerve agent intoxication, multiple long-term studies are required to obtain FDA approval to deliver products that effectively integrate with current and projected therapeutic regimens. Efficacy testing of most candidate drugs against chemical warfare agents cannot be conducted in humans; therefore, animal surrogate models must be developed and employed. The program currently includes: Improved Nerve Agent Treatment System (INATS) an enhanced nerve agent treatment regimen consisting of an improved oxime to replace the current fielded oxime 2-pralidoxime chloride (2-PAM).

The Improved Nerve Agent Treatment System (INATS) advanced development provides an enhanced capability treatment regimen offering greater protection over a broader spectrum of toxic nerve agent threats. Components of the development include (1) a new and improved oxime (replacing 2-pralidoxime chloride (2-PAM)) to provide protection across current and emerging threats, (2) expanded nerve agent indications for a fielded, single indication, pyridostigmine bromide (PB) product, and (3) insertion of a centrally-acting (CA) anticholinergic agent to the treatment regimen to increase survivability and decrease morbidity. The INATS treatment regimen both improves the performance of, and eventually replaces the Antidote Treatment Nerve Agent Auto-injector (ATNAA), while expanding warfighter pretreatment options.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: 1) INATS	0.488	-	0.730
FY 2016 Accomplishments: Continued Chemistry, Manufacturing, and Controls (CMC) manufacturing of trial material.			
FY 2018 Plans: Complete CMC Manufacturing of trial material			
Title: 2) INATS	0.572	-	1.425
FY 2016 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MC4 / *MEDICAL CHEMICAL DEFENSE (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Initiated Rabbit cause of death studies ***FY 2018 Plans:*** Continue rabbit, rat & NHP cause of death studies			
Title: 3) INATS ***FY 2017 Plans:*** Initiate OXIME non-clinical studies. ***FY 2018 Plans:*** Continue & complete OXIME non-clinical studies.	-	2.100	1.925
Title: 4) INATS ***FY 2017 Plans:*** Initiate OXIME phase 1 clinical trial. ***FY 2018 Plans:*** Continue and complete OXIME Phase 1 clinical trial.	-	1.781	1.085
Title: 5) INATS ***FY 2017 Plans:*** Develop bulk drug substance (BDS) and final drug product (FDP) for non-clinical testing of the oxime.	-	1.800	-
Accomplishments/Planned Programs Subtotals	1.060	5.681	5.165

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
• MC5: *MEDICAL CHEMICAL DEFENSE (EMD)*	64.773	39.504	47.388	-	47.388	62.092	38.576	40.607	31.746	Continuing	Continuing
• JM6677: *ADVANCED ANTICONVULSANT SYSTEM (AAS)*	0.000	0.000	0.000	-	0.000	0.360	0.360	2.700	2.700	Continuing	Continuing

Remarks

D. Acquisition Strategy

IMPROVED NERVE AGENT TREATMENT SYSTEM (INATS)

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MC4 / *MEDICAL CHEMICAL DEFENSE (ACD&P)*

The INATS' evolutionary Acquisition Strategy has expanded to (1) align all Department of Defense nerve agent therapeutics under it, and to (2) insert a centrally-acting (CA) anticholinergic agent. This strategy employs an incremental approach to provide independent, and more rapid deliveries of oxime, expanded PB indications, and CA capabilities than in a combined treatment regimen delivery. In the Technology Maturation and Risk Reduction (TM&RR) phase, close collaborations will occur with the science/ technology, and user communities to assess technical viability, capability delivery options, and to refine operational concepts; the Government will be the systems integrator overseeing the conduct of oxime and centrally acting formulation development efforts, nonclinical toxicology and efficacy studies, clinical safety studies, and efficacy studies addressing the PB indication. In the Engineering and Manufacturing Development (EMD) phase for the oxime and CA each capability, the Government will engage with commercial partner(s) to ensure that INATS development and manufacture is in accordance with Food and Drug Administration (FDA) regulations and guidelines; the commercial partner(s) will perform a Phase 2 human clinical safety study, nonclinical toxicology studies and definitive animal efficacy studies; the commercial partner(s) will also oversee the manufacture of improved oxime and CA formulations and delivery system that is stable under operationally relevant temperatures. The Government will submit a New Drug Application and seek FDA approval for the INATS product. In the Production and Deployment (P&D) Phase, the Government will pursue full-rate and stockpile production, conduct any FDA mandated post-marketing surveillance studies, and will transfer contracting/ logistical responsibilities to the Defense Logistics Agency (DLA) while remaining to monitor program performance through disposal as the life-cycle manager.

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 / 4					R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*				Project (Number/Name) TE4 / *TEST & EVALUATION (ACD&P)*			
COST ($ in Millions)	**Prior Years**	**FY 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**
TE4: *TEST & EVALUATION (ACD&P)*	-	11.763	14.887	9.157	-	9.157	6.581	5.170	5.165	3.549	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding supports the Chemical Biological Defense Portfolio (CBDP) Test Equipment, Strategy, and Support (TESS) efforts TESS provides test infrastructure products for testing and evaluating chemical and biological defense systems throughout the life cycle acquisition process. TESS test infrastructure products are aligned in three groups to include: (1) Analysis and Requirements; (2) Laboratory; (3) Field.

(1) Analysis and Requirements: The products for this area are the analyses of requirements and justification of needs for test infrastructure to support acquisition efforts (e.g. Programs of Record (PORs), Advanced Technology Demonstrations (ATDs), and Accelerated Acquisition). The result is a verified need for component upgrades to existing test infrastructure, dynamic laboratory upgrades to existing test infrastructure, or initiation of new test infrastructure.

(2) Laboratory: The products for this area are the Non-Traditional Agent Defense Test System (NTADTS) and improvements to the Dynamic Test Chamber (DTC). The NTADTS provides a new capability to conduct chemical defense testing against current and emerging threat agents. The NTADTS supports testing of decontamination, collective protection, individual protection, and contamination avoidance products. The DTC provides a new capability for testing chemical point detection systems against chemical warfare agents in various environmental conditions. The CBD acquisition programs supported are Chemical Biological Radiological Nuclear Dismounted Reconnaissance Sets Kits and Outfits (CBRN DRS), Next Generation Chemical Detector (NGCD), Uniform Integrated Protection Ensemble (UIPE) Increment 2 and Common Analytical Laboratory System (CALS). Future efforts will include the development of test methods and methodologies for additional classes of agents.

(3) Field: The products for this area are Test Grid, Safari Test Grid, Joint Ambient Breeze Tunnel (JABT) and Active Standoff Chamber (ASC). The Test Grid effort provides a fully instrumented grid for chemical and biological simulant field test capabilities that integrate referee systems; dissemination equipment; real-time cloud tracking capability; meteorological equipment; a wireless network; and a Data Management System (DMS) software to track and display the simulant cloud; and provide status of all of the equipment in the network at Dugway Proving Ground (DPG). The Safari Test Grid is an all-inclusive mobile management service functioning wirelessly, capable of integrating, controlling, commanding and managing all assets required to conduct chemical and biological (CB) tests at any Major Range Test Facility Base (MRTFB). It provides algorithms and graphical user interfaces for automating real-time visualization, raw data, computation, hosts data collection and indefinite storage that can go to any MRTFB for CB Testing. The JABT and ASC improvements will provide a tech refresh to existing infrastructure and allow establishment of test data correlation between laboratory-tunnels-field for test results. The CBD acquisition programs supported are the Joint Expeditionary Collective Protection (JECP), Next Generation Chemical Detector (NGCD), Joint Biological Tactical Detection System (JBTDS), and the Joint USFK Point and Integrated Threat Recognition (JUPITR) Advanced Technology Demonstration (ATD).

Experimentation and demonstration will be used to reduce risk and inform supporting materiel solutions, CONOPS and TTPs.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TE4 / *TEST & EVALUATION (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: 1) PD TESS - Program Management ***FY 2016 Accomplishments:*** Continued Government Integrated Product Team, program management, systems engineering and IPT support. ***FY 2018 Plans:*** Continue Government Integrated Product Team, program management, systems engineering and IPT support.	2.417	-	3.400
Title: 2) PD TESS - Non-Traditional Agent Defense Test System (NTADTS) ***FY 2016 Accomplishments:*** Continued methodology development for additional classes of agent. ***FY 2017 Plans:*** Continue methodology development and continue test fixture design for additional classes of agent. ***FY 2018 Plans:*** Continue methodology development and continue test fixture design for additional classes of agent.	1.713	6.267	2.756
Title: 3) PD TESS - Joint Ambient Breeze Tunnel (JABT) ***FY 2016 Accomplishments:*** Initiated the integration of the JABT into the Test Grid DMS. ***FY 2017 Plans:*** Complete implementation of design. Conduct risk reduction testing.	0.173	1.388	-
Title: 4) PD TESS - Active Standoff Chamber (ASC) ***FY 2016 Accomplishments:*** Designed the integration of the ASC into the Test Grid DMS.	0.171	-	-
Title: 5) PD TESS - Test Grid ***FY 2016 Accomplishments:*** Characterized and integrated biological and chemical and dissemination systems.	4.659	-	-
Title: 6) PD TESS - Dynamic Test Chamber (DTC) ***FY 2017 Plans:*** Complete methodology development for upgrades and implement into chamber.	-	1.388	-
Title: 7) PD TESS - Test Infrastructure Analysis & Requirements (TIA&R)	2.130	2.082	2.301

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TE4 / *TEST & EVALUATION (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
FY 2016 Accomplishments: Initiated analysis to support test infrastructure for new requirements. ***FY 2017 Plans:*** Continue to characterize current capabilities for the CBDP to support decisions for new test infrastructure. Continue to analyze upcoming test infrastructure needs and requirements and initiate planning for studies. Analyze supporting Dynamic Test Chamber upgrades, Joint Ambient Breeze Tunnel and Active Standoff Chamber upgrades, and manage the CBDP database for all test capabilities. Initiate requirements development for new test infrastructure such as decontamination test fixtures, mobile test infrastructure, NTA Facility for PORs and acquisition support. ***FY 2018 Plans:*** Continue to analyze upcoming test infrastructure needs and requirements.			
Title: 8) PD TESS - Safari Test Grid ***FY 2016 Accomplishments:*** Completed the design and created a prototype of the test fixture modifications. ***FY 2017 Plans:*** Conduct full end-to-end network requirements analysis. Begin regression testing. ***FY 2018 Plans:*** Integrate additional referee instrumentation and transition the capability to DPG.	0.500	3.762	0.700
Accomplishments/Planned Programs Subtotals	11.763	14.887	9.157

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
• TE5: *TEST & EVALUATION (EMD)*	6.021	6.119	9.548	-	9.548	9.056	7.788	7.990	7.394	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

Remarks

D. Acquisition Strategy

TEST EQUIPMENT, STRATEGY & SUPPORT (PD TESS)

Exhibit R-2A, RDT&E Project Justification: FY 2018 Chemical and Biological Defense Program		Date: May 2017
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TE4 / *TEST & EVALUATION (ACD&P)*

TESS efforts are supported through competitive contract actions, academia, and other Government agencies. Infrastructure solutions will leverage commercially available systems to provide state-of-the-art capabilities that address current and future CBDP test and evaluation needs.

E. Performance Metrics

N/A