Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Chemical and Biological Defense Program	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	-	275.806	406.789	388.701	-	388.701	337.454	310.267	261.398	268.300	Continuing	Continuing
CA5: *CONTAMINATION AVOIDANCE (EMD)*	-	66.654	127.499	145.653	-	145.653	91.812	48.108	35.941	42.465	Continuing	Continuing
CM5: *HOMELAND DEFENSE (EMD)*	-	12.223	21.411	6.000	-	6.000	11.200	0.000	0.000	0.000	0.000	50.834
CO5: *COLLECTIVE PROTECTION (EMD)*	-	2.640	8.546	10.802	-	10.802	5.333	4.930	0.000	0.000	0.000	32.251
DE5: *DECONTAMINATION SYSTEMS (EMD)*	-	8.881	15.686	14.049	-	14.049	13.347	15.542	11.493	24.821	Continuing	Continuing
IP5: *INDIVIDUAL PROTECTION (EMD)*	-	13.580	14.481	9.953	-	9.953	5.471	4.709	6.556	6.770	Continuing	Continuing
IS5: *INFORMATION SYSTEMS (EMD)*	-	24.868	25.677	23.281	-	23.281	22.542	18.221	14.006	7.822	Continuing	Continuing
MB5: *MEDICAL BIOLOGICAL DEFENSE (EMD)*	-	92.313	136.553	107.815	-	107.815	141.385	170.160	154.262	153.288	Continuing	Continuing
MC5: *MEDICAL CHEMICAL DEFENSE (EMD)*	-	51.903	47.388	62.092	-	62.092	38.576	40.607	31.746	25.740	Continuing	Continuing
TE5: *TEST & EVALUATION (EMD)*	-	2.744	9.548	9.056	-	9.056	7.788	7.990	7.394	7.394	Continuing	Continuing

A. Mission Description and Budget Item Justification

Operational forces have an immediate need to survive, safely operate, and sustain operations in a Chemical and Biological (CB) threat environment across the continuum of global, contingency, special operations/low intensity conflict, counternarcotics, and other high-risk missions. Operating forces have a critical need for defense against worldwide proliferation of CB warfare capabilities and for medical treatment of CB casualties. Congress directed centralized management of Department of Defense (DoD) CB Defense initiatives, both medical and non-medical. This program element supports the Engineering and Manufacturing Development (EMD) of medical and physical CB defensive equipment and materiel. Projects within BA5 are structured to consolidate Joint and Service-unique tasks within four commodity areas: contamination avoidance, individual and collective force protection, decontamination, and medical countermeasures. This consolidation provides for development and operational testing of equipment for Joint Service use and for Service-unique requirements.

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Contamination avoidance efforts under this system development program will provide U.S. forces with real-time hazard assessment capabilities. They include multi-agent point and remote chemical detection for ground, aircraft, and shipboard applications; automated warning and reporting systems; integrated radiation detection and monitoring equipment; and enhanced battlefield reconnaissance capabilities. Force protection efforts will increase protection levels while decreasing physical and psychological burdens imposed by protective equipment.

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

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

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

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B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	266.231	406.789	365.017	-	365.017
Current President's Budget	275.806	406.789	388.701	-	388.701
Total Adjustments	9.575	0.000	23.684	-	23.684
• Congressional General Reductions	-0.043	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	15.000	-			
• Congressional Directed Transfers	0.000	-			
• Reprogrammings	-0.113	-			
• SBIR/STTR Transfer	-5.269	-			
• Other Adjustments	0.000	-	23.684	-	23.684

Change Summary Explanation

Funding: FY17 (-$0.043M): Congressional general reduction.
FY17 (+$15.000M): Congressional add to support accelerated development for Special Purpose Unit Chemical Detection sensors.
FY17 (-$0.133M): Program reprogrammings.
FY17 (-$5.269M): Transfer of funding to support Small Business Innovative Research/Small Business Technology Transfer efforts.
FY19 (-$5.004M): Application of revised inflation guidance.
FY19 (+$28.688M): Provides for the continued development of NGCD variants following transition to EMD. Restructure of JBTDS program to continue necessary EMD.

Schedule: N/A

Technical: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program			Date: February 2018
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COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
CA5: *CONTAMINATION AVOIDANCE (EMD)*	-	66.654	127.499	145.653	-	145.653	91.812	48.108	35.941	42.465	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports Engineering and Manufacturing Development and Low Rate Initial Production (EMD/LRIP) of an array of reconnaissance, detection and identification equipment, and warning systems. 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) Aerosol & Vapor Chemical Agent Detector (AVCAD), (formerly NGCD 1); (2) Enhanced Maritime Biological Detection (EMBD); (3) The Joint Handheld Bio-Agent Identifier (JHBI); (4) Mounted Manned Platform Radiological Detection System (MMPRDS); (5) Multi-Phase Chemical Agent Detector (MPCAD), (formerly NGCD 3); (6) Proximate Chemical Agent Detector (PCAD), (formerly NGCD 2); (7) Reactive Chemistry Orthogonal Surface and Environmental Threat Ticket Array (ROSETTA); (8) Joint Nuclear Biological Chemical Radiological System (JNBCRS); (9) Joint Biological Tactical Detection System (JBTDS); (10) Next Generation Chemical Detector (NGCD); (11) Non-Traditional Agent (NTA) Defense Support; (12) the Global Biosurveillance Technology Initiatives (GBTI).

The Aerosol & Vapor Chemical Agent Detector (AVCAD) (formerly NGCD 1) will provide the Joint Forces a man-portable system to detect and identify aerosol and vapor chemical threats and will also be employed on manned and unmanned platforms.

The Enhanced Maritime Biological Detection (EMBD) addresses the Navy detection and identification capability gaps and replaces/upgrades the 135 Joint Biological Point Detection Systems (JBPDS) currently fielded to the Navy. The EMBD system provides improved detection sensitivity, lower false alarms and a modernized computing architecture. The EMBD program will complete development and testing, integration and production of a lower cost biological point detection system to detect, collect and identify biological warfare agent aerosols. The EMBD provides automated warning and reduces sustainment cost while protecting the shipboard personnel.

The Joint Handheld Bio-Agent Identifier (JHBI) program is a Joint Service Acquisition Category (ACAT) III program consisting of two increments to address an existing United States Special Operations Command (USSOCOM) requirement for handheld, multiplexed, environmental, bio-agent identification. The JHBI program was initiated under the Joint Biological Tactical Detection System (JBTDS) and will provide three different handheld bio-identification systems for the rapid and accurate identification of organisms at the point of contact for multiple mission types. The proposed JHBI systems will be handheld, Polymerase Chain Reaction-based, multiplexed devices for the analysis of powder or liquid environmental biological samples. JHBI capabilities will provide Special Operations Forces with timely and accurate identification of 8 or more bio-agents at the point of need. JHBI 1 is anticipated to serve as a supplemental capability to the BioFire RAZOR with JHBI 2 fielding the complete replacement of the RAZOR by FY20. JHBI will transition out from under the JBTDS to its own funding line in FY18.

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The Mounted Manned Platform Radiological Detection System (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 Multi-Phase Chemical Agent Detector (MPCAD) (formerly NGCD 3) will provide a sample analysis to identify, quantify, alarm to, and report on diverse chemical species in vapor, aerosol, liquid, and solid phases of matter.

The Proximate Chemical Detector (PCAD) (formerly NGCD 2) is to provide a portable system for the rapid location, detection and identification of liquid and solid chemical threats on surfaces and may be handheld, tripod mounted, or mounted on unmanned platforms.

The Reactive Chemistry Orthogonal Surface and Environmental Threat Ticket Array (ROSETTA) is a ticket based sensor to provide chemical detection and identification capability to the Warfighter. ROSETTA provides improved hazard detection sensitivity, increases the number of chemicals detected and lowers false alarm rate as compared to the M256A2 with an array of reactive colorimetric dyes printed on a detector ticket. The ROSETTA program will complete the development and testing of the new detector ticket to update the currently fielded M256A2 kit. The M256A2 technical data package will be updated with an engineering change proposal (ECP) to create a new M256A3 kit.

Joint Nuclear Biological Chemical Radiological System (JNBCRS) is the Sensor Suite Upgrade (SSU) for the Stryker Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV). The NBCRV Sensor Suite is the Mission Equipment Package for the Stryker NBCRV and consists of chemical point detectors, a standoff chemical vapor detector, a biological point detector, a chemical vapor sampling system, radiological detectors, and the Sensor Processing Group. NBCRV SS provides the Stryker NBCRV the ability to detect, identify, collect, report, and mark NBC Hazards. The Stryker NBCRV SSU will improve chemical, biological and radiological and nuclear detection and identification capabilities, increase the maneuver speed of the Stryker NBCRV when conducting NBC mission and reduce sustainment costs over the current system.

The Joint Biological Tactical Detection System (JBTDS) program is developing, integrating and testing the first lightweight, low cost biological surveillance system to detect, collect, and identify biological warfare agent aerosols. JBTDS provides warning through the Joint Warning And Reporting Network (JWARN) and archives samples for follow-on analyses. JBTDS provides near real-time local audio and visual alarm, and may be employed by any Military User. JBTDS components are man-portable, battery-operable, and easy to employ. JBTDS provides notification of a hazard and enhances battle space awareness to protect and preserve the force. When networked JBTDS augments existing biological detection systems providing a theater-wide array capable of biological detection, identification and warning to support time sensitive force protection decisions. The JBTDS provides surface sampling capability to support sensitive site exploitation missions. Surface sampler interfaces with the JBTDS identifier

The Next Generation Chemical Detector (NGCD) is several detection systems for: vapor and aerosol monitoring (NGCD1), location of liquid and solids on surfaces (NGCD 2), sampling of multiple phases of matter (NGCD 3), and Wearable System (NGCD 4). NGCD will detect and identify non-traditional agents, chemical warfare agents (CWA), 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. The sensors will improve detection, consequence management and reconnaissance, and weapons of mass destruction

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(WMD) interdiction capabilities. The scope of the project includes detection of chemicals a few feet away from the detector as well as at the sampling point of the detector. Additional tasks will ruggedize and test a system for nontraditional agent detection for special purpose units. The NGCD program divides into separate programs starting in FY19: Aerosol & Vapor Chemical Agent Detector (AVCAD) formerly NGCD 1, Proximate Chemical Agent Detector (PCAD) formerly NGCD 2, Multi-Phase Chemical Agent Detector (MPCAD) formerly NGCD 3, and Wearable Chemical Agent Detector (WCAD) formerly NGCD 4. NCGD funded a USSOCOM effort to develop a modification kit to JCAD to address NTA and threats of interests going into the SP SKO and SPU units.

The Non-Traditional Agent (NTA) Defense program supports the on-going chemical and biological (CB) defense efforts as acquisition programs address emerging threat requirements including pharmaceutical based threats across the full spectrum of commodities. Dedicated initiatives and projects will develop and transition information, technologies, and capabilities into acquisition options and efforts (e.g. Programs of Record, Enhanced Capability Demonstrations, and Accelerated Acquisition) that account for the breadth and depth of advanced, emerging, and unknown CB threats and span the full range of defense missions. The NTA Defense program will provide essential enablers such as threat understanding; operational impacts of performance trades; and comprehensive, integrated, and layered defense concepts against advanced, emerging, and unknown CB threats. The program will support a balanced portfolio which will target 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. These initiatives allow the CBDP to mitigate risk against emerging threats and better prepare the warfighter to deal with surprises across the full range of military missions.

The Global Biosurveillance Technology Initiative (GBTI) will research and characterize laboratory networks and develop algorithms to identify key nodes, having the greatest potential to compress the time between disease event initiation and the production of actionable data. In FY19, GBTI will close. The Targeted Acquisition of Reference Materials Augmenting Capabilities (TARMAC) will track projects of mutual interest, formerly under GBTI, with the Chemical Biological Defense Program. Under TARMAC, these projects will cover a variety of activities and will provide data and information used to facilitate the identification of unknown threats and the development of new countermeasures. Key node data generation will be augmented in direct support of existing programs of record such as the Common Analytical Laboratory System (CALS).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) Next Generation Chemical Detector (NGCD) ***Description:*** NGCD acceleration contract for USSOCOM and Special Purpose Sets, Kits, and Outfits (SP SKO) JCAD CED. ***FY 2018 Plans:*** Complete testing of ruggedized sensors ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.	7.844	1.200	-
Title: 2) NGCD - Test Preparation/Expanded Test Capabilities ***Description:*** Evaluate test capability improvements to explore pharmaceutical based threats with JCAD CED.	2.131	-	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 3) NGCD Test Planning and Preparation ***Description:*** Government test planning for NGCD, SOF Chemical Detection Device (CDD), and JCAD Chemical Explosives Detector (CED).	3.932	-	-
Title: 4) NGCD - Special Purpose-Sets, Kits, and Outfits (SP SKO) ***Description:*** Chemical Detection Device (CDD) Product Development	1.200	-	-
Title: 5) Next Generation Chemical Detector (NGCD) ***Description:*** Program Management ***FY 2018 Plans:*** Continue Government Program Management (transition NGCD 1-3 from BA4 to BA5). Finalize and conduct MSB for NGCD 2 and 3. Initiate EMD. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.	8.760	18.045	-
Title: 6) NGCD support for JCAD Chemical Explosives Detector ***Description:*** Build library for NTA and explosives; Design hardware miniaturization.	0.249	-	-
Title: 7) NGCD ***Description:*** Evaluation of commercial candidates for NGCD 3 (Chemical Biological Mass Spectrometer (CBMS) II).	2.632	-	-
Title: 8) NGCD ***Description:*** Chemical Reconnaissance & Explosive Screening Set (CRESS) Engineering Studies.	0.200	-	-
Title: 9) NGCD ***Description:*** Wireless Radio Evaluation	0.400	-	-
Title: 10) NGCD ***Description:*** NGCD 1 EMD Contract ***FY 2018 Plans:***	-	11.274	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Implement Detailed Design, conduct Critical Design Review (CDR), buy 75 test articles for Production Qualification Test (PQT). Continue EMD. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.			
Title: 11) NGCD ***Description:*** NGCD 2- EMD Contract ***FY 2018 Plans:*** Initiate EMD. Conduct Preliminary Design Review (PDR), buy 5 test articles at 85K each for customer test. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.	-	11.236	-
Title: 12) NGCD ***Description:*** NGCD 3- EMD Contract ***FY 2018 Plans:*** Initiate EMD. Conduct Preliminary Design Review (PDR), buy 5 test articles at 150K each for customer test. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.	-	9.835	-
Title: 13) NGCD ***Description:*** NGCD 1 - Test ***FY 2018 Plans:*** Begin Production Qualification Test (PQT). Testing includes PQT Chamber testing and PQT Survivability / Interoperability/ Environmental testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.	-	4.847	-
Title: 14) NGCD ***Description:*** NGCD 2 - Test ***FY 2018 Plans:***	-	0.750	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Conduct customer test for threat library verification. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.			
Title: 15) NGCD ***Description:*** NGCD 3- Test ***FY 2018 Plans:*** Conduct customer test for threat library verification. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.	-	0.800	-
Title: 16) Aerosol & Vapor Chemical Agent Detector (AVCAD) ***Description:*** AVCAD (formerly NGCD 1) Test and Evaluation ***FY 2019 Plans:*** Initiate and conduct PQT DT Explosive Atmosphere Test, Mil-Std 901D - Ship Shock; MIL-Std 167-1 Vibration Test, OT Operational Assessment (OA) Test, PQT DT Interoperability, PQT DT Cybersecurity Vulnerability, PQT DT Environmental (MIL-STD-810G), PQT DT False Positive Alarm, PQT DT Natural Desert Environmental storage, PQT DT Coastal Operational Service Life, Shipboard Operation Verification, Rotary Wing Compatibility, and PQT DT Chemical Chamber. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	4.278
Title: 17) Aerosol & Vapor Chemical Agent Detector (AVCAD) ***Description:*** EMD Contracts ***FY 2019 Plans:*** Continue EMD development and Support Production Qualification Test, Logistics Demonstration, and Operational Assessment. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	12.023
Title: 18) Aerosol & Vapor Chemical Agent Detector (AVCAD) ***Description:*** Management Services	-	-	5.673

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2019 Plans: Continue (from NGCD 1) Government and contracted Integrated Product Development team, program management, systems engineering and IPT Support. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.			
Title: 19) Multi-Phase Chemical Agent Detector (MPCAD) ***Description:*** MPCAD Management Services (formerly NGCD 3), will quantify low-level vapor for Sample Analysis to identify, quantify, alarm to and report on diverse chemical compounds in vapor, aerosol, liquid and solid phases of matter. ***FY 2019 Plans:*** Continue (from NGCD 3) Government and contracted Integrated Product Development team, program management, systems engineering and IPT Support. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	4.613
Title: 20) Multi-Phase Chemical Agent Detector (MPCAD) ***Description:*** Testing ***FY 2019 Plans:*** Initiate and conduct Library Build and System Verification, PQT DT Interoperability Test, Cyber Security Vulnerability Test, Chemical Biological Radiological Contamination Survivability (CBRCS) Test, PQT DT Environmental (MIL-STD-810G) Test, PVT DT Explosive Atmosphere Test, PQT DT False (Positive) Alarm Test, PQT DY Natural Desert Environmental Storage Test, PQT DT Electromagnetic Survivability Test, PQT DT/OT Chemicals Test, and PQT DT Chemical Chamber Test. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	6.249
Title: 21) Multi-Phase Chemical Agent Detector (MPCAD) ***Description:*** EMD Contracts ***FY 2019 Plans:*** Initiate EMD contract. Conduct Preliminary Design Review (PDR), purchase five test articles at 150K each for customer test. ***FY 2018 to FY 2019 Increase/Decrease Statement:***	-	-	22.730

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Program/project funding transferred from another funding line.			
Title: 22) Proximate Chemical Agent Detector (PCAD) ***Description:*** Testing ***FY 2019 Plans:*** Initiate and Conduct PQT DT Customer Chamber Test at ECBC and WDTC. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	3.500
Title: 23) Proximate Chemical Agent Detector (PCAD) ***Description:*** EMD Contract ***FY 2019 Plans:*** Initiate EMD contract. Conduct Preliminary Design Review (PDR), purchase five test articles at 20K each for customer test. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	6.500
Title: 24) Proximate Chemical Agent Detector (PCAD) ***Description:*** Management Services (previously NGCD 2), a survey detector that is a portable system for the rapid location, detection and identification of liquid and solid chemical threats on surfaces, and may be handheld, tripod mounted, or mounted on unmanned platforms. ***FY 2019 Plans:*** Continue (from NGCD 2) Government and contracted Integrated Product Development team, program management, systems engineering and IPT Support. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	6.142
Title: 25) EMBD - Prototype Support ***Description:*** Detector Prototype Technical Data Package (TDP) transition, design transfer assistance, and government test support. ***FY 2018 Plans:***	0.600	2.000	1.100

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Initiate detector Technical Data Package (TDP) transition to Industry and government test support. ***FY 2019 Plans:*** Initiate Detector design transfer assistance and algorithm finalization. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 26) EMBD - Test Support ***Description:*** Live agent performance test support	0.163	-	-
Title: 27) EMBD - Developmental Testing ***Description:*** Near Neighbor and False Alarm Testing ***FY 2019 Plans:*** Developmental military-standard (MIL-STD) testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	0.232	-	0.425
Title: 28) EMBD - Component Integration ***Description:*** Identifier component integration effort.	0.750	-	-
Title: 29) EMBD - Integrated Product Team Support ***Description:*** EMD IPT Support support. ***FY 2018 Plans:*** Continue combat developer, test community and Service representation (i.e. integrated product teams (IPT) and working groups) during Engineering and Manufacturing Development (EMD) Phase. ***FY 2019 Plans:*** Continue combat developer, test community and Service representation (i.e. integrated product teams (IPT) and working groups) during Engineering and Manufacturing Development (EMD) Phase. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	-	0.500	0.550
Title: 30) EMBD - Prototype Procurement	-	5.958	6.775

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: EMD Prototype Systems Procurement ***FY 2018 Plans:*** Initiate acquisition of seven prototype systems for contractor developmental testing (DT) and government DT/ Operational Assessment (OA). ***FY 2019 Plans:*** Purchase five prototype systems (at 550K each) for government DT/Operational Assessment (OA), ILS development, design and software finalization. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 31) EMBD - Operational Test Support ***Description:*** EMD operational test support. ***FY 2019 Plans:*** Continue Navy Operational Test Support ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	-	-	0.296
Title: 32) EMBD - Live Agent Testing ***Description:*** EMD Live Agent Testing. ***FY 2018 Plans:*** Initiate live agent testing to verify detector performance against remaining agents not tested in JUPITR Advanced Technology Demonstration (ATD). ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	-	2.000	-
Title: 33) EMBD - Component Support ***Description:*** EMD Identifier Support. ***FY 2019 Plans:***	-	-	2.236

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Continue Identifier hardware, software, and engineering support. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 34) EMBD - Management Services ***Description:*** Government Management Services for program ***FY 2018 Plans:*** Continue Government strategic/tactical planning, Government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, and technical support for USN variant. ***FY 2019 Plans:*** Continue Government strategic/tactical planning, Government systems engineering, program/financial management, cost analysis, technology assessment, contracting, scheduling, and technical support for USN variant. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	2.200	3.620	6.129
Title: 35) GBTI ***Description:*** NETWORK ANALYSIS ***FY 2018 Plans:*** Complete network analysis to document sample and data flows, identify areas of synergy, and prioritize projects between the GBTI office and the GBTI stakeholder labs. The results of the network analysis will be used to determine the best methods for integrating data and information streams among the labs in order to create a robust data pipeline that feeds the identification of unknown threats, evaluation of countermeasures, and the development of new countermeasures. ***FY 2019 Plans:*** Complete network analysis to document sample and data flows, identify areas of synergy, and prioritize projects between the GBTI office and the GBTI stakeholder labs. The results of the network analysis will be used to determine the best methods for integrating data and information streams among the labs in order to create a robust data pipeline that feeds the identification of unknown threats, evaluation of countermeasures, and the development of new countermeasures. Scope of effort modified to accommodate collection and transfer of data for future initiatives within DBPAP. ***FY 2018 to FY 2019 Increase/Decrease Statement:***	0.617	1.685	0.490

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Program/project is entering completion and all activities will be closed.			
Title: 36) GBTI ***Description:*** LABORATORY ACTIVITIES ***FY 2018 Plans:*** Engage with stakeholder laboratories to track projects of mutual interest with the Chemical Biological Defense Program. Projects will cover a variety of activities and will provide data and information used to facilitate the identification of unknown threats and the development of new countermeasures. Will transition S3S and EDGE from DTRA-JSTO to support the engagement with stakeholder laboratories for the generation of data and information that support countermeasure development. ***FY 2019 Plans:*** Transition engagements with stakeholder laboratories to the Targeted Acquisition of Reference Materials Augmenting Capabilities (TARMAC) to track projects of mutual interest with the Chemical Biological Defense Program. Under TARMAC, these projects will cover a variety of activities and will provide data and information used to facilitate the identification of unknown threats and the development of new countermeasures. TARMAC will also utilize transactions from tech base (e.g. S2S and EDGE) to support these projects. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to fact of life change in the program/project.	1.570	2.754	1.524
Title: 37) GBTI ***Description:*** EXPEDITIONARY ANALYTICS ***FY 2018 Plans:*** Complete identification, test, and evaluation of new technologies with potential expeditionary analytical applications and their interoperability with existing systems as well as other new technologies. ***FY 2019 Plans:*** Complete identification, test, and evaluation of new technologies with potential expeditionary analytical applications and their interoperability with existing systems as well as other new technologies. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to fact of life change in the program/project.	0.117	1.285	0.094
Title: 38) JBTDS: Product Development ***Description:*** EMD Contract	10.076	0.700	5.181

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2018 Plans: Continue the EMD Contract for program management, logistics and test support. ***FY 2019 Plans:*** Continue the EMD Contract for program management, logistics and test support. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 39) JBTDS: Product Development ***Description:*** Tactical Identifier ***FY 2018 Plans:*** Continue development and design of a tactical identifier using the BioFire Film Array identification system from NGDS Increment 1 program. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project is entering completion and all activities will be closed.	0.464	8.891	-
Title: 40) JBTDS: Program Management ***Description:*** Management Support ***FY 2018 Plans:*** Continue Government strategic/tactical planning, Government systems engineering, program/financial management, costing, technology assessment, contracting, testing and evaluation, scheduling, and technical support. ***FY 2019 Plans:*** Continue Government strategic/tactical planning, Government systems engineering, program/financial management, costing, technology assessment, contracting, testing and evaluation, scheduling, and technical support. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	10.182	8.983	10.721
Title: 41) JBTDS: Support ***FY 2018 Plans:***	0.790	3.016	5.090

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Continue combat developer, test community and Service representation (i.e. integrated product teams (IPT) and working groups) during EMD Phase. ***FY 2019 Plans:*** Continue combat developer, test community and Service representation (i.e. integrated product teams (IPT) and working groups) during EMD Phase. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 42) JBTDS: Test and Evaluation ***FY 2018 Plans:*** Complete developmental planning and testing to include live agent, environmental false alarm, and outdoor interferent. ***FY 2019 Plans:*** Complete developmental testing to include live agent and Cyber Security. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	1.866	1.120	4.600
Title: 43) JBTDS:Support ***FY 2018 Plans:*** Complete sensor calibration standards effort for routine maintenance, metrology and calibration capability for detection systems. ***FY 2019 Plans:*** Complete and operationally test sensor calibration tools for routine maintenance, metrology and calibration technology for detection systems. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	0.188	0.400	0.350
Title: 44) JBTDS: Test and Evaluation ***FY 2018 Plans:*** Continue the verification and validation of military utility model. ***FY 2019 Plans:*** Complete the verification and validation of military utility model. ***FY 2018 to FY 2019 Increase/Decrease Statement:***	0.273	0.250	0.350

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Minor change due to routine program adjustments.			
Title: 45) JBTDS: Product Development ***Description:*** Joint Handheld Bio-Agent Identifier (JHBI)	5.392	-	-
Title: 46) JBTDS ***Description:*** NBCRV Platform Requirements ***FY 2018 Plans:*** Conduct and complete evaluation and engineering redesign study on the JBTDS system to meet NBCRV platform requirements. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to change in program/project technical parameters.	-	0.150	-
Title: 47) JBTDS ***FY 2018 Plans:*** Continue reliability growth model for EMD phase testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	-	0.120	-
Title: 48) JBTDS: Test and Evaluation ***FY 2018 Plans:*** Complete production of BWAs for live agent aerosol testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project is entering completion and all activities will be closed.	2.692	2.600	-
Title: 49) JBTDS ***Description:*** Operational Assessment ***FY 2018 Plans:*** Initiate Operational Assessment which includes end users and biological simulants. ***FY 2019 Plans:*** Continue Operational Assessment which includes end users and biological simulants. ***FY 2018 to FY 2019 Increase/Decrease Statement:***	-	3.350	1.700

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Minor change due to routine program adjustments.			
Title: 50) JHBI ***FY 2018 Plans:*** Conduct and complete Developmental and Operational testing of all three systems. Complete Low Rate Initial Production and Initial Operational Test and Evaluation. Field all three systems at Full Operational Capability with screening and confirmatory assays. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.	-	0.990	-
Title: 51) JNBCRS 1 ***FY 2018 Plans:*** Initiate and continue the design, build, test, and integrated logistics task of the Stryker NBCRV Sensor Suite. ***FY 2019 Plans:*** Continue the design, build, test, integrated logistics, and program management of the Stryker NBCRV Sensor Suite. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	-	17.952	20.655
Title: 52) MMPRDS - Program Management ***Description:*** Government Program Management and Integrated Product Team (IPT) Support. ***FY 2019 Plans:*** Continue to provide acquisition management, engineering and technical expertise, and develop milestone (B) documentation for the program. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Engineering and Manufacturing Development Phase.	-	-	0.892
Title: 53) MMPRDS - Test and Evaluation (T&E) ***Description:*** System Developmental Testing ***FY 2019 Plans:***	-	-	0.608

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Conduct Government delta development testing on newly integrated systems received from DTRA to close test gaps remaining following technology transition, to support TEMP completion and Milestone B. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Engineering and Manufacturing Development Phase.			
Title: 54) MMPRDS - Product Refinement ***Description:*** Evaluate and refine system prototypes. ***FY 2019 Plans:*** Iterate and modify delivered prototypes to close performance gaps remaining following technology transition. Conduct necessary cybersecurity activities per Risk Management Framework (RMF). ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Engineering and Manufacturing Development Phase.	-	-	1.000
Title: 55) NTA Defense ***Description:*** Program Management ***FY 2019 Plans:*** Continues Government Integrated Product Team program management, systems engineering, and IPT Support across all JPEO programs and other governmental partnerships. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	0.404	-	0.406
Title: 56) NTA Defense ***Description:*** Test and Evaluation ***FY 2018 Plans:*** Continue to utilize advance and emerging threat test bed facilities and methodologies to evaluate new and emerging component technologies for the enterprise to inform and refine technology development strategies. Initiate planning for the MUAs and TTXs to inform lab and field trials evaluating new and emerging component technologies. Continue to prioritize efforts to address Advanced Threat requirements for existing programs of record and user groups. Conduct characterization of protective	0.730	1.188	0.794

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
equipment across many classes of threat compounds, to determine ability to meet program requirements. Continued engagement of user groups with Advanced Threat requirements through TTXs and field trials. ***FY 2019 Plans:*** Continue evaluation of new and emerging component technologies for the CBDP enterprise to inform and refine technology development strategies. Characterize the composition and effects of impurities present in chemical threats, including pharmaceutical based threats. Conduct characterization of detection and protective equipment against advanced threat compounds. Continue engagement of user groups with Advanced Threat requirements supporting TTXs and field trials. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 57) ROSETTA ***Description:*** Technical Data Package (TDP) ***FY 2019 Plans:*** Begin preparing TDP. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	0.079
Title: 58) ROSETTA ***Description:*** EMD Contract ***FY 2019 Plans:*** Award competitive development contract. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	1.600
Title: 59) ROSETTA ***Description:*** Test ***FY 2019 Plans:*** Complete test plans, begin development and shelf life tests. ***FY 2018 to FY 2019 Increase/Decrease Statement:***	-	-	0.300

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Program/project funding transferred from another funding line.			
Accomplishments/Planned Programs Subtotals	66.654	127.499	145.653

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• CA4: *CONTAMINATION AVOIDANCE (ACD&P)*	49.313	29.211	35.094	-	35.094	27.908	20.208	16.131	17.518	Continuing	Continuing
• JF0100: *JOINT CHEMICAL AGENT DETECTOR (JCAD)*	7.547	4.253	3.500	-	3.500	0.000	0.000	0.000	0.000	0.000	15.300
• MC0100: *JOINT NBC RECONNAISSANCE SYSTEM (JNBCRS)*	7.451	0.500	0.000	-	0.000	0.000	0.000	7.655	5.741	Continuing	Continuing
• MC0101: *CBRN DISMOUNTED RECONNAISSANCE SYSTEMS (CBRN DRS)*	90.445	94.424	91.081	-	91.081	59.972	45.924	44.072	46.674	Continuing	Continuing
• MX0001: *JOINT BIO TACTICAL DETECTION SYSTEM (JBTDS)*	0.000	0.000	0.000	-	0.000	46.724	68.825	75.502	81.656	Continuing	Continuing

Remarks

D. Acquisition Strategy

NEXT GENERATION CHEMICAL DETECTOR (NGCD)

BA4: NGCD used Full and Open competition to award TMRR contracts. In FY18 NGCD 4 awarded a wearable technology assessment (WTA) contract to provide brassboard and breadboard prototypes for Government evaluation.

BA5: In FY18 NGCD 1, 2, and 3 will use for Full and Open competition to award EMD contracts with production options under the NGCD funding line. In FY19 the NGCD program divides into separate programs. These contracts will continue in FY19 under the separate programs, AVCAD, PCAD, MPCAD funding lines. U.S. Special Operations Command (USSOCOM) awarded a contract with production options for Special Purpose (SP) Sets, Kits and Outfits (SKO) and JCAD Chemical Explosive Detector (CED). The JCAD CED was initiated under NCGD effort to develop a modification kit for the JCAD to address NTA and threats of interests going to the SP SKO and Special Purpose Units (SPU).

AEROSOL VAPOR CHEMICAL AGENT DETECTOR (AVCAD)

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Aerosol & Vapor Chemical Agent Detector (AVCAD) (formerly NGCD 1) will use Full and Open competition to award MS B Engineering and Manufacturing Development (EMD) contracts with production options.

MULTI-PHASE CHEMICAL AGENT DETECTOR (MPCAD)

Multi-Phase Chemical Agent Detector (MPCAD) (formerly NGCD 3) will use Full and Open competition to award MS B Engineering and Manufacturing Development (EMD) contracts with production options.

PROXIMATE CHEMICAL AGENT DETECTOR (PCAD)

Proximate Chemical Agent Detector (PCAD) (formerly NGCD 2) will use Full and Open competition to award MS B Engineering and Manufacturing Development (EMD) contracts with production options.

ENHANCED MARITIME BIOLOGICAL DETECTION (EMBD)

The Enhanced Maritime Biological Detection (EMBD) program uses a streamlined acquisition strategy. This approach is based on the mature technology that will transition from the Assessment of Environmental Detection (AED) leg of the Joint USFK Portal and Integrated Threat Recognition (JUPITR) Advanced Technology Demonstration (ATD) to a program of record for the US Navy. The EMBD program enters into acquisition at MS B and makes maximum use of the testing to date through the JUPITR program to field the replacement for the 135 Joint Biological Point Detection Systems (JBPDS) in the Navy. EMBD is utilizing the Joint Enterprise Research, Development, Acquisition and Production/Procurement (JE-RDAP) contract at MS B for the Engineering and Manufacturing Development (EMD) contract with options for Low Rate Initial Production (LRIP). An Request for Proposal (RFP) will be released in 2nd Quarter FY18 for a competitive procurement.

GLOBAL BIO TECH INITIATIVE (GBTI)

The Global Biosurveillance Technology Initiative (GBTI) strategy establishes a robust data stream that directly supports existing programs of record in their development of biological defense countermeasures through the characterization of laboratory networks and augmentation of key nodes within those networks. This will be accomplished through the use of a University of Affiliated Research Center (Johns Hopkins University) to characterize laboratory networks and develop decision-making tools for evaluating potential augmentation of key nodes prior to investment.

JOINT BIO TACTICAL DETECTION SYSTEM (JBTDS)

Full and open competition was utilized at MS B for the Engineering and Manufacturing Development (EMD) contract with options for Low Rate Initial Production and Full Rate Production. Chemring Detection Systems was awarded the EMD contract on 2 April 2015. The JBTDS addresses legacy Special Purpose Units (SPU) requirements gaps/deficiencies through development and optimization of COTS/GOTS systems.

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JOINT HANDHELD BIO-AGENT IDENTIFIER (JHBI)

The JHBI program will pursue a collaborative accelerated acquisition strategy to incrementally deliver capability to USSOCOM. JHBI will use commercial items to procure candidate systems from 3 vendors for further development and fielding. JHBI is co-managed and co-executed through an acquisition partnership between the Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) and USSOCOM to expand the relationship between JPEO-CBD and USSOCOM and leverage acquisition and subject matter expertise on both sides to reduce acquisition timelines and improve customer satisfaction. Specifically, JHBI is using the USSOCOM requirement validation and test and evaluation resources from program inception through Milestone C. The JHBI program acquired test-articles of a single commercial-off-the-shelf (COTS) platform with relevant assays for the JHBI Combat Evaluation (CV), which served as the decision gate for the completion of the Technology Maturation and Risk Reduction (TMRR) phase. To mitigate risk, additional technologies were identified and inserted into the JHBI program.

JOINT NBC RECONNAISSANCE SYSTEM - STRYKER (JNBCRS)

Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite (NBCRVSS) Upgrade is an upgrade for the Stryker Nuclear Biological Chemical Reconnaissance Vehicle. The contract approach for the Sensor Suite Upgrade will be a Full and Open Cost Plus Incentive Fee Engineering Manufacturing Development contracts with Fixed Price Incentive Fee options for Low Rate Initial Production and Full Rate Production.

MOUNTED MANNED PLATFORM RADIOLOGICAL DETECTION SYSTEM (MMPRDS)

The Mounted Manned Platform Radiological Detection System (MMPRDS) leverages technology transitioning from the Defense Threat Reduction Agency-Nuclear Technologies (DTRA/NT) to expedite technology maturation. DTRA/NT-developed systems will provide component-level test data in support of Milestone B. In Engineering Manufacturing Development (EMD), MMPRDS exterior-mounted and interior-mounted vehicle sensors will be updated and delivered for use in joint evaluation with the NBCRV Sensor Suite Upgrade program, which will support Milestone C. 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.

NON TRADITIONAL AGENT DEFENSE (NTA DEFENSE)

The NTA Defense program initiatives transition information, technologies, and capabilities into existing and future acquisition programs (PORs, ECD/ACDs, and Accelerated Acquisition) and utilize a variety of contract mechanisms (full and open competition, existing task order contracts within DoD, and DLA).

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 technology that will transition from Science and Technology Efforts and industry. It will be developed using a Full and Open competition to award multiple development

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contracts. An Engineering Change Proposal (ECP) will be prepared to update the M256A2 kits to the new M256A3 kits. Full and Open Competition will also be used for the M256A3 Production Contract.

E. Performance Metrics

N/A

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGCD - HW S - Prototype Build	C/CPIF	Smiths Detection : Edgewood, MD	0.453	7.844	Dec 2016	1.200	Dec 2017	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - HW C - Joint Chemical Agent Detector Chemical Explosives Detector (JCAD-CED) Library Development	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.249	Aug 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGCD - HW SB - NGCD 1 Radio Evaluation	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.400	Jul 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGCD - HW S - CBMS II Replacement Evaluation	C/CPIF	MRIGlobal : Kansas City, MO	0.000	1.271	May 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGCD - HW S - SP-SKO CDD	C/CPFF	Smiths Detection : Edgewood, MD	0.000	1.200	Jul 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGCD - HW S - NGCD 1	C/CPIF	TBD : TBD	0.000	0.000		11.274	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - HW S - NGCD 2	C/CPIF	TBD : TBD	0.000	0.000		11.236	Jan 2018	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - HW S - NGCD 3	C/CPIF	TBD : TBD	0.000	0.000		9.835	Dec 2017	0.000		-		0.000	Continuing	Continuing	0.000
AVCAD - HW S - Aerosol & Vapor Chemical Agent Detector EMD Contract	C/FPIF	TBD : TBD	0.000	0.000		0.000		12.023	Oct 2018	-		12.023	Continuing	Continuing	0.000
MPCAD - HW S - Multi-Phase Chemical Agent Detector (MPCAD) EMD Contract	C/CPFF	TBD : TBD	0.000	0.000		0.000		22.730	Mar 2019	-		22.730	Continuing	Continuing	0.000
PCAD - HW S - Proximate Chemical Agent Detector EMD Contract	C/CPIF	TBD : TBD	0.000	0.000		0.000		6.500	Mar 2019	-		6.500	Continuing	Continuing	0.000
EMBD - HW SB - EMBD-HW SB Hardware Subsystem	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.750	Jul 2017	0.000		2.236	Nov 2018	-		2.236	Continuing	Continuing	0.000

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EMBD - HW S - Prototype Development and Manufacturing	C/CPIF	TBD : TBD	0.000	0.000		5.958	Mar 2018	6.775	Nov 2018	-		6.775	Continuing	Continuing	0.000
EMBD - HW C - Detector	SS/FFP	MA Institute of Tech - Lincoln Labs (MIT-LL) : Lexington, MA	0.000	0.600	Jul 2017	2.000	Jan 2018	1.100	Oct 2018	-		1.100	Continuing	Continuing	0.000
JBTDS - HW S - EMD Contract Award	C/CPIF	Chemring Detection Systems : Inc., Charlotte, NC	13.612	10.076	Nov 2016	0.700	Dec 2017	5.181	Nov 2018	-		5.181	Continuing	Continuing	0.000
JBTDS - HW C - Tactical Common Identifier	C/CPFF	BioFire Dx : Salt Lake City, UT	13.549	0.464	Nov 2016	8.891	Mar 2018	0.000		-		0.000	Continuing	Continuing	0.000
JBTDS - HW C - NBCRV Platform Integration	MIPR	TBD : TBD	0.000	0.000		0.150	Dec 2017	0.000		-		0.000	Continuing	Continuing	0.000
JBTDS - HW C - SPU Biomeme JHBI	SS/FFP	Biomeme : Philadelphia, PA	4.049	0.606	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JBTDS - HW C - SPU Genedrive JHBI	SS/FFP	Epistem : Manchester, UK	4.235	0.542	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JBTDS - HW C - SPU Mobile Analysis Platform (MAP) JHBI	SS/CPFF	Ibis : Carlsbad, CA	3.991	1.724	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JNBCRS 1 - HW - Sensor Processing Group Development	MIPR	Armament Research : Development and Engineering Center, Piccatinny, NJ	0.000	0.000		1.200	Feb 2018	3.017	Feb 2019	-		3.017	Continuing	Continuing	0.000
JNBCRS 1 - HW-Sensor Suite Development	C/CPIF	Various : Various	0.000	0.000		13.301	Dec 2017	11.347	Dec 2018	-		11.347	Continuing	Continuing	0.000
MMPRDS - HW C - MMPRDS - Product Refinement	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	0.000	0.000		0.000		1.000	Dec 2018	-		1.000	Continuing	Continuing	0.000
ROSETTA - HW C Rosetta EMD Contract Award	C/FFP	TBD : TBD	0.000	0.000		0.000		1.600	Jul 2019	-		1.600	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	39.889	25.726		65.745		73.509		-		73.509	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGCD - ES S - Joint Service T&E/SE IPT	MIPR	Various : Various	0.705	1.772	Mar 2017	3.010	Oct 2017	0.000		-		0.000	Continuing	Continuing	0.000
EMBD - ES S - OTA/OGA Service Representation USN Variant	MIPR	Naval Surface Warfare Center (NSWC) - Dahlgren Center : Dahlgren, VA	0.000	0.000		0.500	Jan 2018	0.550	Nov 2018	-		0.550	Continuing	Continuing	0.000
GBTI - TD/D C - Biosurveillance (BSV)	Various	Various : Various	0.000	0.359	Apr 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JBTDS - ES C - Engineering Support	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	2.000	0.139	Nov 2016	0.000		1.690	Nov 2018	-		1.690	Continuing	Continuing	0.000
JBTDS - ES S - OTA/OGA Service Representation	MIPR	Various : Various	6.039	0.651	Nov 2017	3.016	Mar 2018	2.910	Nov 2018	-		2.910	Continuing	Continuing	0.000
JBTDS - ES S - SPU Engineering Support JHBI	MIPR	Various : Various	0.000	0.572	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JBTDS - ES S - Biosensor Calibration Effort	MIPR	Naval Research Lab (NRL) : Washington, DC	2.275	0.188	Mar 2017	0.400	Mar 2018	0.350	Mar 2019	-		0.350	Continuing	Continuing	0.000
JBTDS - ILS S - Reliability Growth Model	MIPR	United States Army Materiel Systems Analysis Activity(AMSAA) : Aberdeen Proving Ground, MD	0.043	0.000		0.120	Mar 2018	0.000		-		0.000	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JBTDS - ES S - OTA/ OGA Representation USN Variant JHBI	MIPR	Various : Various	0.225	0.460	Oct 2016	0.000		0.000	Oct 2018	-		0.000	Continuing	Continuing	0.000
JBTDS - ES C - SPU System Integration	C/CPFF	Johns Hopkins University - Applied Physics Lab : Laurel, MD	0.500	0.500	Mar 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JHBI - ES S - Engineering and IPT Support	MIPR	Various : Various	0.000	0.000		0.490	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000
JNBCRS 1 - ES - Engineering Support	MIPR	Various : Various	0.000	0.000		0.748	Nov 2017	1.525	Nov 2018	-		1.525	Continuing	Continuing	0.000
NTA DEFENSE - ES S - NTA OPETS Support	C/CPFF	Patricio Enterprises : Inc., Woodbridge, VA	0.000	0.075	Aug 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	11.787	4.716		8.284		7.025		-		7.025	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGCD - DTE C - Test Preparation/Expanded Test Capabilities	Various	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	2.131	Aug 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGCD - DTE S - JCAD-CED Test	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	2.160	Apr 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGCD - NGCD 1 - PQT Chamber Test	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	0.000	0.000		3.200	Dec 2017	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - NGCD 1 - PQT Survivability /	MIPR	Various : Various	0.000	0.000		1.647	Dec 2017	0.000		-		0.000	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Interoperability/ Environmental															
NGCD - NGCD 2- Customer Testing	MIPR	Various : Various	0.000	0.000		0.750	Jun 2018	0.000		-		0.000	Continuing	Continuing	0.000
NGCD - NGCD 3 - Customer Testing	MIPR	Various : Various	0.000	0.000		0.800	Mar 2018	0.000		-		0.000	Continuing	Continuing	0.000
AVCAD - DTE C - PQT DT Interoperability	MIPR	Indian Head : Indian Head, MD	0.000	0.000		0.000		0.220	Jan 2019	-		0.220	Continuing	Continuing	0.000
AVCAD - DTE C - PQT DT Cyber Security Vulnerability	MIPR	Indian Head : Indian Head, MD	0.000	0.000		0.000		0.220	Apr 2019	-		0.220	Continuing	Continuing	0.000
AVCAD - DTE C - PQT DT Environmental (MIL-STD-810G)	MIPR	West Desert Test Center : Dugway, UT	0.000	0.000		0.000		0.605	Apr 2019	-		0.605	Continuing	Continuing	0.000
AVCAD - DTE C - PQT DT Explosive Atmosphere Test	MIPR	Electronic Proving Ground : Fort Huachuca, AZ	0.000	0.000		0.000		0.028	Jan 2019	-		0.028	Continuing	Continuing	0.000
AVCAD - DTE C - PQT DT False (Positive) Alarm	Allot	20th Support Command : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.220	May 2019	-		0.220	Continuing	Continuing	0.000
AVCAD - DTE C - PQT DT Natural Desert Environmental Storage	MIPR	Yuma Proving Ground : Yuma, AZ	0.000	0.000		0.000		0.018	May 2019	-		0.018	Continuing	Continuing	0.000
AVCAD - DTE C - Mil-Std 901D - Ship Shock; MIL-Std 167-1 Vibration	MIPR	Naval Surface Warfare Center (NSWC) - Dahlgren Center : Dahlgren, VA	0.000	0.000		0.000		0.028	Jul 2019	-		0.028	Continuing	Continuing	0.000
AVCAD - DTE C - Shipboard Operation Verification	MIPR	Potomac Test Range : Potomac Mills, VA	0.000	0.000		0.000		0.165	Jun 2019	-		0.165	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AVCAD - DTE C - PQT DT Rotary Wing Compatibility Test	MIPR	Army Test and Evaluation Command (ATEC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.028	Feb 2019	-		0.028	Continuing	Continuing	0.000
AVCAD - DTE C - PQT DT Coastal Operational Service Life	MIPR	Naval Research Laboratory : Key West, FL	0.000	0.000		0.000		0.110	Jun 2019	-		0.110	Continuing	Continuing	0.000
AVCAD - DTE C - PQT DT/OT Post Field Chamber Chemical Chamber (CWA/AT/TIC Vapor, CWA/AT Aerosol)	MIPR	West Desert Test Center : Dugway, UT	0.000	0.000		0.000		1.894	Apr 2019	-		1.894	Continuing	Continuing	0.000
AVCAD - DTE C - OT Operational Assessment (OA) Test	MIPR	West Desert Test Center : Dugway, UT	0.000	0.000		0.000		0.742	Jun 2019	-		0.742	Continuing	Continuing	0.000
MPCAD - DTE C - Library Build and System Verification	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		1.858	Nov 2018	-		1.858	Continuing	Continuing	0.000
MPCAD - DTE C - PQT DT Interoperability	MIPR	Eglin AFB : Eglin Air Force Base, FL	0.000	0.000		0.000		0.200	Feb 2019	-		0.200	Continuing	Continuing	0.000
MPCAD - DTE C - PQT DT Cyber Security Vulnerability	MIPR	Joint Interoperability Test Command (JITC) : Fort Huachuca, AZ	0.000	0.000		0.000		0.200	Nov 2018	-		0.200	Continuing	Continuing	0.000
MPCAD - DTE C - PQT DT Chemical Biological Radiological Contamination Survivability (CBRCS)	MIPR	West Desert Test Center : Dugway, UT	0.000	0.000		0.000		0.700	Feb 2019	-		0.700	Continuing	Continuing	0.000
MPCAD - DTE C - PQT DT Environmental (MIL-STD-810G)	MIPR	West Desert Test Center : Dugway, UT	0.000	0.000		0.000		0.400	Feb 2019	-		0.400	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MPCAD - DTE C - PVT DT Explosive Atmosphere	MIPR	Electronic Proving Ground : Fort Huachuca, AZ	0.000	0.000		0.000		0.025	Jul 2019	-		0.025	Continuing	Continuing	0.000
MPCAD - DTE C - PQT DT False (Positive) Alarm	MIPR	TBD : TBD	0.000	0.000		0.000		0.167	Aug 2019	-		0.167	Continuing	Continuing	0.000
MPCAD - DTE C - PQT DT Natural Desert Environmental Storage	MIPR	Yuma Proving Ground : Yuma, AZ	0.000	0.000		0.000		0.100	Jul 2019	-		0.100	Continuing	Continuing	0.000
MPCAD - DTE C - PQT DT Electromagnetic Survivability	MIPR	White Sand Missile Range : Mesa, AZ	0.000	0.000		0.000		0.350	Apr 2019	-		0.350	Continuing	Continuing	0.000
MPCAD - DTE C - PQT DT/OT Chemicals	MIPR	TBD : TBD	0.000	0.000		0.000		0.400	Jun 2019	-		0.400	Continuing	Continuing	0.000
MPCAD - DTE C - PQT DT/OT Chemical Chamber	MIPR	West Desert Test Center : Dugway, UT	0.000	0.000		0.000		1.849	Nov 2018	-		1.849	Continuing	Continuing	0.000
PCAD - DTE C - PQT DT Customer Chamber Test	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		1.750	Nov 2018	-		1.750	Continuing	Continuing	0.000
PCAD - DTE C - PQT DT Customer Chamber Test #2	MIPR	West Desert Test Center : Dugway, UT	0.000	0.000		0.000		1.750	Nov 2018	-		1.750	Continuing	Continuing	0.000
EMBD - DTE S - Consumable Procurement	MIPR	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.000	0.163	Aug 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
EMBD - DTE C - Near Neighbor Testing	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.232	Jul 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
EMBD - DTE C - Live Agent Testing	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.000		2.000	Jul 2018	0.000		-		0.000	Continuing	Continuing	0.000

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Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EMBD - OTE S - EMBD OTE S - Navy Operational Test & Eval	MIPR	Navy Operational Test and Eval Force (OPTEVFOR) : Norfolk, VA	0.000	0.000		0.000		0.296		-		0.296	Continuing	Continuing	0.000
EMBD - DTE S - DT Testing - EMBD	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.425	Nov 2018	-		0.425	Continuing	Continuing	0.000
GBTI - Test and Evaluation of Technology Refresh Candidates	MIPR	Various : Various	0.000	0.059	Aug 2017	1.285	Dec 2017	0.093	Dec 2018	-		0.093	Continuing	Continuing	0.000
JBTDS - DTE S - Battelle BPSA	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	2.692	Dec 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JBTDS - DTE S - Developmental Testing	MIPR	Various : Various	1.265	1.866	Mar 2017	0.720	Mar 2018	3.440	Jan 2019	-		3.440	Continuing	Continuing	0.000
JBTDS - DTE S - System Testing/Optimization SPU JHBI	C/CPIF	Johns Hopkins University - Applied Physics Lab : Laurel, MD	0.000	0.563	Feb 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JBTDS - DTE S - V&V of JBTDS Military Utility Model	FFRDC	Institute for Defense Analysis (IDA) : Alexandria, VA	0.564	0.273	Jun 2017	0.250	Dec 2017	0.350	Apr 2019	-		0.350	Continuing	Continuing	0.000
JBTDS - DTE S - Development Testing	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	0.089	0.000		0.400	Mar 2018	0.000		-		0.000	Continuing	Continuing	0.000
JBTDS - DTE S - Battelle	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.814	0.000	Dec 2016	2.600	Mar 2018	0.000		-		0.000	Continuing	Continuing	0.000
JBTDS - DTE S - Various	MIPR	Various : Various	0.000	0.000		3.350	Dec 2017	3.350	Jun 2019	-		3.350	Continuing	Continuing	0.000
JHBI - DTE S - Test and Evaluation Support	MIPR	Various : Various	0.000	0.000		0.500	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000

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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JNBCRS 1 - DTE - Test and Evaluation	MIPR	Various : Various	0.000	0.000		0.700	Jun 2018	2.576	Jun 2019	-		2.576	Continuing	Continuing	0.000
MMPRDS - DTE S - MMPRDS - Design Verification Test	MIPR	TBD : TBD	0.000	0.000		0.000		0.608	Apr 2019	-		0.608	Continuing	Continuing	0.000
NTA DEFENSE - DTE S - Developmental Test and Evaluation	C/CPFF	MRIGlobal : Kansas City, MO	0.000	0.000		0.174	Jan 2018	0.200	Dec 2018	-		0.200	Continuing	Continuing	0.000
NTA DEFENSE - DTE S - Developmental Test and Evaluation #2	C/CPFF	Battelle Memorial Institute : Columbus, OH	1.787	0.172	Feb 2017	0.436	Mar 2018	0.260	Dec 2018	-		0.260	Continuing	Continuing	0.000
NTA DEFENSE - DTE S - Test & Evaluation	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	0.000	0.135	Aug 2017	0.000		0.134	Dec 2018	-		0.134	Continuing	Continuing	0.000
NTA DEFENSE - DTE S - Developmental Test and Evaluation #3	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.280	0.423	Feb 2017	0.261	Jan 2018	0.275	Dec 2018	-		0.275	Continuing	Continuing	0.000
ROSETTA - DTE C - Development Testing	MIPR	Various : Various	0.000	0.000		0.000		0.300	Dec 2018	-		0.300	Continuing	Continuing	0.000
		Subtotal	4.799	10.869		19.073		26.334		-		26.334	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGCD - PM/MS C - Program Management and Systems Engineering Support	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	3.224	6.744	Dec 2016	15.035	Dec 2017	0.000		-		0.000	Continuing	Continuing	0.000

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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGCD - PM/MS C - NGCD CA Support (Additional Plus-Up Funding)	Various	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	2.016	Jul 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGCD - PM/MS S - CRESS OGAs - ECBC, ATC, Pine Bluff	MIPR	Various : Various	0.000	0.200	Aug 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGCD - PM/MS C - CBMS II Replacement Evaluation	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.000	0.576	Aug 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGCD - PM/MS S - CBMS II OGAs	MIPR	Various : Various	0.000	0.785	Aug 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
AVCAD - PM/MS S	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.000	0.000		0.000		5.673	Nov 2018	-		5.673	Continuing	Continuing	0.000
MPCAD - PM/MS C - MPCAD - PM/MS S	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.000	0.000		0.000		3.950	Mar 2019	-		3.950	Continuing	Continuing	0.000
MPCAD - PM/MS S - OGA Support	MIPR	Various : Various	0.000	0.000		0.000		0.663	Oct 2018	-		0.663	Continuing	Continuing	0.000
PCAD - PM/MS S - PCAD	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.000	0.000		0.000		5.175	Nov 2018	-		5.175	Continuing	Continuing	0.000

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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PCAD - PM/MS S - OGA Support PCAD ES S-Joint Services T&E/SE IPT	MIPR	Various : Various	0.000	0.000		0.000		0.967	Nov 2018	-		0.967	Continuing	Continuing	0.000
EMBD - PM/MS S - PM/ System Engineering Support USN Variant	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.000	2.200	Jul 2017	3.620	Dec 2017	6.129	Oct 2018	-		6.129	Continuing	Continuing	0.000
GBTI - PM/MS C - Program Management Support	Allot	JPM Guardian : Aberdeen Proving Ground, MD	0.000	0.970	Jan 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
GBTI - PM/MS S - Network Analysis and Characterization	MIPR	Various : Various	0.000	0.216	Aug 2017	1.685	Jun 2018	0.331	Jun 2019	-		0.331	Continuing	Continuing	0.000
GBTI - PM/MS C - Project Engagement	MIPR	Various : Various	0.000	0.000		2.754	Nov 2017	0.158	Nov 2018	-		0.158	Continuing	Continuing	0.000
GBTI - PM/MS C - Bioinformatics	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.688	0.700	Dec 2016	0.000		1.526	Dec 2018	-		1.526	Continuing	Continuing	0.000
JBTDS - PM/MS SB - Program Management and System Engineering Support	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	22.454	10.182	Dec 2016	8.983	Dec 2017	10.721	Dec 2018	-		10.721	Continuing	Continuing	0.000
JBTDS - PM/MS SB - SPU Program Management Support JHBI	MIPR	Various : Various	0.738	0.425	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JNBCRS 1 - PM - Program Management and System Engineering Support	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO,	0.000	0.000		2.003	Nov 2017	2.190	Nov 2018	-		2.190	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	Project (Number/Name) CA5 / *CONTAMINATION AVOIDANCE (EMD)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Aberdeen Proving Ground, MD													
MMPRDS - PM/MS C - MMPRDS Program Management Matrix	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.535	Nov 2018	-		0.535	Continuing	Continuing	0.000
MMPRDS - PM/MS C - MMPRDS Program Management Support	MIPR	JPM Guardian : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.357	Nov 2018	-		0.357	Continuing	Continuing	0.000
NTA DEFENSE - PM/MS S - Program Management Support	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	5.683	0.329	Dec 2016	0.317	Dec 2017	0.331	Dec 2018	-		0.331	Continuing	Continuing	0.000
ROSETTA - PM/MS C - Rosetta Program Management and Systems Engineering Support	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.079	Dec 2018	-		0.079	Continuing	Continuing	0.000
		Subtotal	32.787	25.343		34.397		38.785		-		38.785	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	89.262	66.654		127.499		145.653		-		145.653	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

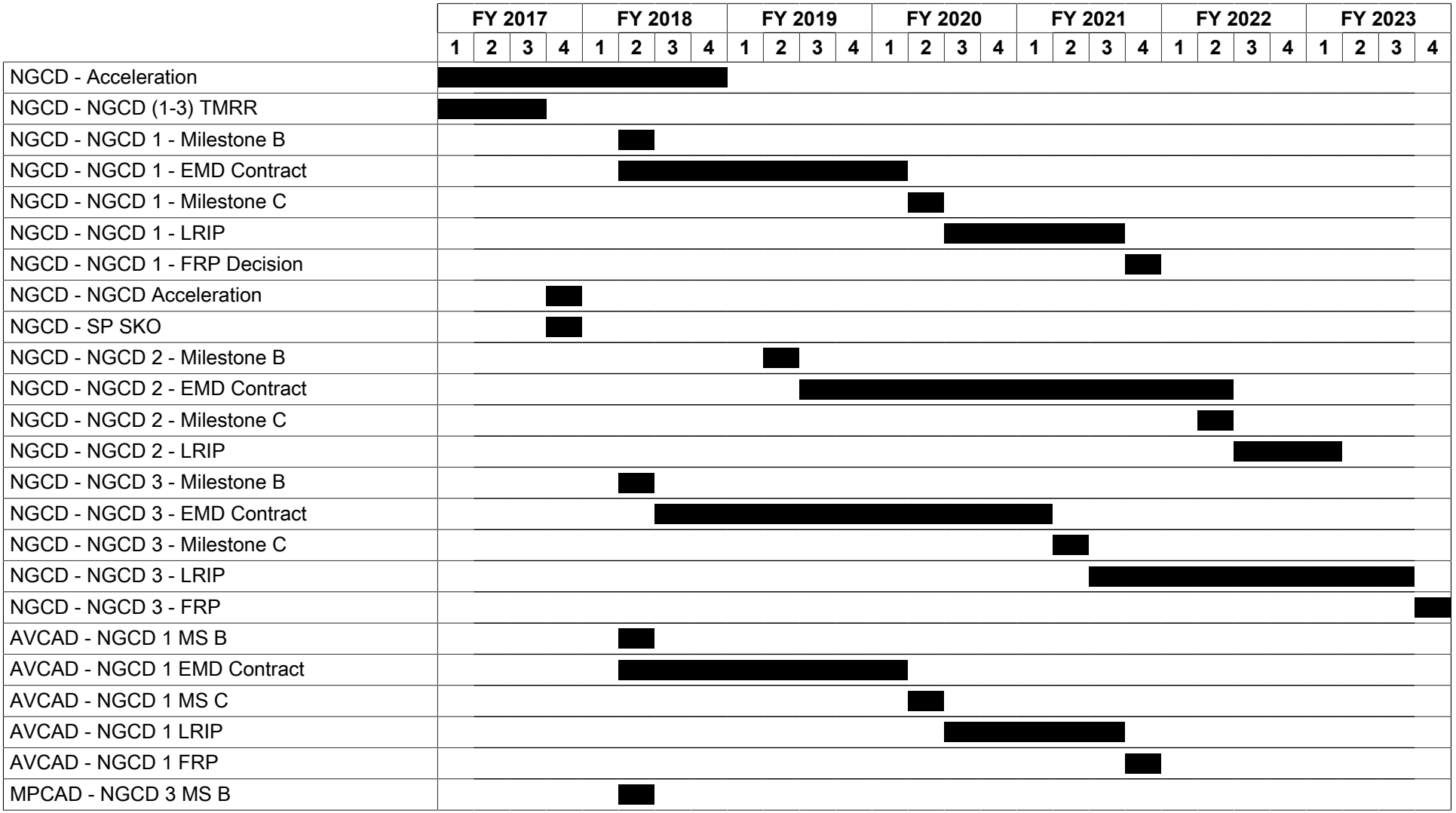

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

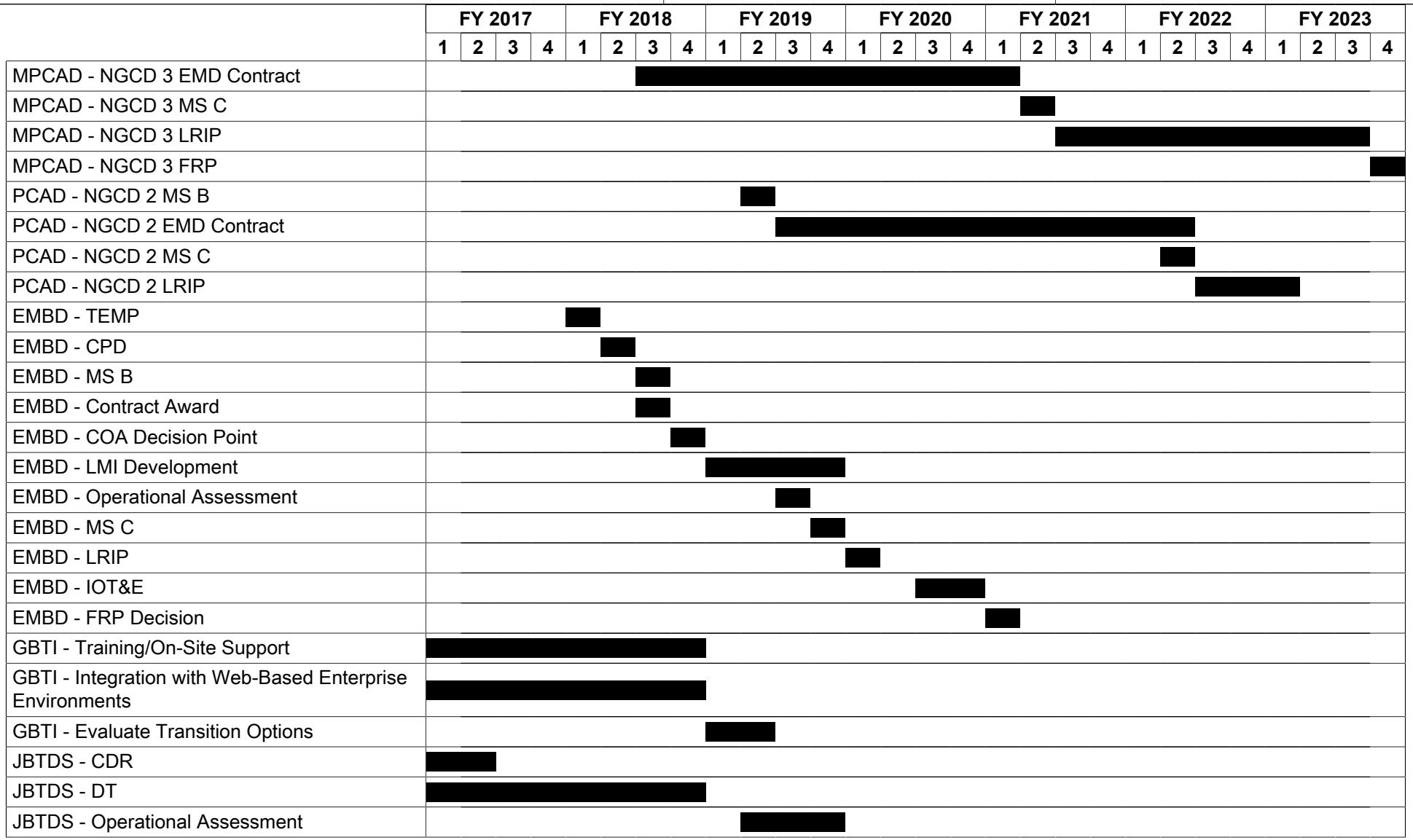

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

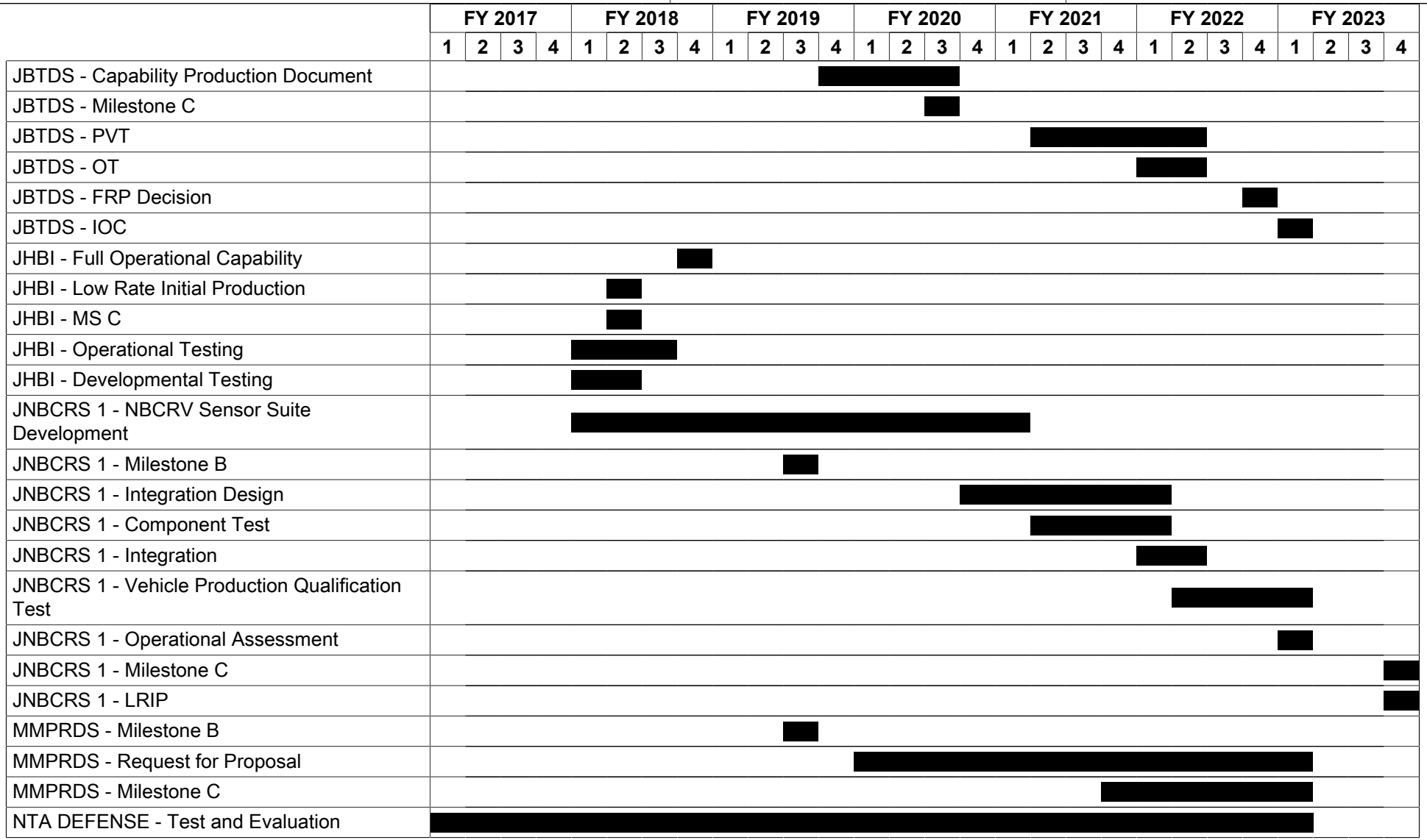

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

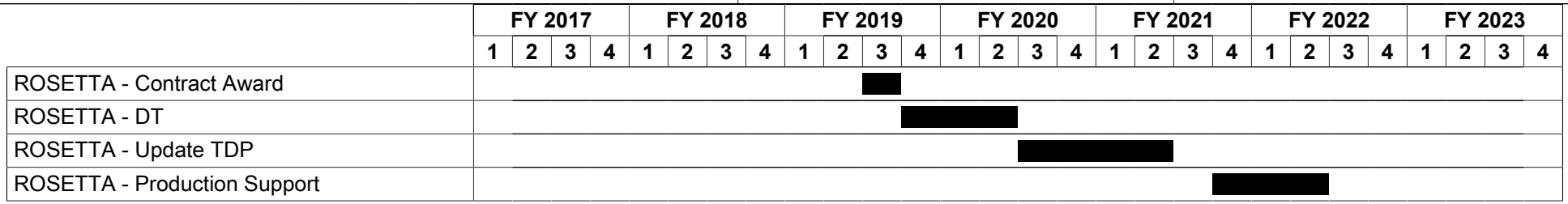

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NGCD - Acceleration	1	2017	4	2018
NGCD - NGCD (1-3) TMRR	1	2017	3	2017
NGCD - NGCD 1 - Milestone B	2	2018	2	2018
NGCD - NGCD 1 - EMD Contract	2	2018	1	2020
NGCD - NGCD 1 - Milestone C	2	2020	2	2020
NGCD - NGCD 1 - LRIP	3	2020	3	2021
NGCD - NGCD 1 - FRP Decision	4	2021	4	2021
NGCD - NGCD Acceleration	4	2017	4	2017
NGCD - SP SKO	4	2017	4	2017
NGCD - NGCD 2 - Milestone B	2	2019	2	2019
NGCD - NGCD 2 - EMD Contract	3	2019	2	2022
NGCD - NGCD 2 - Milestone C	2	2022	2	2022
NGCD - NGCD 2 - LRIP	3	2022	1	2023
NGCD - NGCD 3 - Milestone B	2	2018	2	2018
NGCD - NGCD 3 - EMD Contract	3	2018	1	2021
NGCD - NGCD 3 - Milestone C	2	2021	2	2021
NGCD - NGCD 3 - LRIP	3	2021	3	2023
NGCD - NGCD 3 - FRP	4	2023	4	2023
AVCAD - NGCD 1 MS B	2	2018	2	2018
AVCAD - NGCD 1 EMD Contract	2	2018	1	2020
AVCAD - NGCD 1 MS C	2	2020	2	2020
AVCAD - NGCD 1 LRIP	3	2020	3	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AVCAD - NGCD 1 FRP	4	2021	4	2021
MPCAD - NGCD 3 MS B	2	2018	2	2018
MPCAD - NGCD 3 EMD Contract	3	2018	1	2021
MPCAD - NGCD 3 MS C	2	2021	2	2021
MPCAD - NGCD 3 LRIP	3	2021	3	2023
MPCAD - NGCD 3 FRP	4	2023	4	2023
PCAD - NGCD 2 MS B	2	2019	2	2019
PCAD - NGCD 2 EMD Contract	3	2019	2	2022
PCAD - NGCD 2 MS C	2	2022	2	2022
PCAD - NGCD 2 LRIP	3	2022	1	2023
EMBD - TEMP	1	2018	1	2018
EMBD - CPD	2	2018	2	2018
EMBD - MS B	3	2018	3	2018
EMBD - Contract Award	3	2018	3	2018
EMBD - COA Decision Point	4	2018	4	2018
EMBD - LMI Development	1	2019	4	2019
EMBD - Operational Assessment	3	2019	3	2019
EMBD - MS C	4	2019	4	2019
EMBD - LRIP	1	2020	1	2020
EMBD - IOT&E	3	2020	4	2020
EMBD - FRP Decision	1	2021	1	2021
GBTI - Training/On-Site Support	1	2017	4	2018
GBTI - Integration with Web-Based Enterprise Environments	1	2017	4	2018
GBTI - Evaluate Transition Options	1	2019	2	2019
JBTDS - CDR	1	2017	2	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JBTDS - DT	1	2017	4	2018
JBTDS - Operational Assessment	2	2019	4	2019
JBTDS - Capability Production Document	4	2019	3	2020
JBTDS - Milestone C	3	2020	3	2020
JBTDS - PVT	2	2021	2	2022
JBTDS - OT	1	2022	2	2022
JBTDS - FRP Decision	4	2022	4	2022
JBTDS - IOC	1	2023	1	2023
JHBI - Full Operational Capability	4	2018	4	2018
JHBI - Low Rate Initial Production	2	2018	2	2018
JHBI - MS C	2	2018	2	2018
JHBI - Operational Testing	1	2018	3	2018
JHBI - Developmental Testing	1	2018	2	2018
JNBCRS 1 - NBCRV Sensor Suite Development	1	2018	1	2021
JNBCRS 1 - Milestone B	3	2019	3	2019
JNBCRS 1 - Integration Design	4	2020	1	2022
JNBCRS 1 - Component Test	2	2021	1	2022
JNBCRS 1 - Integration	1	2022	2	2022
JNBCRS 1 - Vehicle Production Qualification Test	2	2022	1	2023
JNBCRS 1 - Operational Assessment	1	2023	1	2023
JNBCRS 1 - Milestone C	4	2023	4	2023
JNBCRS 1 - LRIP	4	2023	4	2023
MMPRDS - Milestone B	3	2019	3	2019
MMPRDS - Request for Proposal	1	2020	1	2023
MMPRDS - Milestone C	4	2021	1	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *CONTAMINATION AVOIDANCE (EMD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NTA DEFENSE - Test and Evaluation	1	2017	1	2023
ROSETTA - Contract Award	3	2019	3	2019
ROSETTA - DT	4	2019	2	2020
ROSETTA - Update TDP	3	2020	2	2021
ROSETTA - Production Support	4	2021	2	2022

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	Project (Number/Name) CM5 / *HOMELAND DEFENSE (EMD)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
CM5: *HOMELAND DEFENSE (EMD)*	-	12.223	21.411	6.000	-	6.000	11.200	0.000	0.000	0.000	0.000	50.834
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project supports Engineering and Manufacturing Development of the following program: The Common Analytical Laboratory System capability (CALS) will be modular, scalable and adaptable to a variety of concept of operations (CONOPS) and environmental conditions. Currently, fielded systems have been designed and fielded independently by the services with the intent of meeting a specific unit requirement. As a result, multiple mobile lab configurations exist with differing sustainment tails and lacking in commonality. The CALS will provide common analytical capabilities packaged to meet the specific CONOPS and mission of the gaining unit. The analytical capabilities will detect and identify Chemical Warfare Agents (CWAs), Toxic Industrial Chemicals (TICs), Toxic Industrial Materials (TIMs) and Biological Warfare Agents (BWAs). Users of the system will include the National Guard Bureau Civil Support Teams, the Army 20th Support Command, the Army Medical Laboratory, the Air Force, the Marine Corps, and the Navy.

There will be three variants of CALS as detailed below:

1. Field Confirmatory Integrated System (FC-IS) Variant - NGB and Marine Corp User
-Integrates CBR systems into a common make / model 20-foot International Standard Organization (ISO) container. The container will be integrated onto the International Durastar vehicle to support employment.

2. Theater Validation Integrated System (TV-IS) Variant - Army User
-Similar to the FC-IS but provides a higher level of confidence in analytical results through the use of orthogonal (complimentary) technologies and an expanded analytical suite. This system employs multiple standardized ISO containers, which will be integrated onto one Family of Medium Tactical Vehicles (FMTV) and one trailer, to support the needed additional laboratory space.

3. Field Confirmatory Analytical Capability Sets (FC-ACS) Variant - Army, Navy, Air Force and NGB User - A palletized / transportable equipment subsets that allows them to be loaded into transport cases and palletized. Enables the users to receive the Chemical and Biological (CB) subsystems that meet their specific mission profiles.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) CALS - System Level Prototype Variant Development and Manufacturing	4.776	6.554	0.147
Description: Development of System Level variant prototypes ensuring integration and connectivity between modules as a general system layout. This includes raw and semi-fabricated material plus purchased parts materials, fabrication, processing,			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *HOMELAND DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
subassembly, final assembly, reworking modification, and installation of parts and equipment, power plants, electronic equipment, and other items (including government-Furnished equipment [GFE]), and the proving of such equipment and instruments for the specified system prototype. ***FY 2018 Plans:*** Continue engineering changes and refurbishment of variant prototypes ensuring integration and connectivity between modules as a general system layout. Major system design changes are required during the EMD phase for the FC IS and TV IS variants, this was directed by the Joint Requirements Office (JRO) ***FY 2019 Plans:*** Continue engineering changes and refurbishment of variant prototypes ensuring integration and connectivity between modules as a general system layout for the TV IS. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.			
Title: 2) CALS - System Level Test and Evaluation ***Description:*** System Level test and evaluation activities to include detailed planning, conduct, support, data reduction, and reports from such testing. ***FY 2018 Plans:*** Continue System Level Developmental Test (DT), Logistics Demonstration and contract verification testing for field confirmatory and theater validation variants. Initiate Operational Test for the Analytical Capability Sets (ACS). ***FY 2019 Plans:*** Complete System Level Testing and engineering changes / refurbishment of variant prototypes ensuring integration and connectivity between modules as a general system layout. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.	3.053	7.293	3.861
Title: 3) CALS - System Integration Laboratory ***Description:*** Establishment of a System Integration laboratory to assist in the mitigation of programmatic risk and to facilitate the evaluation and integration of subsystem CBRN modules into System level prototypes. ***FY 2018 Plans:***	0.400	0.642	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *HOMELAND DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Complete system integration laboratory analysis risk reduction and activities to incorporate analysis of variant system configurations, capabilities, engineering controls, information assurance and DoD Information Assurance Certification and Accreditation Procedure (DIACAP) requirements. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.			
Title: 4) CALS - Safety Release Internal Review Board ***FY 2018 Plans:*** Continue the process for obtaining safety release for all CALS variants in preparation for Logistics Demonstration. Safety release for all equipment is required prior to utilizing active duty personnel for testing activities. ***FY 2019 Plans:*** Continue the process for obtaining safety release for all CALS variants in preparation for Logistics Demonstration. Safety release for all equipment is required prior to utilizing active duty personnel for testing activities. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.	0.182	0.200	0.100
Title: 5) CALS - System Engineering and Program Management ***Description:*** System engineering and technical control, as well as the business management of the system/program. It encompasses the overall planning, direction and control of the definition, development, and production of the system/program, including functions of logistics engineering and integrated logistics support (ILS) management (e.g., maintenance support, facilities, personnel, training, testing). ***FY 2018 Plans:*** Continue System and Program Management Support to provide management and engineering, quality assurance and design support in preparation of Critical Design Review, manufacture of prototypes, and testing. Major system design changes are required during the EMD phase for the FC IS and TV IS variants, this was directed by the Joint Requirements Office (JRO). ***FY 2019 Plans:*** Continue System and Program Management Support to provide management and engineering, quality assurance and design support in preparation of Critical Design Review, manufacture of prototypes, and testing of the TV IS. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.	3.812	6.722	1.892
Accomplishments/Planned Programs Subtotals	12.223	21.411	6.000

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *HOMELAND DEFENSE (EMD)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• JS0005: *COMMON ANALYTICAL LABORATORY SYSTEM (CALS)*	23.100	16.402	48.317	-	48.317	55.636	71.483	70.891	70.637	Continuing	Continuing

Remarks

D. Acquisition Strategy

COMMON ANALYTICAL LABORATORY SYSTEM (CALS)

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

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *HOMELAND DEFENSE (EMD)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CALS - HW S - ACS Operational Test (OT)	C/FP	TBD : TBD	0.000	0.000		3.439	Mar 2018	0.000		-		0.000	0.000	3.439	0.000
CALS - HW S Prototype System Manufacturing	C/CPIF	Battelle Memorial Institute : Columbus, OH	24.596	4.876	Jan 2017	6.554	Dec 2018	0.147	Nov 2018	-		0.147	0.000	36.173	0.000
CALS - HW S - NGDS Tactical Variant Alpha Prototype	C/CPFF	BioFire Dx : Salt Lake City, UT	1.501	0.000		0.354	Mar 2018	0.000		-		0.000	0.000	1.855	0.000
		Subtotal	26.097	4.876		10.347		0.147		-		0.147	0.000	41.467	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CALS - ES S - Engineering Support System	C/FFP	Various : Various	7.773	2.148	Feb 2017	3.308	Feb 2018	0.000		-		0.000	0.000	13.229	0.000
CALS - ES C - Other Government Agencies (DT/OT) Services	MIPR	Various : Various	0.000	0.000		0.946	Jan 2018	1.066	Jan 2019	-		1.066	0.000	2.012	0.000
CALS - ES S - System Integration Laboratory Support	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.936	0.400	Jan 2017	0.642	Jan 2018	0.000		-		0.000	0.000	1.978	0.000
CALS - TD/D S - CALS - Safety Internal Review Board	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.182	Mar 2017	0.200	Mar 2018	0.100	Mar 2019	-		0.100	0.000	0.482	0.000
		Subtotal	8.709	2.730		5.096		1.166		-		1.166	0.000	17.701	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *HOMELAND DEFENSE (EMD)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CALS - DTE S - DT/OT and LOGDEMO	C/CPIF	Battelle Memorial Institute : Columbus, OH	0.000	0.000		1.267	Jan 2018	0.000		-		0.000	0.000	1.267	0.000
CALS - DTE S - System DT/OT and LOGDEMO	MIPR	Dugway Proving Ground (DPG) : Dugway, UT	0.000	3.182	Feb 2017	1.818	Jan 2018	3.631	Feb 2019	-		3.631	0.000	8.631	0.000
CALS - OTHT C - Operation Test Agencies	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	0.150	0.000		1.977	Jan 2018	0.299	Feb 2019	-		0.299	0.000	2.426	0.000
		Subtotal	0.150	3.182		5.062		3.930		-		3.930	0.000	12.324	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CALS - PM/MS HW - Program Office - Planning and Programming	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	6.453	1.435	Mar 2017	0.906	Jan 2018	0.757	Nov 2018	-		0.757	0.000	9.551	0.000
		Subtotal	6.453	1.435		0.906		0.757		-		0.757	0.000	9.551	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	41.409	12.223		21.411		6.000		-		6.000	0.000	81.043	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *HOMELAND DEFENSE (EMD)*

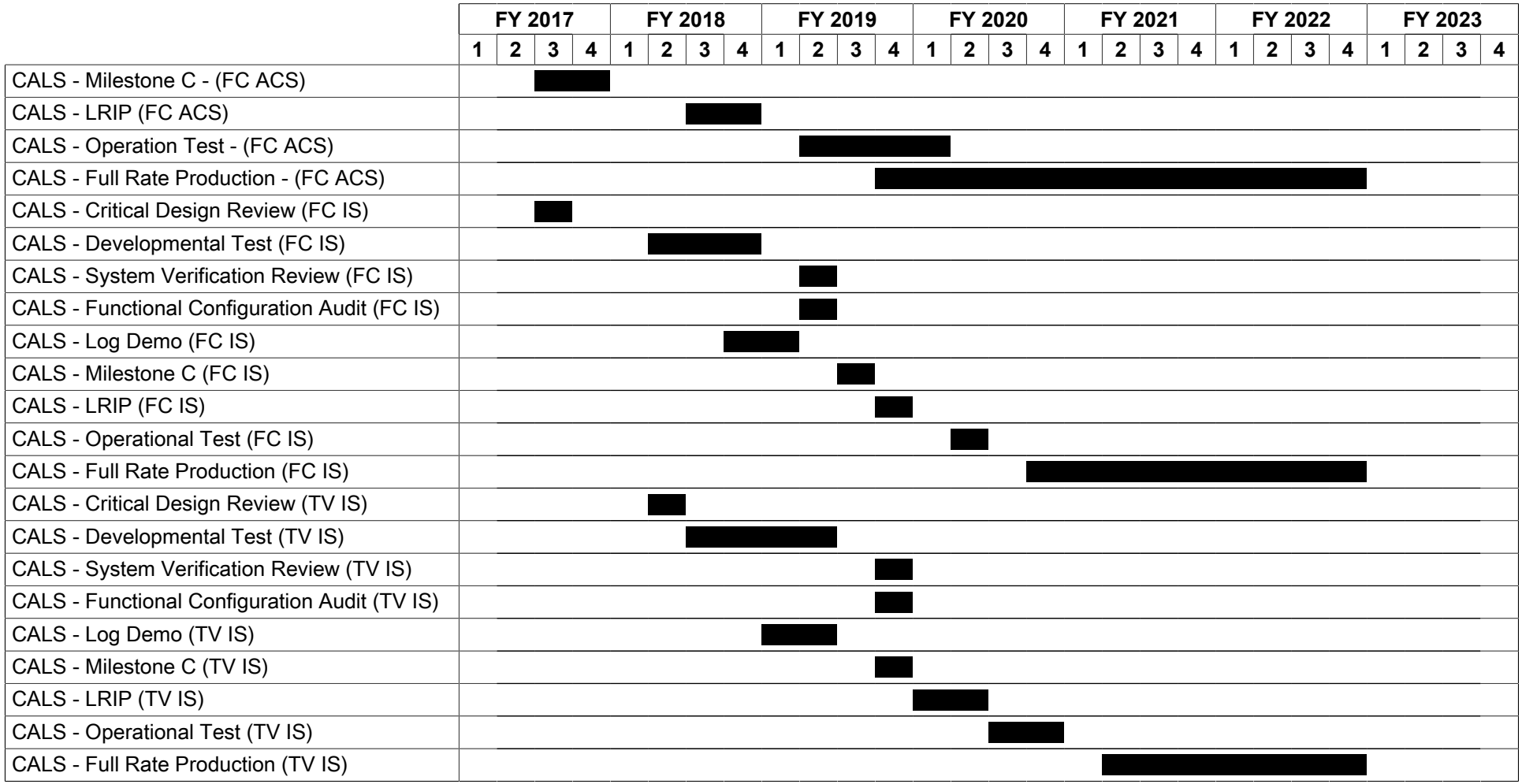

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *HOMELAND DEFENSE (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CALS - Milestone C - (FC ACS)	3	2017	4	2017
CALS - LRIP (FC ACS)	3	2018	4	2018
CALS - Operation Test - (FC ACS)	2	2019	1	2020
CALS - Full Rate Production - (FC ACS)	4	2019	4	2022
CALS - Critical Design Review (FC IS)	3	2017	3	2017
CALS - Developmental Test (FC IS)	2	2018	4	2018
CALS - System Verification Review (FC IS)	2	2019	2	2019
CALS - Functional Configuration Audit (FC IS)	2	2019	2	2019
CALS - Log Demo (FC IS)	4	2018	1	2019
CALS - Milestone C (FC IS)	3	2019	3	2019
CALS - LRIP (FC IS)	4	2019	4	2019
CALS - Operational Test (FC IS)	2	2020	2	2020
CALS - Full Rate Production (FC IS)	4	2020	4	2022
CALS - Critical Design Review (TV IS)	2	2018	2	2018
CALS - Developmental Test (TV IS)	3	2018	2	2019
CALS - System Verification Review (TV IS)	4	2019	4	2019
CALS - Functional Configuration Audit (TV IS)	4	2019	4	2019
CALS - Log Demo (TV IS)	1	2019	2	2019
CALS - Milestone C (TV IS)	4	2019	4	2019
CALS - LRIP (TV IS)	1	2020	2	2020
CALS - Operational Test (TV IS)	3	2020	4	2020
CALS - Full Rate Production (TV IS)	2	2021	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	Project (Number/Name) CO5 / *COLLECTIVE PROTECTION (EMD)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
CO5: *COLLECTIVE PROTECTION (EMD)*	-	2.640	8.546	10.802	-	10.802	5.333	4.930	0.000	0.000	0.000	32.251
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project supports Engineering and Manufacturing Development and Low Rate Initial Production (EMD/LRIP) of Joint Service Chemical, Biological, and Radiological (CBR) Collective Protection (CP) systems that are smaller, lighter, less costly to produce and maintain, and more logistically supportable enabling mission accomplishment in CBR environments. CP systems can be installed on any type of platform, such as, hard and soft shelters, vehicles, ships, aircraft, and buildings. CP systems provide spaces safe from the effects of CBR contamination. Experimentation and demonstration will be used in this phase to reduce risk and inform supporting Concept of Operations (CONOPS) and Tactics, Techniques and Procedures (TTPs).

The systems included in this project are: (1) Chemical-Biological Aircraft Survivability Barrier (CASB) and (2) Joint Expeditionary Collective Protection (JECP) Family of Systems.

The CASB will provide a lightweight, low-cost, expendable, negative-pressure enclosure that will protect the interior of multi-service aircraft (MH-47, CV22, MC-130) capable of airlifting/exfiltrating chemically or biologically contaminated personnel, equipment, contagious patients, and cargos while preserving the aircraft for continued unrestricted operations without need for extensive decontamination.

JECP provides the Joint Expeditionary Forces a CP capability which is lightweight, compact, modular, and affordable. JECP is a family of systems, developed in two phases, that will allow the application of CP to transportable soft-side shelters, enclosed spaces of opportunity, and in remote austere locations as a standalone resource. Phase 1 includes standalone CP systems and kits to provide existing host platforms and structures with CBRN protection. Phase 2 includes kits to provide CBRN protection to other host platforms and structures that were not explicitly designed in Phase 1. JECP will be capable of protecting personnel groups of varying size, unencumbered by Individual Protective Equipment (IPE), from the effects of CB agents, Toxic Industrial Materials (TIMs), radiological particles, heat, dust, and sand. The employment of JECP is a strategic deterrence against enemy use of CBR agents or TIMs, and will reduce the need for personnel and equipment decontamination.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) Chemical and Biological Aircraft Survivability Barrier (CASB)	-	3.247	4.830
Description: Developmental Testing and Prototype Development			
FY 2018 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Conduct Technical reviews to include a Technology Readiness Assessment (TRA), Manufacturing Readiness Assessment (MRA), Critical Design Review (CDR), Draft Request for Proposal (RFP), Lifecycle Sustainment Plan (LCSP) and Test and Evaluation Master Plan (TEMP), Initiate Developmental Testing on prototypes to include chemical and biological filtration protection, swatch/ permeation, reliability/availability. ***FY 2019 Plans:*** Complete Developmental Test and Evaluation (DT&E), conduct an Operational Assessment (OA), and complete operational test and evaluation needed to support Airworthiness (AWR) Certification. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Engineering and Manufacturing Development Phase.			
Title: 2) JECP - Phase 1 Full Rate Production (FRP) Preparations ***Description:*** Preparations for Phase I FRP Decision and Type Classification/Materiel Release (TC/MR).	2.640	-	-
Title: 3) JECP - Phase 2 System Development and Demonstration ***Description:*** Phase 2 system development and demonstration events. ***FY 2018 Plans:*** Continue design and development of Phase 2 tent kits to address emerging service requirements for collective protection to new host platforms. Continue prototyping, changes to logistic support products, and continue updates to the Govt owned Tech Data Package. Begin test planning and initiate developmental testing. ***FY 2019 Plans:*** Continue design and development of Phase 2 tent kits to address emerging service requirements for collective protection to new host platforms. Continue prototyping, changes to logistic support products, and continue updates to the Government owned Technical Data Package. Begin test planning and initiate developmental testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase/Decrease due to change in program/project schedule.	-	5.299	5.972
Accomplishments/Planned Programs Subtotals	2.640	8.546	10.802

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• JP1111: *JOINT EXPEDITIONARY COLLECTIVE PROTECTION (JECP)*	13.699	10.728	22.752	-	22.752	17.592	22.218	25.793	39.293	Continuing	Continuing

Remarks

D. Acquisition Strategy

CHEMICAL BIOLOGICAL AIRCRAFT SURVIVABILITY BARRIER (CASB)

CASB will field a capability that will support the overall intent of the (Aircraft CBRN Contamination Survivability ACCS) Initial Capabilities Development (ICD) in the areas of barriers, aircraft containment systems, modular Collective Protection (ColPro) for aircraft interiors, and disposable ColPro. CASB is one member of a family of systems that will support the ICD. It will protect the interior of DoD airlift assets from incidental cross-contamination by CB-contaminated personnel and equipment and cargos under transport. The overall strategy is to utilize primary materials (air filtration and flexible barrier material) currently in use by other programs in the CB defense portfolio in a negative pressure system specifically designed for airframe use. CASB will review existing materials and technology as well as designs, configurations, and test data from legacy systems developed for ColPro applications. Using this information, systems will be developed to meet the broader range of airframes and airframe specific requirements, chemical biological protection and logistic supportability that are now required. Based on commonality between the requirements of the CASB and the requirements of similar programs (i.e. Joint Expeditionary Collective Protection, TIS, and Aeromedical Biological Containment System), CASB will be initiated at MS B EMD phase to meet these expanded requirements within the various airframes. CASB will leverage an IDIQ contract to pursue a Commercial-of-the-Shelf (COTS) development strategy using full and open competition for awards following MS B and MS C. During the EMD phase, CASB intends to award a Cost Plus Incentive Fee (CPIF) delivery order for the development and delivery of prototypes for airworthiness certification within two years. During the Production phase, CASB intends to pursue a Fixed Price Incentive Fee (FPIF) delivery order to reduce the logistical burden and sustainment costs.

JOINT EXPEDITIONARY COLLECTIVE PROTECTION (JECP)

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

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CO5 / *COLLECTIVE PROTECTION (EMD)*

unit types for use with collective protection. These efforts involve a simplified acquisition procurement contract and exploitation of commercial off-the-shelf items. BA7 product development and testing will continue through FY19 with an expectation to achieve production readiness at the end of FY19.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CO5 / *COLLECTIVE PROTECTION (EMD)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CASB - HW S - Prototype Development, TRA, MRA	MIPR	Various : Various	0.000	0.000		1.057	Nov 2017	0.123	Apr 2019	-		0.123	0.000	1.180	0.000
JECP - HW S - Phase 2 System Product Development	C/FPIF	TBD : TBD	0.000	0.000		1.865	Nov 2017	1.214	Jan 2019	-		1.214	0.000	3.079	0.000
JECP - HW S - Phase 2 Prototype Manufacturing	C/FPIF	TBD : TBD	0.000	0.000		0.000		1.187	Jan 2019	-		1.187	0.000	1.187	0.000
JECP - HW S - Non-recurring Engineering	C/FPIF	Leidos : Abingdon, MD	5.372	0.598	Nov 2016	0.000		0.000		-		0.000	0.000	5.970	0.000
		Subtotal	5.372	0.598		2.922		2.524		-		2.524	0.000	11.416	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CASB - ES S - IPT and Technical Support	MIPR	Various : Various	0.000	0.000		0.550	Nov 2017	1.000	Nov 2018	-		1.000	0.000	1.550	0.000
JECP - ES S - Systems Engineering Oversight	MIPR	Naval Surface Warfare Center (NSWC) - Dahlgren Center : Dahlgren, VA	1.348	0.098	Nov 2016	0.335	Nov 2017	0.342	Nov 2018	-		0.342	0.000	2.123	0.000
JECP - ES S - Systems Engineering IPT	MIPR	Various : Various	7.031	0.234	Nov 2016	0.463	Nov 2017	0.472	Nov 2018	-		0.472	0.000	8.200	0.000
JECP - ILS S - Integrated Logistics IPT	MIPR	Various : Various	6.014	0.731	Nov 2016	0.852	Nov 2017	0.869	Nov 2018	-		0.869	0.000	8.466	0.000
		Subtotal	14.393	1.063		2.200		2.683		-		2.683	0.000	20.339	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CO5 / *COLLECTIVE PROTECTION (EMD)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CASB - OTE S - Operational Testing	MIPR	Various : Various	0.000	0.000		0.000		1.000	Apr 2019	-		1.000	0.000	1.000	0.000
CASB - DTE S - Developmental Testing	MIPR	Various : Various	0.000	0.000		1.470	Nov 2017	1.500	Nov 2018	-		1.500	0.000	2.970	0.000
JECP - OTHT SB - Test & Evaluation IPT	MIPR	Various : Various	7.277	0.339	Nov 2016	0.523	Nov 2017	0.532	Nov 2018	-		0.532	0.000	8.671	0.000
JECP - DTE S - SKUI PVT - Vapor Challenge Testing	MIPR	28th Test and Evaluation Squadron : Eglin AFB, FL	0.000	0.193	Nov 2016	0.000		0.000		-		0.000	0.000	0.193	0.000
JECP - DTE S - Phase 2 Systems Production Verification Testing	MIPR	Various : Various	0.000	0.000		0.653	Nov 2017	0.000		-		0.000	0.000	0.653	0.000
		Subtotal	7.277	0.532		2.646		3.032		-		3.032	0.000	13.487	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CASB - PM/MS S - Program Management Support	MIPR	Various : Various	0.000	0.000		0.170	Nov 2017	1.207	Nov 2018	-		1.207	0.000	1.377	0.000
JECP - PM/MS S - Program Management Support	MIPR	Various : Various	10.416	0.447	Nov 2016	0.608	Nov 2017	1.356	Nov 2018	-		1.356	0.000	12.827	0.000
		Subtotal	10.416	0.447		0.778		2.563		-		2.563	0.000	14.204	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	37.458	2.640		8.546		10.802		-		10.802	0.000	59.446	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CO5 / *COLLECTIVE PROTECTION (EMD)*

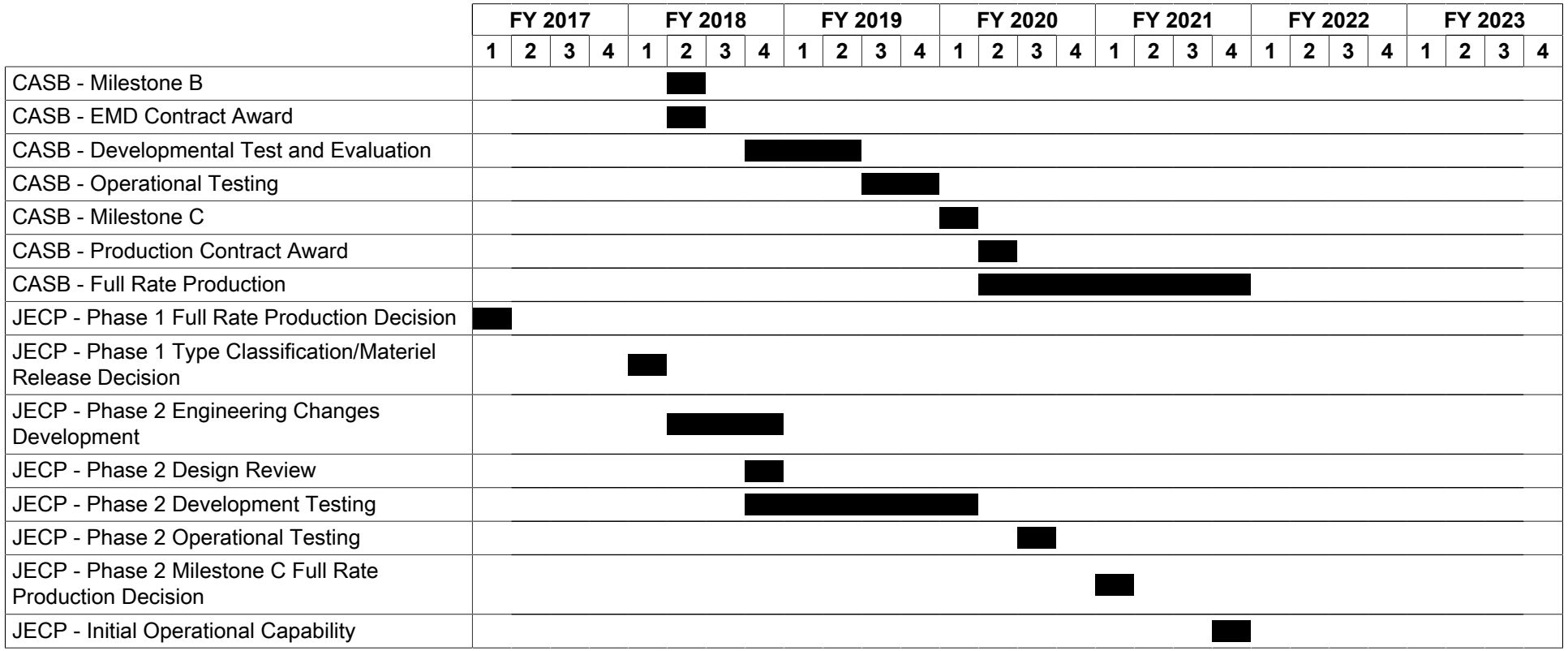

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CO5 / *COLLECTIVE PROTECTION (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CASB - Milestone B	2	2018	2	2018
CASB - EMD Contract Award	2	2018	2	2018
CASB - Developmental Test and Evaluation	4	2018	2	2019
CASB - Operational Testing	3	2019	4	2019
CASB - Milestone C	1	2020	1	2020
CASB - Production Contract Award	2	2020	2	2020
CASB - Full Rate Production	2	2020	4	2021
JECP - Phase 1 Full Rate Production Decision	1	2017	1	2017
JECP - Phase 1 Type Classification/Materiel Release Decision	1	2018	1	2018
JECP - Phase 2 Engineering Changes Development	2	2018	4	2018
JECP - Phase 2 Design Review	4	2018	4	2018
JECP - Phase 2 Development Testing	4	2018	1	2020
JECP - Phase 2 Operational Testing	3	2020	3	2020
JECP - Phase 2 Milestone C Full Rate Production Decision	1	2021	1	2021
JECP - Initial Operational Capability	4	2021	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	Project (Number/Name) DE5 / *DECONTAMINATION SYSTEMS (EMD)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
DE5: *DECONTAMINATION SYSTEMS (EMD)*	-	8.881	15.686	14.049	-	14.049	13.347	15.542	11.493	24.821	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides Engineering and Manufacturing Development (EMD) for: (1) Major Defense Acquisition Program (MDAP); (2) Decontamination Family of Systems (DFoS) Contamination Indicator Decontamination Assurance System (CIDAS); (3) DFoS General Purpose Decontaminant (GPD); and (4) Joint Biological Agent Decontamination System (JBADS). Experimentation and demonstration will be used in this phase to reduce risk and inform supporting materiel solutions, Concept of Operations and Tactics, Techniques & Procedures.

The MDAP Chemical Biological Radiological and Nuclear (CBRN) Survivability Initiative ensures weapon system programs at all Acquisition Category (ACAT) levels, as well as non-DoD agency programs such as those programs at the Department of Homeland Security (DHS), meet their CBRN defense requirements. This effort facilitates and coordinates the research, development, test and evaluation, procurement, delivery, and life cycle sustainment of affordable CBRN defense materiel solutions for each program's documented CBRN requirements.

DFoS CIDAS is a contamination indicator/decontamination assurance technology. It will consist of an indicator and an applicator, for which there will be three applicator configurations (small-scale, tactical large scale, and reusable large scale applicators) and three indicator formulations (nerve training, nerve and blister indicators). The indicator will be sprayed on tactical vehicles, aircraft, ships, crew-served weapons, and individual weapons that may have been exposed to traditional and non-traditional chemical contamination. DFoS CIDAS is a new capability for the Joint Forces that will reduce the logistics burden of decontamination by indicating presence and location of traditional (Nerve and Blister) and non-traditional chemical agents on militarily relevant surfaces pre- and post-decontamination.

DFoS GPD is a liquid, field adjustable decontaminant for chemical and biological agents that will provide thorough decontamination capabilities for tactical vehicles, shipboard surfaces, crewserved weapons, and individual/personal weapons in hostile and non-hostile environments that have been exposed to traditional and non-traditional CB contamination while providing the lowest logistical footprint.

The JBADS will provide the capability to conduct biological agent decontamination of the interior and exterior of the C-130 aircraft. The JBADS 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. Future capability may address biological decontamination of other airframes and vehicles.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) MDAP	0.155	0.157	1.125

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: CBRN Survivability support ***FY 2018 Plans:*** Provide platform specific support for CBRN Survivability Assessments and integration of CBRN Detection, Protection and Decontamination assets. ***FY 2019 Plans:*** Conduct CBRN survivability compliance reviews for Armored Multi-Purpose Vehicle, Combat Rescue Helicopter, Huey Replacement Program, Large Executive Aircraft Recapitalization, Littoral Combat Ship Fast Frigate, European Reassurance Initiative CBRN equipment, in preparation for various program acquisition milestones, system and sub-system test events, design reviews and low rate initial production reviews. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase due to change in program/project schedule.			
Title: 2) DFoS CIDAS ***Description:*** Other Government Activities ***FY 2018 Plans:*** Receive LRIP deliveries and conduct Physical Configuration Audit of nerve indicator and applicators. Conduct Logistics Demonstration, Production Qualification Testing, and begin Multi-Service Operational Test and Evaluation of nerve indicator and applicators. Receive DT deliveries of blister indicator and prepare for DT. ***FY 2019 Plans:*** Prepare for Material Release and Full Rate Production Decision for nerve indicator and applicators. Receive DT deliveries of blister indicator and prepare for DT. Conduct DT and prepare for System Verification Review of blister indicator. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to change in program/project schedule.	3.872	5.777	2.845
Title: 3) DFoS CIDAS ***Description:*** Manufacturing ***FY 2018 Plans:***	0.940	3.706	1.912

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Conduct Physical Configuration Audit of nerve indicator and applicators. Manufacturers will support Logistics Demonstration, Production Qualification Testing, and preparation for Multi-Service Operational Test and Evaluation of nerve indicator and applicators. Award contract for blister indicator DT articles. ***FY 2019 Plans:*** Award contract for blister indicator DT articles. Procure 137 small ($347.97 ea.) and 172 large ($3,488.68 ea.) scale blister indicator kits for developmental testing. Work to reduce the sustainment unit cost of the blister indicator through qualifying alternate sources of raw materials and changing manufacturing processes to increase efficiencies. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to change in program/project schedule.			
Title: 4) DFoS GPD ***Description:*** DFoS GPD Support	0.100	-	-
Title: 5) JBADS ***Description:*** JBADS Development and Testing ***FY 2018 Plans:*** Conduct Product Verification Testing on JBADS system to include MIL-STD 810 and Human Factors Assessment. test ***FY 2019 Plans:*** Conduct/complete Integrated Operational Test & Evaluation (IOT&E). Prepare documentation for Milestone C and IOT&E. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase due to change in program/project schedule.	3.504	5.923	8.167
Title: 6) JBADS Increment II ***FY 2018 Plans:*** Continue IPT and Tech Support for JBADS Increment II efforts. Expand Bio-Thermal Decontamination (BTD) technology and increase technology readiness level for Chemical Warfare Agent Hot Air Decontamination (CHAD). ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase/Decrease due to fact of life change in the program/project.	0.310	0.123	-
Accomplishments/Planned Programs Subtotals	8.881	15.686	14.049

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program			Date: February 2018
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• JD0050: *DECONTAMINATION FAMILY OF SYSTEMS (DFoS)*	4.704	7.285	12.035	-	12.035	13.414	10.869	9.645	10.579	Continuing	Continuing

Remarks

D. Acquisition Strategy

MAJOR DEFENSE ACQUISITION PROGRAM (MDAP)

The MDAP program provides assistance to non-CBD programs with meeting and or optimizing their Chemical, Biological, Radiological, and Nuclear (CBRN) survivability and force protection capabilities. The MDAP also provides systems engineering analyses to develop CBRN specific operational and technical requirements, identifies performance gaps between existing materiel and technical requirements, develops cost and schedule estimates, conducts preliminary CBRN T&E and logistics planning, develops CBRN defense architectures products, and performs trade space analyses for a number of non-CBD programs.

DFoS CONTAMINATION INDICATOR DECONTAMINATION ASSURANCE SYSTEM (DFoS CIDAS)

The DFoS CIDAS program will follow an evolutionary acquisition strategy in consonance with user developed capability documents. Following MS A, the program office collaborated with external efforts, including the Hazard Mitigation, Materiel and Equipment Restoration (HaMMER) Advanced Technology Development Operational Demonstration and Extended User Evaluations, and conducted technology demonstrations on candidate indicator and applicator technologies to mitigate risk and identify affordable mature technologies that meet requirements. The DFoS CIDAS program determined the need for and initiated Government designed reusable and tactical large scale applicators to provide affordable solutions to meet specific User requirements. Following MS B, the program used full and open competition to award a performance based indefinite quantity contract with fixed price incentive successive target contract line items, with options for Low Rate Initial Production (LRIP) and Full Rate Production (FRP) for nerve indicator and small scale applicator systems. The DFoS CIDAS program will award a sole source, performance based indefinite delivery indefinite quantity contract for a blister technology. The program will integrate the Contractor and Government designed indicator and applicators and conduct developmental and operational testing.

DFoS GENERAL PURPOSE DECONTAMINANT (DFoS GPD)

Due to the maturity levels of the systems entering the Technology Development (TD) phase, the Milestone Decision Authority (MDA) issued an Acquisition Decision Memorandum (ADM) which approved DFoS GPD to by-pass Milestone (MS) B and enter directly to MS C Low Rate Initial Production (LRIP). During the TD Phase, the DFoS GPD Program employed a Competitive Prototyping (CP) effort to facilitate the evaluation of Commercial Off The Shelf (COTS) technologies releasing a Request for Proposal (RFP) as a combined synopsis/solicitation for commercial and Non-Developmental Items (NDI), utilizing full and open competition. As the DFoS GPD Program entered the final phase of Technology Development (Developmental Test), the program continued to follow an evolutionary acquisition strategy. Following

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** DE5 / *DECONTAMINATION SYSTEMS (EMD)*

the MS C/LRIP decision the program acquired the Tech Data Package, allowing for the future establishment of an organic production line for LRIP and FRP production quantities. This strategy ensures that all prospective sources, with the capability of meeting the program requirements, have the opportunity to participate.

JOINT BIOLOGICAL AGENT DECONTAMINATION SYSTEM (JBADS)

The JBADS acquisition approach is to leverage information and technology from the JBADS Joint Capability Technology Demonstration (JCTD) to support entry into the Engineering and Manufacturing Development (EMD) phase of the acquisition cycle. The EMD is supported by a Technology Readiness Assessment of 7 from the JCTD. The JBADS will utilize Commercial-off-the-Shelf components for the shelter, the decontamination delivery system, the environmental control and monitoring system(s), and other ancillary components with the award of a competitive contract to produce, operate, and sustain the system. The program as a whole utilizes the evolutionary acquisition approach for future increments that may expand JBADS capabilities to include other platforms (aircraft and vehicles) as requirements dictate.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program			Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DFoS CIDAS - HW S - Nerve Test Assets	C/FPIF	FLIR Detection : Inc, Stillwater, OK	3.826	0.940	Nov 2016	0.424	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000
DFoS CIDAS - HW S - Blister Test Assets	SS/FPIF	FLIR Detection : Inc, Stillwater, OK	0.000	0.000		2.915	Nov 2017	0.741	Nov 2018	-		0.741	Continuing	Continuing	0.000
DFoS CIDAS - HW S - Large Scale Applicators	MIPR	Various : Various	0.917	1.008	Nov 2016	0.367	Nov 2017	0.075	Nov 2018	-		0.075	Continuing	Continuing	0.000
JBADS - HW S - Increment II Chemical Agent Decon Mods	MIPR	Naval Surface Warfare Center (NSWC) - Dahlgren Center : Dahlgren, VA	0.000	0.310	Dec 2016	0.123	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	4.743	2.258		3.829		0.816		-		0.816	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MDAP - TD/D SB - IPT and Technical Support	MIPR	Various : Various	0.193	0.137	Nov 2016	0.140	Nov 2017	0.870	Nov 2018	-		0.870	Continuing	Continuing	0.000
DFoS CIDAS - TD/D S - IPT and Technical Support	MIPR	Various : Various	1.792	1.106	Nov 2016	1.831	Nov 2017	1.056	Nov 2018	-		1.056	Continuing	Continuing	0.000
DFoS GPD - TD/D S - IPT and Technical Support	MIPR	Various : Various	1.542	0.074	Jul 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JBADS - TD/D S - IPT and Technical Support	MIPR	Various : Various	1.294	1.066	Nov 2016	0.842	Nov 2017	1.100	Nov 2018	-		1.100	Continuing	Continuing	0.000
		Subtotal	4.821	2.383		2.813		3.026		-		3.026	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DFoS CIDAS - DTE S - Live Agent / Lab and Operational Testing	MIPR	Various : Various	2.156	1.249	Nov 2016	2.581	Nov 2017	1.753	Nov 2018	-		1.753	Continuing	Continuing	0.000
DFoS GPD - DTE S - Developmental Testing	C/CPFF	Battelle Memorial Institute : Columbus, OH	2.793	0.026	Jul 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JBADS - OTE S - IOT&E	MIPR	Various : Various	0.000	0.000		2.000	Nov 2017	3.946	Nov 2018	-		3.946	Continuing	Continuing	0.000
JBADS - OTHT S - Other TE activities	Various	TBD : TBD	0.000	0.064	Jul 2017	0.000		1.267	Nov 2018	-		1.267	Continuing	Continuing	0.000
JBADS - - Product Verification Testing	MIPR	Various : Various	1.128	0.000		2.210	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	6.077	1.339		6.791		6.966		-		6.966	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MDAP - PM/MS SB - Program Management and Technical Support	MIPR	Various : Various	0.022	0.018	Jan 2017	0.017	Nov 2017	0.255	Nov 2018	-		0.255	Continuing	Continuing	0.000
DFoS CIDAS - PM/MS S - Program Management and Technical Support	MIPR	Various : Various	0.285	0.509	Nov 2016	1.365	Nov 2017	1.132	Nov 2018	-		1.132	Continuing	Continuing	0.000
JBADS - PM/MS S - Program Management & Tech Support	MIPR	Various : Various	0.281	2.374	Nov 2016	0.871	Nov 2017	1.854	Nov 2018	-		1.854	Continuing	Continuing	0.000
		Subtotal	0.588	2.901		2.253		3.241		-		3.241	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	16.229	8.881		15.686		14.049		-		14.049	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	Project (Number/Name) DE5 / *DECONTAMINATION SYSTEMS (EMD)*	

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

Remarks

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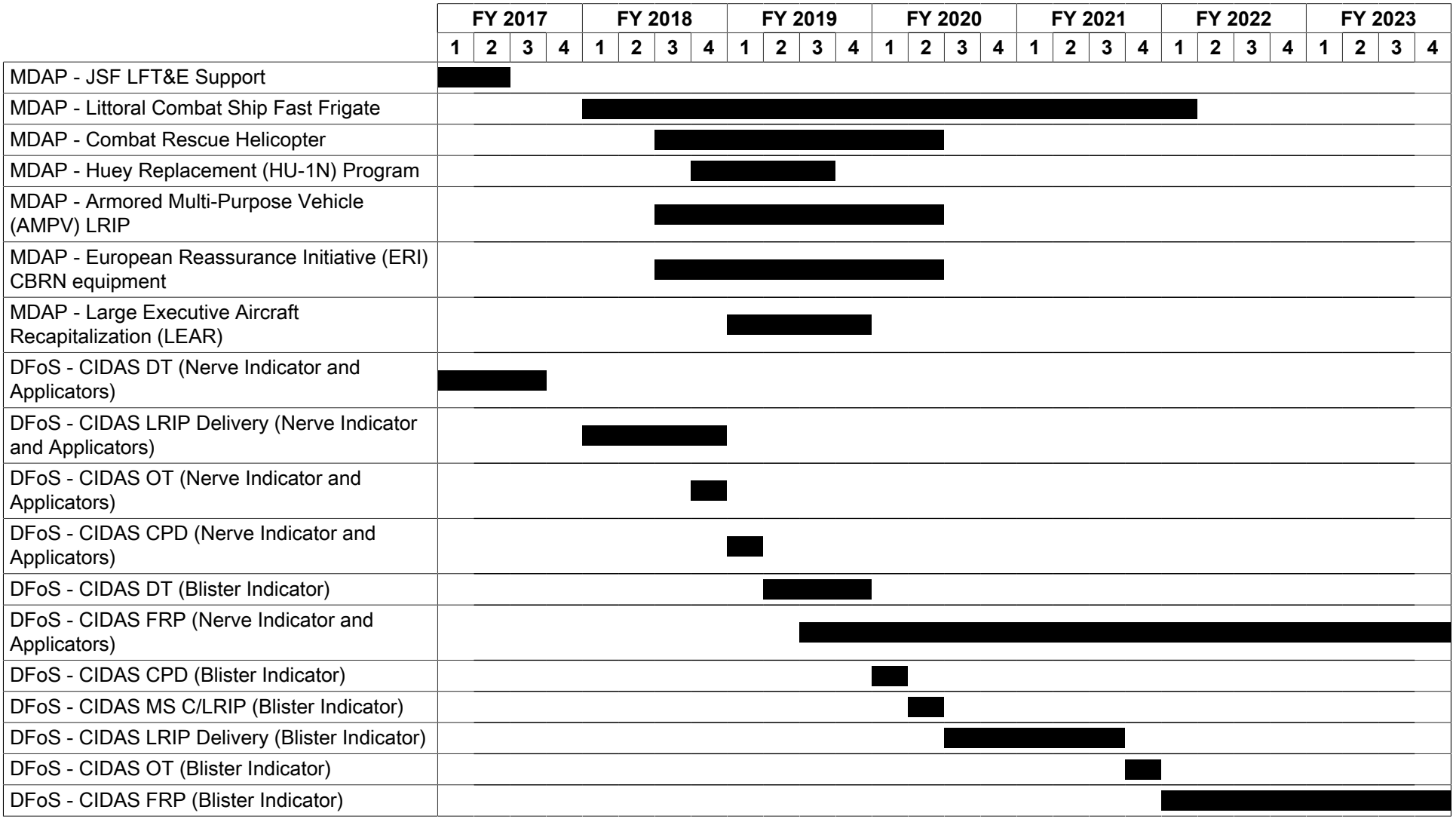

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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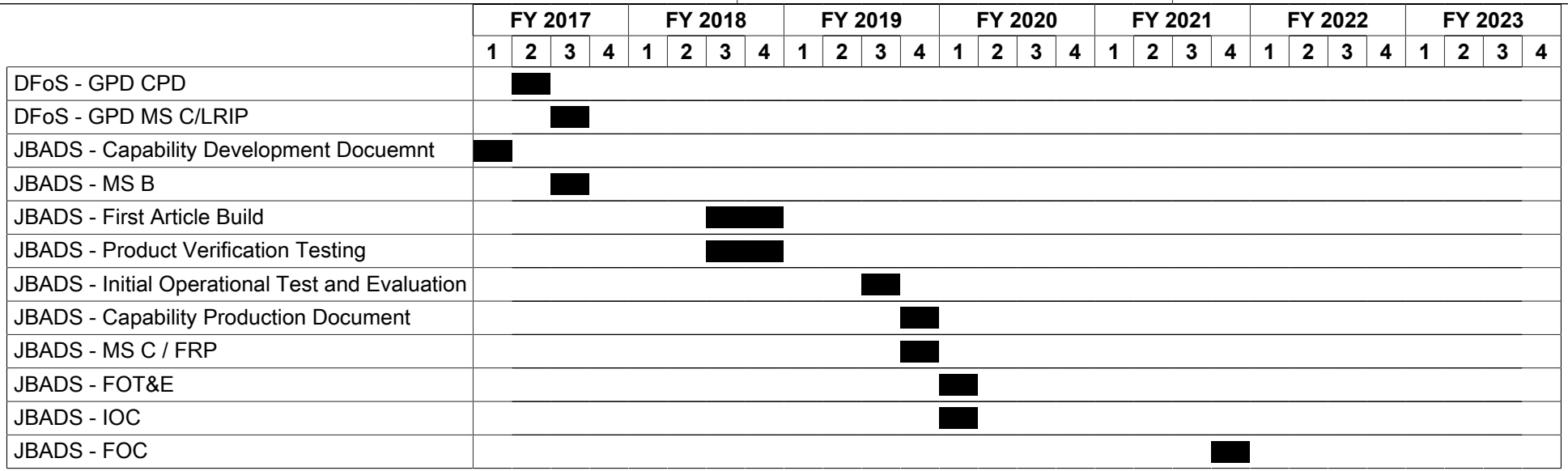

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** DE5 / *DECONTAMINATION SYSTEMS (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MDAP - JSF LFT&E Support	1	2017	2	2017
MDAP - Littoral Combat Ship Fast Frigate	1	2018	1	2022
MDAP - Combat Rescue Helicopter	3	2018	2	2020
MDAP - Huey Replacement (HU-1N) Program	4	2018	3	2019
MDAP - Armored Multi-Purpose Vehicle (AMPV) LRIP	3	2018	2	2020
MDAP - European Reassurance Initiative (ERI) CBRN equipment	3	2018	2	2020
MDAP - Large Executive Aircraft Recapitalization (LEAR)	1	2019	4	2019
DFoS - CIDAS DT (Nerve Indicator and Applicators)	1	2017	3	2017
DFoS - CIDAS LRIP Delivery (Nerve Indicator and Applicators)	1	2018	4	2018
DFoS - CIDAS OT (Nerve Indicator and Applicators)	4	2018	4	2018
DFoS - CIDAS CPD (Nerve Indicator and Applicators)	1	2019	1	2019
DFoS - CIDAS DT (Blister Indicator)	2	2019	4	2019
DFoS - CIDAS FRP (Nerve Indicator and Applicators)	3	2019	4	2023
DFoS - CIDAS CPD (Blister Indicator)	1	2020	1	2020
DFoS - CIDAS MS C/LRIP (Blister Indicator)	2	2020	2	2020
DFoS - CIDAS LRIP Delivery (Blister Indicator)	3	2020	3	2021
DFoS - CIDAS OT (Blister Indicator)	4	2021	4	2021
DFoS - CIDAS FRP (Blister Indicator)	1	2022	4	2023
DFoS - GPD CPD	2	2017	2	2017
DFoS - GPD MS C/LRIP	3	2017	3	2017
JBADS - Capability Development Docuemnt	1	2017	1	2017
JBADS - MS B	3	2017	3	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JBADS - First Article Build	3	2018	4	2018
JBADS - Product Verification Testing	3	2018	4	2018
JBADS - Initial Operational Test and Evaluation	3	2019	3	2019
JBADS - Capability Production Document	4	2019	4	2019
JBADS - MS C / FRP	4	2019	4	2019
JBADS - FOT&E	1	2020	1	2020
JBADS - IOC	1	2020	1	2020
JBADS - FOC	4	2021	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program			Date: February 2018
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COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
IP5: *INDIVIDUAL PROTECTION (EMD)*	-	13.580	14.481	9.953	-	9.953	5.471	4.709	6.556	6.770	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides Engineering & Manufacturing Development Phase and Low Rate Initial Production (EMD/LRIP) for individual protection equipment, with the goal of providing equipment that allows the individual Soldier, Sailor, Airman, or Marine to operate in a contaminated Nuclear, Biological and Chemical (NBC) environment with little or no degradation of his/her performance. Experimentation and demonstration will be used in this phase to reduce risk and inform supporting materiel solutions, Concept of Operations (CONOPS) and Techniques, Tactics, and Procedures (TTP).

Efforts included in this project are: (1) the Joint Service Aircrew Mask (JSAM) Rotary Wing (RW), JSAM for Strategic Aircraft (SA), JSAM for Tactical Aircraft (TA), JSAM Joint Strike Fighter (JSF), and (2) Uniform Integrated Protective Ensemble (UIPE) Family of Systems (Increment 2).

(1) The JSAM RW, JSAM SA, JSAM TA, and JSAM-JSF are Acquisition Category (ACAT) III programs developed to provide respiratory and ocular protection. The JSAM is a lightweight Chemical, Biological, Radiological and Nuclear (CBRN) protective mask for most United States Army (USA), Navy (USN), Air Force (USAF), and Marine Corps (USMC) fixed wing and RW aircrew. All JSAM variants will be compatible with most Below-The-Neck (BTN) CB protection ensembles and existing Aircrew Life Support Equipment (ALSE). They will include a protective hood assembly, CB filter, blower assembly (except JSAM SA), and an intercom for ground communication. They will also provide flame protection, demist/emergency demist (except JSAM SA), and anti-drowning features. The goal of the JSAM programs is to develop, manufacture, field, and sustain an aircrew respirator system that, in conjunction with BTN clothing ensembles, will provide the capability for all aircrew to operate in an actual or perceived CB warfare environment.

The JSAM RW mask is being developed for use by pilots and aircrew in the majority of DoD RW aircraft in the USA (H-60, H-6, H-47, H-72), USAF (H-1 and H-60), and USN/USMC (H-60, H-1, and H-53). The JSAM RW will integrate with most BTN CB ensembles, normal aircrew flight equipment, and RW flight helmets. The system contains a removable face plate, allowing the user to fly "face free" in Mission Oriented Protective Posture (MOPP) 3 (garment, boots, and mask) and easily install the face plate when the threat level dictates, thereby reducing physiological and psychological burden. If threat level warrants, the user can install their face plate into an already donned hood and enter MOPP 4 (garments, boots, gloves and mask) without removing their flight helmet.

The JSAM SA mask will provide individual respiratory, ocular, and percutaneous protection of chemical and biological warfare agents, and select toxic industrial chemicals for USAF (E-3, E-8, C-135s, C-17, C-145, C-146, C-130s, C-5), Aeromedical personnel (C-130s, KC-10, U-18, CV-22, KC-135, C-12s, KC-46), USN (P-8, E-6, C-40, C-12, C-20), USMC (C-9, C-12, C-20, UC-35), and USA (RC-7, C-12s, C-20, C-26, UC-35, C-37) strategic aircrew. The mask components will be optimized to minimize their impact on the wearer's performance and maximize its ability to interface with aircrew protective clothing. JSAM SA will provide pressure breathing for altitude for aircraft that do not require pressure breathing for gravity. JSAM SA will integrate with aircraft subsystems which include aviation life support equipment, aircrew flight equipment, aircraft seating, portable aircrew systems, communications systems, and aircraft oxygen systems.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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The JSAM TA mask will provide individual respiratory, ocular, and percutaneous protection of chemical and biological warfare agents, and select toxic industrial chemicals for USAF (F-22 A), USN (C-2 A, E-2 C/D, E/A-18G, F/A-18 A/C/E/F), and USMC (F/A-18 A/C/D, AV-8B, KC-130J and MV-22) tactical aircrew members. The mask components will be optimized to minimize their impact on the wearer's performance and maximize its ability to interface with aircrew protective clothing. JSAM TA will be compatible with anti-G systems, providing Chemical, Biological, Radiological (CBR) protection without degrading protection against Gravity Induced Loss of Consciousness (GLOC) up to 9 Gz. JSAM TA will integrate with essential aircraft subsystems.

The JSAM-JSF is a CB respirator being specifically designed to support the F-35 (Joint Strike Fighter) and procured by the Joint Strike Fighter Program Office. It is designed to ensure that system integration and qualification of CB protection and survivability requirements are achieved as derived from the JSF Operational Requirements Document. When integrated with aircraft and pilot mounted equipment, the JSAM-JSF will provide combined CB, hypoxia and anti-G protection to all F-35 users, including the USAF, USN, USMC, and International Partners.

(2) Uniform Integrated Protective Ensemble (UIPE) Family of Systems (FoS). UIPE FoS will develop a family of systems that will provide the broad spectrum of users with individual percutaneous protective equipment allowing the ability to operate in a contaminated environment with no or minimal degradation in performance. UIPE FoS will seek to address the broader scope of the UIPE Initial Capabilities Document (ICD), to include protection from operationally relevant traditional, non-traditional, and advanced chemical, biological, radiological, and nuclear/Toxic Industrial Material threats likely to be encountered during joint force operations.

In FY19, CBRN Uniform Integrated Protection Ensemble Increment 2 (UIPE 2) will be moved under CBRN Uniform Integrated Protection Ensemble Family of Systems (UIPE FoS). The UIPE Increment 2 is being transitioned to UIPE FoS because the program will have more than one solution to meet the Warfighters needs. This is reflected in not only the name change but in the structure of the program. Instead of the program being driven towards meeting individual Service needs, the program is designed to meet mission area needs. There are four Mission Areas: Land, Air, Sea, and Homeland Defense. Each of the Mission Areas has unique mission requirements that the UIPE FoS solutions will seek to fulfill.

The acquisition strategy allows for multiple decision points throughout product development, which provides flexibility to accelerate mature commercial-off the-shelf/non-developmental item solutions and fully develop less mature solutions.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) JSAM RW	1.393	0.382	-
Description: Multi-Service Operational Testing and Evaluation (MOT&E)			
FY 2018 Plans: Complete follow-on USN/USMC MOT&E test activities, and Low Rate Initial Production (LRIP) phase.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Program/project transitioned to Production and Deployment Phase.			
Title: 2) JSAM SA ***Description:*** Operational Testing and Evaluation ***FY 2018 Plans:*** Complete Operational Testing on the USA MC-12 and UC-35 aircraft. Conduct Developmental Testing, Integration Testing and Safe-to-Fly on various USAF and USN aircraft. Conduct engineering studies to assess communication system adaptors and oxygen system adaptors for several USAF and USN aircraft. Update the Technical Manual to include specialized procedures for several USAF, USN, and USA aircraft. ***FY 2019 Plans:*** Complete Operational Testing in the form of Integration and Airworthiness Certification testing on the KC-10 (USAF), C-17 (USAF), C-5 (USAF), C-9 (USMC), C-20 (USN/USMC) and C-26 (USA) aircraft. Conduct engineering studies to assess communication system adaptors and oxygen system adaptors for remaining aircraft. Update the Technical Manual to include specialized procedures for the various aircraft tested. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase due to change in program/project schedule.	4.747	2.097	2.105
Title: 3) JSAM TA ***Description:*** Integration Testing Events ***FY 2018 Plans:*** Complete IT events with aircraft platforms including flight tests and shipboard testing. Update Technical Manuals, training package and conduct Logistics Demonstration. Receive Operational Test Agency (OTA) Letter of Observation or Observation of Operational Capabilities. Update program documentation in preparation of MS C/FRP. ***FY 2019 Plans:*** Develop final test reports. Conduct Joint Integrated Logistics Assessment, Production Readiness Review, and Manufacturer Readiness Assessment. Finalize design changes and receive configuration control board approval for engineering changes. Obtain final Safe-to-Fly certification for all platforms. Prepare for and conduct MS C decision review. Develop package for the production contract. ***FY 2018 to FY 2019 Increase/Decrease Statement:***	5.557	2.954	2.329

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Decrease due to change in program/project schedule.			
Title: 4) JSAM-JSF ***Description:*** Live Fire Test and Evaluation and F-35 Flight	1.883	-	-
Title: 5) UIPE - Increment 2 ***Description:*** System Development and Demonstration/Engineering and Manufacturing Development ***FY 2018 Plans:*** Investigate mission profile requirements against available Commercial Off The Shelf/Non-Developmental Item (COTS/NDI) that could quickly meet Warfighter needs. Manufacture and conduct testing on applicable COTS/NDI. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.	-	9.048	-
Title: 6) UIPE FoS ***Description:*** System Development and Demonstration/Engineering and Manufacturing Development ***FY 2019 Plans:*** Conduct Gated System Testing, conduct a User Evaluation, prototype manufacturing, and complete the Joint Independent Logistics Assessment. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	5.519
Accomplishments/Planned Programs Subtotals	13.580	14.481	9.953

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• JI0002: *JS AIRCREW MASK (JSAM)*	33.423	36.782	54.775	-	54.775	60.278	63.806	63.110	44.478	Continuing	Continuing
• MA0401: *CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE (UIPE)*	16.025	10.990	13.064	-	13.064	13.820	12.424	13.805	8.906	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

JOINT SERVICE AIRCREW MASK ROTARY WING (JSAM RW)

The JSAM RW was developed under a competitive Cost Plus Fixed Fee (CPFF) contract, that included JSAM Apache and JSAM Apache Block III. A sole source Fixed Price Incentive (FPI) contract was awarded for LRIP. A Fixed Price modification to the sole source LRIP contract awarded June 2017 to complete USAF and initiate USA Total Package Fielding (TPF). A competitive Indefinite Delivery/Indefinite Quantity (IDIQ) production contract with Fixed Price Incentive (FPI) and Firm Fixed Price (FFP) CLINs will be pursued for Full Rate Production (FRP). The Full Rate Production (FRP) contract will also include Cost Plus CLINS for the vendor to establish a production line at Pine Bluff Arsenal.

JOINT SERVICE AIRCREW MASK STRATEGIC AIRCRAFT (JSAM SA)

The JSAM SA acquisition approach involves modifying the fielded M53 ground mask design in order to add Pressure Breathing for Altitude (PBA), up to 40,000 feet above sea-level, and middle ear equalization capabilities. The JSAM SA mask is intended to be fielded to the United States Air Force (USAF), United States Navy (USN), United States Marine Corps (USMC), and United States Army (USA). The Research Development Test & Evaluation (RDT&E) contract was awarded via sole source to Avon Protection Systems, Cadillac, Michigan to modify and field a commercially available mask (M53).

The overall acquisition strategy is to initially produce and field the JSAM SA masks incrementally. This approach allows the JSAM SA mask to be fielded to aircrew of the most applicable aircrafts in the shortest amount of time. At the end of all increments, the Services will have achieved their Full Operating Capability (FOC). The first increment will consist of fielding the JSAM SA mask to the USAF E-3 and USN P-8 aircrew. Based on technical difficulty and mission need, the JSAM SA program will work with the Services to determine which aircraft will be addressed in subsequent increments.

The overall test strategy involves four major phases. The first test phase consists of Design Verification Testing (DVT) which will evaluate developmental prototype masks prior to Critical Design Review (CDR). The second test phase is Developmental Testing (DT) to support Milestone C/LRIP. The third test phase is Operational Testing (OT) of assets to support Initial Operating Capability (IOC) fielding to USAF E-3, USN P-8, USA MC-12, and USA UC-35 aircrew. The final test phase will consist of Integration and Airworthiness Certification (I&AC) testing for all remaining aircraft.

The contract strategy consists of two sole-source contracts with Avon Protection Systems, the manufacturer of the fielded M53 mask. The first contract, which was awarded on 31 July 2013, covers all activities during the Engineering and Manufacturing Development (EMD) phase to include all LRIP builds. The second contract, which is planned to be awarded after Milestone C, will cover the activities during the Production and Deployment (PD) phase including all FRP builds.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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JOINT SERVICE AIRCREW MASK TACTICAL AIRCRAFT (JSAM TA)

The JSAM TA acquisition approach involves modifying the USN/USMC fielded A/P22P-14A series respirator design to meet aircraft integration requirements. The test strategy involves integrated testing (combined DT/OT) to be completed prior to MS C/FRP. The contract strategy consists of two sole source Firm Fixed Price (FFP) contracts with Cam Lock, Ltd. Aldershot Hampshire, United Kingdom. The first contract, awarded September 2016, covers all activities during the Engineering, Manufacturing, and Development (EMD) phase. The second contract will be a sole source FFP Indefinite Delivery/Indefinite Quantity (ID/IQ) and is planned for award after the Milestone C/FRP. The second contract will cover the activities during the Production and Deployment phase including FRP builds. The JSAM TA mask is intended to be fielded to the USAF, USN, and USMC.

JOINT SERVICE AIRCREW MASK JOINT STRIKE FIGHTER (JSAM-JSF)

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

CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE (UIPE)

The UIPE Increment 2 will use an evolutionary acquisition strategy to develop a family of systems that will provide the Warfighter percutaneous protection from operationally relevant traditional and non-traditional CBRN threats. The acquisition strategy allows for multiple decision points throughout product development, which provides flexibility to accelerate mature commercial-off the-shelf/non-developmental item solutions and fully develop less mature solutions. The family of systems 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. Early testing will aide in deciding what is possible for each mission profile area and feed information into the trade space analysis. Developmental/Operational Testing will assess the ability of the solution to meet requirements, 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.

CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE FAMILY OF SYSTEMS (UIPE FOS)

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*

The UIPE Family of Systems (FoS) will use an evolutionary acquisition strategy to develop a family of systems that will provide the Warfighter percutaneous protection from operationally relevant traditional and non-traditional CBRN threats. The family of systems will be developed based on Service mission profiles (Land, Sea, Air and Homeland Defense) 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. Early testing will aide in deciding what is possible for each mission profile area and feed information into the trade space analysis. Developmental/Operational Testing will assess the ability of the solution to meet requirements, 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. Once Milestone B is achieved for the Family of Systems each mission profile will be broken out onto their own budget lines.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JSAM SA - HW S - Modified M53 - Design Modification and Development	SS/CPFF	AVON Protection Systems Inc. : Cadillac, MI	1.685	1.963	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JSAM TA - HW S - Hardware and Support Equipment for Integration and Test	SS/FFP	Cam Lock Limited : Aldershot Hampshire, UK	0.000	0.110	Aug 2017	0.155	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000
JSAM-JSF - HW S - Engineering and Manufacturing Contract	C/CPIF	GENTEX Corp. : Rancho Cucamonga, CA	2.495	0.812	Jan 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
UIPE FOS - HW S - Trade Space Analysis	MIPR	TBD : TBD	0.000	0.000		0.000		0.500	Nov 2018	-		0.500	Continuing	Continuing	0.000
		Subtotal	4.180	2.885		0.155		0.500		-		0.500	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JSAM RW - ES S - Integrated Product Team/ Engineering/Technical Support	MIPR	Various : Various	5.812	0.691	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JSAM SA - ES S - Engineering and IPT Support	MIPR	Various : Various	2.672	0.661	Nov 2016	0.043	Nov 2017	0.278	Nov 2018	-		0.278	Continuing	Continuing	0.000
JSAM TA - ES S - Engineering Support	MIPR	Various : Various	1.961	2.301	Nov 2016	0.664	Nov 2017	0.200	Nov 2018	-		0.200	Continuing	Continuing	0.000
JSAM-JSF - ES S - Engineering Support	MIPR	Various : Various	1.405	0.745	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
UIPE - ES S - Program Engineering/Technical IPT	Various	Various : Various	0.000	0.000		3.108	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	Project (Number/Name) IP5 / *INDIVIDUAL PROTECTION (EMD)*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
UIPE FOS - ES S - Program Eng/Tech IPT	Various	Various : Various	0.000	0.000		0.000		1.667	Nov 2018	-		1.667	Continuing	Continuing	0.000
		Subtotal	11.850	4.398		3.815		2.145		-		2.145	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JSAM RW - OTE S - Multi-Service Operational Testing (USN/USMC)	MIPR	Various : Various	1.233	0.593	Nov 2016	0.382	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000
JSAM SA - DTE S - Developmental Testing	MIPR	Various : Various	1.553	0.000		0.960	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000
JSAM SA - OTE S - Operational Testing	MIPR	Various : Various	0.000	1.754	Nov 2016	0.792	Nov 2017	1.350	Nov 2018	-		1.350	Continuing	Continuing	0.000
JSAM TA - DTE S -Testing and Integration	MIPR	Various : Various	1.496	2.034	Nov 2016	1.376	Nov 2017	1.451	Nov 2018	-		1.451	Continuing	Continuing	0.000
JSAM TA - DTE/ OTE S - Integrated Testing (combined DT/OT)	MIPR	Navy Operational Test and Eval Force (OPTEVFOR) : Norfolk, VA	0.000	0.191	Nov 2016	0.333	Nov 2017	0.150	Nov 2018	-		0.150	Continuing	Continuing	0.000
JSAM-JSF - OTE S - Live Fire Test & Evaluation	MIPR	Various : Various	0.000	0.087	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
UIPE - DTE S - Design Verification Testing	MIPR	TBD : TBD	0.000	0.000		4.637	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000
UIPE FOS - DTE S - Design Verification Testing	MIPR	TBD : TBD	0.000	0.000		0.000		2.099	Nov 2018	-		2.099	Continuing	Continuing	0.000
		Subtotal	4.282	4.659		8.480		5.050		-		5.050	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JSAM RW - PM/MS S - Program Management and Technical Support	Various	Various : Various	3.899	0.109	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JSAM SA - PM/MS S - Program Management and Technical Support Services	MIPR	Various : Various	0.294	0.369	Nov 2016	0.302	Nov 2017	0.477	Nov 2018	-		0.477	Continuing	Continuing	0.000
JSAM TA - PM/MS S - Program Management and Technical Support	MIPR	Various : Various	0.657	0.921	Nov 2016	0.426	Nov 2017	0.528	Nov 2018	-		0.528	Continuing	Continuing	0.000
JSAM-JSF - PM/MS S - Program Management and Technical Support	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	1.340	0.239	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
UIPE - PM/MS S - PM/ SME Prog Mgt	MIPR	Various : Various	0.000	0.000		1.303	Nov 2017	0.000		-		0.000	Continuing	Continuing	0.000
UIPE FOS - PM/MS S - PM/SME Prog Mgt	MIPR	Various : Various	0.000	0.000		0.000		1.253	Nov 2018	-		1.253	Continuing	Continuing	0.000
		Subtotal	6.190	1.638		2.031		2.258		-		2.258	Continuing	Continuing	N/A

	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	26.502	13.580		14.481		9.953		-		9.953	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*

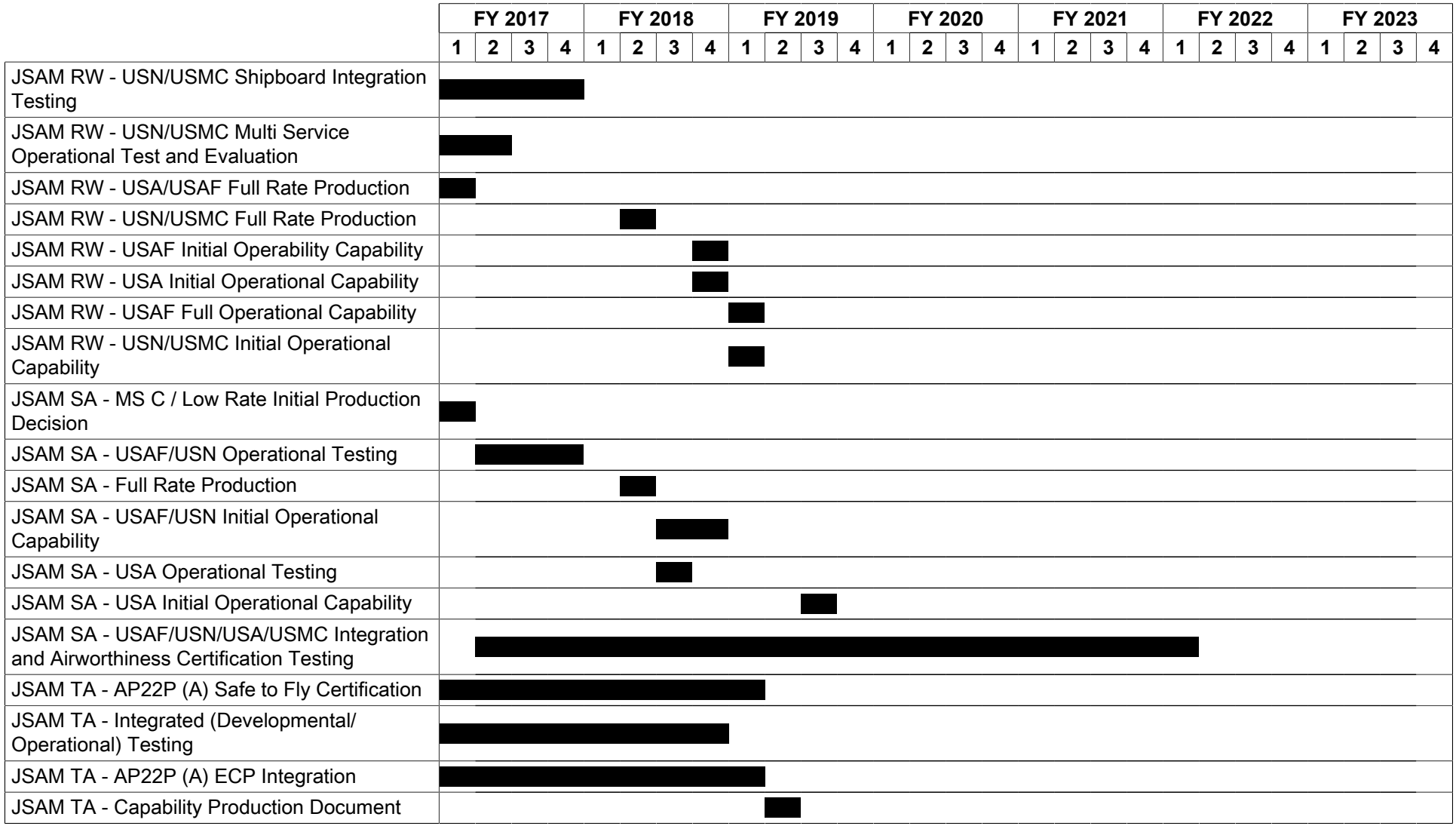

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*

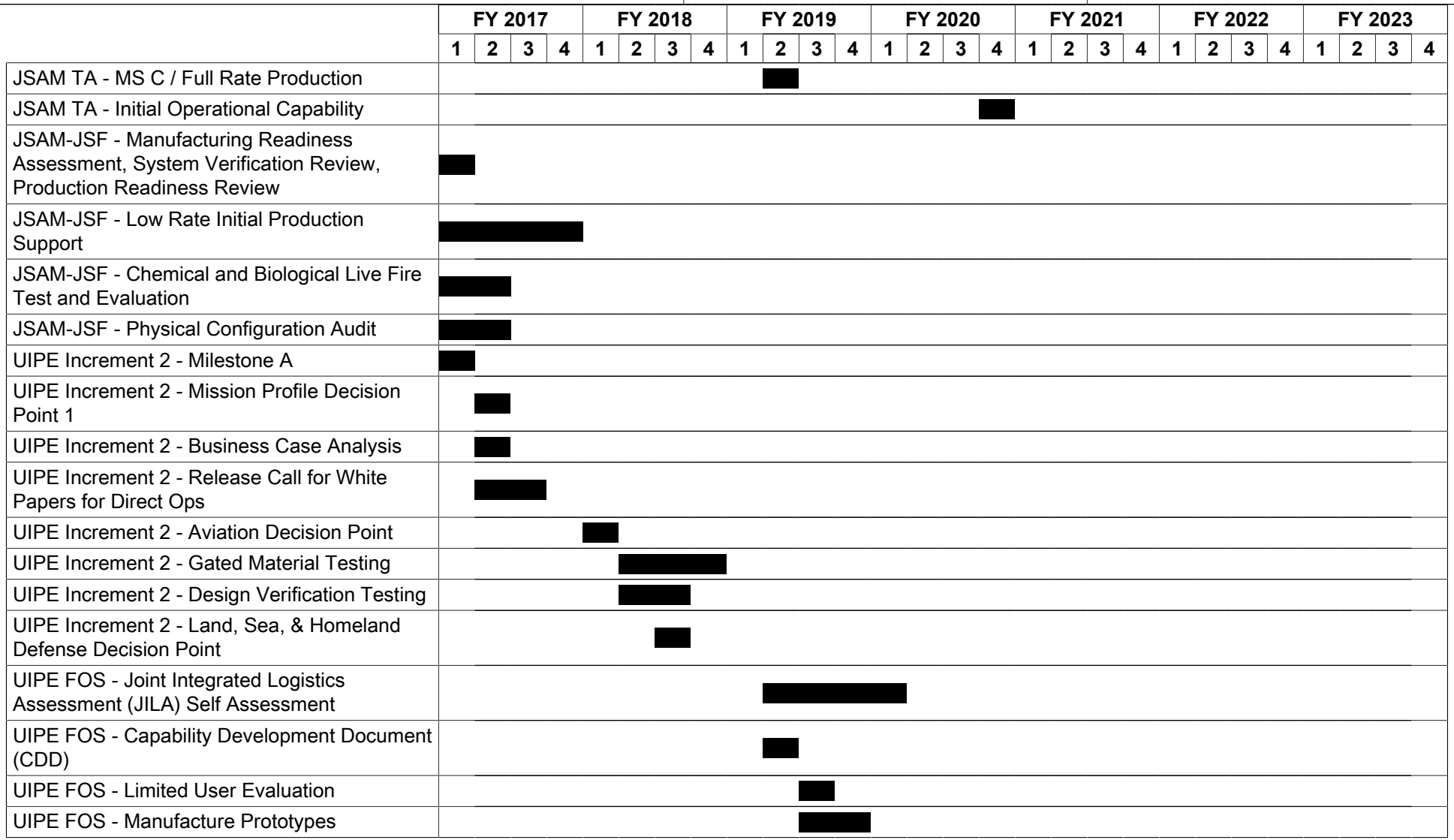

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*

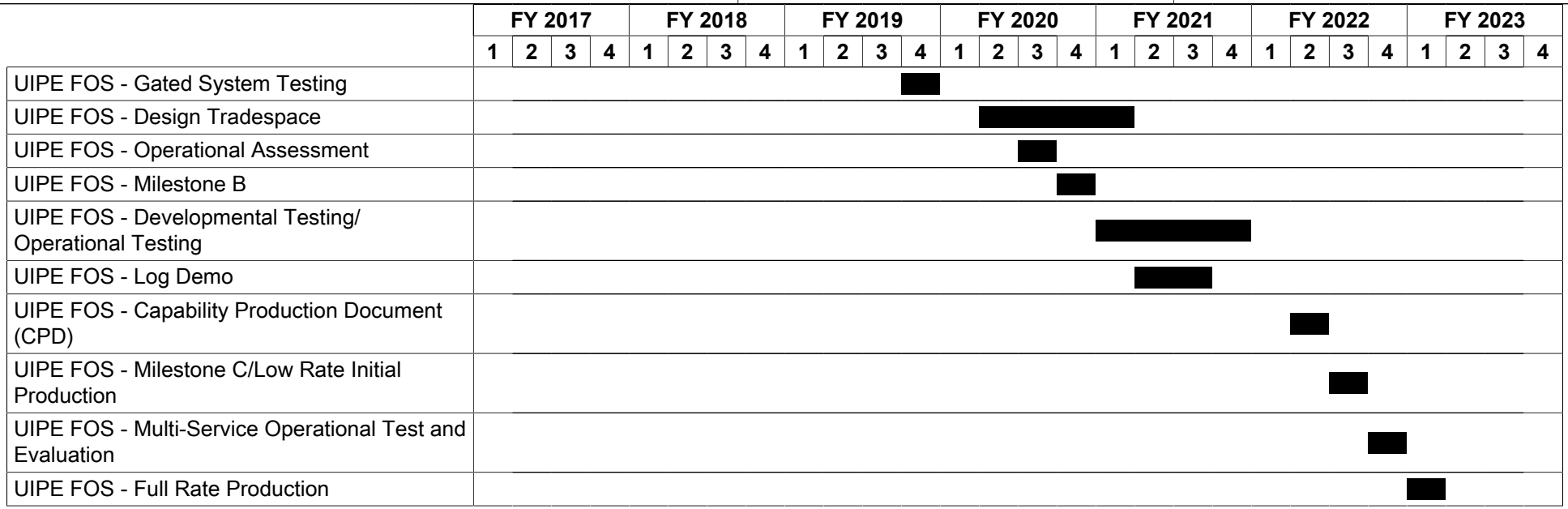

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *INDIVIDUAL PROTECTION (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JSAM RW - USN/USMC Shipboard Integration Testing	1	2017	4	2017
JSAM RW - USN/USMC Multi Service Operational Test and Evaluation	1	2017	2	2017
JSAM RW - USA/USAF Full Rate Production	1	2017	1	2017
JSAM RW - USN/USMC Full Rate Production	2	2018	2	2018
JSAM RW - USAF Initial Operability Capability	4	2018	4	2018
JSAM RW - USA Initial Operational Capability	4	2018	4	2018
JSAM RW - USAF Full Operational Capability	1	2019	1	2019
JSAM RW - USN/USMC Initial Operational Capability	1	2019	1	2019
JSAM SA - MS C / Low Rate Initial Production Decision	1	2017	1	2017
JSAM SA - USAF/USN Operational Testing	2	2017	4	2017
JSAM SA - Full Rate Production	2	2018	2	2018
JSAM SA - USAF/USN Initial Operational Capability	3	2018	4	2018
JSAM SA - USA Operational Testing	3	2018	3	2018
JSAM SA - USA Initial Operational Capability	3	2019	3	2019
JSAM SA - USAF/USN/USA/USMC Integration and Airworthiness Certification Testing	2	2017	1	2022
JSAM TA - AP22P (A) Safe to Fly Certification	1	2017	1	2019
JSAM TA - Integrated (Developmental/Operational) Testing	1	2017	4	2018
JSAM TA - AP22P (A) ECP Integration	1	2017	1	2019
JSAM TA - Capability Production Document	2	2019	2	2019
JSAM TA - MS C / Full Rate Production	2	2019	2	2019
JSAM TA - Initial Operational Capability	4	2020	4	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JSAM-JSF - Manufacturing Readiness Assessment, System Verification Review, Production Readiness Review	1	2017	1	2017
JSAM-JSF - Low Rate Initial Production Support	1	2017	4	2017
JSAM-JSF - Chemical and Biological Live Fire Test and Evaluation	1	2017	2	2017
JSAM-JSF - Physical Configuration Audit	1	2017	2	2017
UIPE Increment 2 - Milestone A	1	2017	1	2017
UIPE Increment 2 - Mission Profile Decision Point 1	2	2017	2	2017
UIPE Increment 2 - Business Case Analysis	2	2017	2	2017
UIPE Increment 2 - Release Call for White Papers for Direct Ops	2	2017	3	2017
UIPE Increment 2 - Aviation Decision Point	1	2018	1	2018
UIPE Increment 2 - Gated Material Testing	2	2018	4	2018
UIPE Increment 2 - Design Verification Testing	2	2018	3	2018
UIPE Increment 2 - Land, Sea, & Homeland Defense Decision Point	3	2018	3	2018
UIPE FOS - Joint Integrated Logistics Assessment (JILA) Self Assessment	2	2019	1	2020
UIPE FOS - Capability Development Document (CDD)	2	2019	2	2019
UIPE FOS - Limited User Evaluation	3	2019	3	2019
UIPE FOS - Manufacture Prototypes	3	2019	4	2019
UIPE FOS - Gated System Testing	4	2019	4	2019
UIPE FOS - Design Tradespace	2	2020	1	2021
UIPE FOS - Operational Assessment	3	2020	3	2020
UIPE FOS - Milestone B	4	2020	4	2020
UIPE FOS - Developmental Testing/Operational Testing	1	2021	4	2021
UIPE FOS - Log Demo	2	2021	3	2021
UIPE FOS - Capability Production Document (CPD)	2	2022	2	2022
UIPE FOS - Milestone C/Low Rate Initial Production	3	2022	3	2022
UIPE FOS - Multi-Service Operational Test and Evaluation	4	2022	4	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
UIPE FOS - Full Rate Production	1	2023	1	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program											Date: February 2018	
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*				Project (Number/Name) IS5 / *INFORMATION SYSTEMS (EMD)*			
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
IS5: *INFORMATION SYSTEMS (EMD)*	-	24.868	25.677	23.281	-	23.281	22.542	18.221	14.006	7.822	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports Engineering and Manufacturing Development and Low Rate Initial Production (EMD/LRIP). Experimentation and demonstration will be used in this phase to reduce risk and inform supporting materiel solutions, CONOPS and TTPs.

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

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

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

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

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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The Joint Warning and Reporting Network (JWARN) is an accredited DoD warning and reporting system that provides a standardized warning and reporting capability for Chemical, Biological, Radiological and Nuclear (CBRN) and Toxic Industrial Materials (TIM) incidents.

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

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

IT Box enables programs to tailor the incrementally fielded software program model in the DODI 5000.02 to conduct multiple, more frequent fielding events in lieu of a single fielding event. Programs conduct a single Milestone B (MS B) decision by the Milestone Decision Authority (MDA) that covers the entire program. MS B is followed by a series of supporting Build Decisions (BDs) associated with each RDP as they are released. The supporting BDs will ensure incorporation of mature technology and development efforts culminating in incremental deliveries of capability to Joint and Service Command and Control (C2) architectures. Instead of a single Milestone C (MS C) decision and fielding event for one increment, the program will return to the MDA for more frequent fielding decisions, as often as annually, as portions of capability are determined suitable and operationally effective. These multiple fielding efforts are based on providing capabilities with the most value to the operators based on Warfighter priorities/needs, maturation of the technology being incorporated and available resources supporting the effort.

The Biosurveillance Portal (BSP) program addresses USSOCOM requirements contained in an approved Information Systems Capability Development Document (IS CDD). BSP is a web-based enterprise environment that will facilitates collaboration, communication, and information sharing in support of the detection, management, and mitigation of man-made and naturally occurring biological events. BSP bridges the communication gaps in the biosurveillance domain to provide a central access point for biosurveillance information and situational awareness for DoD, interagency and allied partners supporting the early

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

The BSP Program will utilize BA5 funding to execute the development, testing and evaluation of capabilities to meet the defined program requirements. There will be two Production Capability Drops (CDs) and two Engineering CDs in FY18. CDs will be evaluated following Developmental Testing (DT) through End-to-End Testing using users to validate delivered capability as part of the IT Box process thus reducing risk to the program and ensure a quality product is delivered to the warfighter.

As software-intensive systems, JEM, JWARN, and BSP have no separately identifiable unit production components. BSP, JEM, and JWARN are designated as ACAT III programs and unit cost calculations including Program Acquisition Unit Cost/Average Procurement Unit Cost (PAUC/APUC) and Operations and Sustainment (O&S) average annual per unit costs are not applicable.

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) BSP	7.682	5.319	3.787
Description: Product Development ***FY 2018 Plans:*** Continue the development and integration of BSP capabilities for inclusion in capability releases. This includes architecture development, system design, key system tools, third party developed models, access to external data sources, cybersecurity and information assurance, and host platform design. ***FY 2019 Plans:*** Continue the development and integration of BSP capabilities as required by the operational users, delivered in Capability Drops in 1QFY19 and 3QFY19. Continue adding Below-Country Level data to provide greater detail to BSP users. Continue integration of new and existing CDC Red Sky data in BSP. Continue improvements in architecture development, system design, key system			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
tools, third party developed models, access to external data sources, cybersecurity and information assurance, and host platform design. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.			
Title: 2) BSP ***Description:*** Developmental Test and Evaluation ***FY 2018 Plans:*** Continue Developmental Testing associated with planned two Production Capability Drops and two Engineering Drops per FY. Planned cybersecurity testing in conjunction with cloud host provider requirements. ***FY 2019 Plans:*** Conduct Developmental Testing associated with two Engineering Capability Drops in 1QFY19 and 3QFY19. Conduct Cybersecurity Penetration Test in 4QFY19 in conjunction with cloud host provider requirements. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	1.317	0.991	0.358
Title: 3) BSP ***Description:*** Program Management Support ***FY 2018 Plans:*** Management and oversight of all aspects of BSP program development and testing. Tasks include planning, budgeting, execution oversight, risk management, test and user feedback coordination, scheduling, training and administration. ***FY 2019 Plans:*** Manage and conduct oversight of all aspects of BSP program development and testing. Tasks include planning, budgeting, execution oversight, risk management, test and user feedback coordination, scheduling, training and administration. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	1.300	1.114	0.793
Title: 4) BSP ***Description:*** Operational Testing and Evaluation ***FY 2018 Plans:***	1.544	1.091	0.928

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Continue Operational Testing of BSP through End-to-End testing of planned Production Capability Drops to validate capabilities prior to delivery to the Warfighters. Support will consist of test support personnel as well as engineering, and operational support. Two User Feedback events are planned per FY. ***FY 2019 Plans:*** Conduct Operational Testing of BSP with two Production Capability Drop End-to-End tests in 1QFY19 and 3QFY19 to validate capabilities prior to delivery to the Warfighters. Support will consist of test, engineering, and operational personnel support. Conduct multiple User Feedback Events (UFEs) in FY19. UFEs provide a crucial link between the Program Managers, Engineers, and Operators. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 5) CBRN-IS ***Description:*** Technical Guidance ***FY 2018 Plans:*** Continue to define CBRN IS Technical Guidance. ***FY 2019 Plans:*** Provide management and system engineering oversight for all aspects of the CBRN-IS program. CBRN-IS will initially integrate appropriate JPEO-CBD products into a Family of Systems (FoS) framework (to begin with JWARN, JEM and BSP). Align validated requirements into an enterprise approach. Provide strategy for integration of future capabilities and emerging requirements including advanced technology demonstrations (ATDs), experimental capability demonstrations (ECDs) for Integrated Early Warning, Decision Support/ Consequence and Incident Management, Data Analytics and other analytical and situational awareness tools. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	0.452	0.298	0.226
Title: 6) CBRN-IS ***Description:*** Standardization ***FY 2018 Plans:*** Continue to ensure BSP, JEM, JWARN are built using industry standards and best practices that are consistent with CBRN IS. ***FY 2019 Plans:***	0.547	0.477	0.362

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Provide guidance and direction to ensure new capabilities meet industry and program standards for integration. Ensure development and integration efforts are compliant and compatible with the Joint Information Environment (JIE) and Service common operational and common computing environments. Comply with DoD and Service specified Cybersecurity and Net Ready Key Performance Parameters. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 7) CBRN-IS ***Description:*** Cybersecurity / Information Assurance ***FY 2018 Plans:*** Continue further implementations of cybersecurity lock-downs for CBRN and maintain an Authority To Operate. ***FY 2019 Plans:*** Provide guidance and direction for the implementation of ongoing cybersecurity requirements and policies and DoD information assurance vulnerability alerts (IAVAs) to mitigate system vulnerabilities and avoid serious compromise of the CBRN-IS environment that would potentially degrade mission performance. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	0.432	0.277	0.210
Title: 8) CBRN-IS ***Description:*** Product Development ***FY 2018 Plans:*** Continue installations of CBRN IS on milCloud and other data centers. "milCloud" is a cloud-services product portfolio, managed by DISA. milCloud allows our users to access our web-enabled products world-wide without having the application directly installed on their machines. Ensure operational 24/7. ***FY 2019 Plans:*** Transition to production and deployment phase efforts, post IOC. Continue coordination with Services and integrated early warning (IEW) advanced technology demonstration (ATD) and integrated early warning (IEW) experimental capability demonstration (ECD) projects to determine prioritization of CBRN and IEW capabilities to be developed, transitioned and	0.954	1.394	1.059

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
integrated into CBRN-IS through subsequent capability drops. These capability drops will continue throughout the production and deployment phase with two capability drops planned per FY. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.			
Title: 9) CBRN-IS ***Description:*** Operational Assessments ***FY 2018 Plans:*** Continue Operational Assessments of CBRN IS in various operational environments. ***FY 2019 Plans:*** Conduct operational test and evaluations and user feedback events in accordance with product and application test plans to assess and validate capabilities prior to implementing in the production enterprise environment. Tests will assess accessibility, bandwidth/throughput, and reliability to meet program KPPs and KSAs. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.	0.826	0.915	0.695
Title: 10) JEM 2 ***Description:*** Developmental Test and Evaluation ***FY 2018 Plans:*** Continue Government Development Test of software deliveries in Command and Control (C2) environments. Perform verification, validation, and accreditation of new hazard prediction models provided by the S&T community as defined in Requirements Definition Package 3. ***FY 2019 Plans:*** Continue Government Development Test of software deliveries in Command and Control (C2) environments. Perform verification, validation, and accreditation of new hazard prediction models provided by the S&T community as defined in Requirements Definition Package 3. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	0.492	1.043	0.844
Title: 11) JEM 2	0.993	1.676	1.357

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: Product Development ***FY 2018 Plans:*** Continue development of JEM Increment 2 software and perform integration into Command and Control (C2) systems. Integrate new hazard prediction models provided by the S&T community into the JEM Increment 2 baseline software and develop/transition new S&T capabilities as defined in Requirements Definition Package 3. ***FY 2019 Plans:*** Continue development of JEM 2 software and perform integration into Command and Control (C2) systems. Integrate new hazard prediction models provided by the S&T community into the JEM 2 baseline software and develop/transition new S&T capabilities as defined in Requirements Definition Package 3. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 12) JEM 2 ***Description:*** Program Management ***FY 2018 Plans:*** Continue to perform program/financial management, costing, contracting, scheduling and acquisition oversight support for JEM Increment 2. Continue development and execution of JEM Increment 2 while working within the agile development process, to include performing a Joint Integrated Logistics Assessment (JILA) and Logistics Demonstration (LOG DEMO) in order to deploy JEM Increment 2 to the services and to the Science and Technology Community. ***FY 2019 Plans:*** Continue to perform program/financial management, costing, contracting, scheduling and acquisition oversight support for JEM 2. Continue development and execution of JEM 2 while working within the agile development process, to include performing a Joint Integrated Logistics Assessment (JILA) and Logistics Demonstration (LOG DEMO) in order to deploy JEM 2 to the services and to the Science and Technology Community. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	0.525	0.774	0.627
Title: 13) JEM 2 ***Description:*** Operational Test and Evaluation ***FY 2018 Plans:***	0.734	1.162	0.940

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Develop operational test plans and conduct lab based OT and limited scope service specific IOT&E to support fielding decisions for the JEM Increment 2 software. ***FY 2019 Plans:*** Develop operational test plans and conduct lab based OT and limited scope service specific IOT&E to support fielding decisions for the JEM 2 software. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 14) JWARN 2 ***Description:*** Management Support ***FY 2018 Plans:*** Provide program/financial management, costing, contracting, scheduling and acquisition oversight for JWARN Increment 2. Continue development and execution of Build Decisions (BDs) for JWARN Increment 2 while working within the Agile development process, to include performing a Joint Integrated Logistics Assessment (JILA) and Logistics' Demonstration (LOG DEMO) in preparation for test and deployment of JWARN Increment 2 to the services. ***FY 2019 Plans:*** Provide program/financial management, costing, contracting, scheduling and acquisition oversight for JWARN 2. Continue development and execution of Build Decisions (BDs) for JWARN 2 while working within the agile development process, to include performing a Joint Integrated Logistics Assessment (JILA) and Logistics' Demonstration (LOG DEMO) in preparation for test and deployment of JWARN 2 to the services. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	0.544	0.787	0.921
Title: 15) JWARN 2 ***Description:*** Product Development ***FY 2018 Plans:*** Continue JWARN Increment 2 software development and perform integration into Command and Control (C2) systems and integration of CBRN sensor/detector data/input with JWARN software baseline. ***FY 2019 Plans:***	2.768	4.475	5.239

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Continue JWARN 2 software development and perform integration into Command and Control (C2) systems and integration of CBRN sensor/detector data/input with JWARN software baseline. JWARN 2 software development and perform integration into the Army's Common Operational Environment version 3 (COE v3) to provide convergence with other Army COE services. Complete Information Assurance Certification and accreditation to support Multiservice Operation Test and Evaluation (MOT&E). Initiating transitioning False Sensor Alert Reduction prototyping into JWARN software development. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase due to change in program/project schedule.			
Title: 16) JWARN 2 ***Description:*** Developmental Test and Evaluation ***FY 2018 Plans:*** Continue Government development test and evaluation of software deliveries in preparation for annual Multiservice Operational Test and Evaluation (MOT&E) which will allow for Initial Operational Capability of JWARN Increment 2 to be deployed to the services. ***FY 2019 Plans:*** Continue Government development test and evaluation of software deliveries in preparation for annual Multiservice Operational Test and Evaluation (MOT&E) which will allow for Initial Operational Capability of JWARN 2 to be deployed to the services. Conduct development test and evaluation of JWARN 2 in preparation for OT&E for development to COE v3. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	0.273	0.634	0.742
Title: 17) JWARN 2 ***Description:*** Operational Test and Evaluation ***FY 2018 Plans:*** Conduct Multiservice Operational Test and Evaluation (MOT&E) which will allow for additional Capability Drops (CDs) with added JWARN Increment 2 capabilities and functionality to be deployed to the services. ***FY 2019 Plans:***	1.304	0.937	1.097

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Conduct Multiservice Operational Test and Evaluation (MOT&E) which will allow for additional Capability Drops (CDs) with added JWARN 2 capabilities and functionality to be deployed to the services. Conduct a OT&E of JWARN 2 in preparation for deployment to COE v3. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 18) SSA ***Description:*** Policies, Standards and Guidelines ***FY 2018 Plans:*** Continue updates to acquisition documentation for CBRN IT systems based on changes in policy, procedures, and guidelines. Perform surveillance of Federal Information Security Management Act (FISMA) and DoD Acquisition policies necessary to maintain certification on deployed service platforms. Provide M&S strategic and accreditation support. ***FY 2019 Plans:*** Continue updates to acquisition documentation for CBRN IT systems based on changes in policy, procedures, and guidelines. Perform surveillance of Federal Information Security Management Act (FISMA) and DoD Acquisition policies necessary to maintain certification on deployed service platforms. Provide M&S strategic and accreditation support. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	0.240	0.256	0.343
Title: 19) SSA ***Description:*** Integrated Architecture ***FY 2018 Plans:*** Continue to perform required modifications to the Integrated Architecture on host platforms and document the infrastructure and technical standards. Conduct Net-Centric Assessments for programs. Review and update the Common CBRN Interface standards on operational systems, including a CCSI. ***FY 2019 Plans:*** Continue to perform required modifications to the Integrated Architecture on host platforms and document the infrastructure and technical standards. Conduct Net-Centric Assessments for programs. Review and update the Common CBRN Interface standards on operational systems, including a CCSI. ***FY 2018 to FY 2019 Increase/Decrease Statement:***	0.280	0.301	0.403

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Minor change due to routine program adjustments.			
Title: 20) SSA ***Description:*** Enterprise Support and Services ***FY 2018 Plans:*** Continue to support processes and services for Cybersecurity/Information Assurance, Architectures, Modeling and Simulation, Science and Technology, and Standards and Policy. Modify support processes and services necessary to maintain relevancy in accordance with DoD standards, policies, and guidelines. ***FY 2019 Plans:*** Continue to support processes and services for Cybersecurity/Information Assurance, Architectures, Modeling and Simulation, Science and Technology, and Standards and Policy. Modify support processes and services necessary to maintain relevancy in accordance with DoD standards, policies, and guidelines. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	0.231	0.215	0.287
Title: 21) SSA ***Description:*** Chemical, Biological, Radiological, Nuclear (CBRN) Data Model ***FY 2018 Plans:*** Continue to develop and update CBRN data model and define the structure and content of information exchange "Extensible Markup Language"(XML) schemas that support interoperability between CBD programs. ***FY 2019 Plans:*** Continue to develop and update CBRN data model and define the structure and content of information exchange "Extensible Markup Language"(XML) schemas that support interoperability between CBD programs. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	0.255	0.241	0.323
Title: 22) SSA ***Description:*** Cybersecurity / Information Assurance ***FY 2018 Plans:***	0.480	0.556	0.743

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Continue to employ Information Systems Security Engineering (Cybersecurity) efforts to develop or modify the Cybersecurity/ Information Assurance (CS/IA) component of a system architecture to ensure it is in compliance with the IA component of the Global Information Grid architecture, and makes maximum use of enterprise CS/IA capabilities and services. ***FY 2019 Plans:*** Continue to employ Information Systems Security Engineering (Cybersecurity) efforts to develop or modify the Cybersecurity/ Information Assurance (CS/IA) component of a system architecture to ensure it is in compliance with the IA component of the Global Information Grid architecture, and makes maximum use of enterprise CS/IA capabilities and services. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 23) SSA ***Description:*** Policy and Standards Repository ***FY 2018 Plans:*** Continue to provide standards, formats, templates, training, and best practices to support practical compliance with laws, regulations, and policy for acquisition, certification, and sustainment of net-centric, interoperable, and spectrum dependent systems and devices. ***FY 2019 Plans:*** Continue to provide standards, formats, templates, training, and best practices to support practical compliance with laws, regulations, and policy for acquisition, certification, and sustainment of net-centric, interoperable, and spectrum dependent systems and devices. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	0.403	0.432	0.578
Title: 24) SSA ***Description:*** Technology Transition Support ***FY 2018 Plans:*** Continue to perform Technology Transition support services (common components and services) for CBD programs. ***FY 2019 Plans:*** Continue to perform Technology Transition support services (common components and services) for CBD programs. ***FY 2018 to FY 2019 Increase/Decrease Statement:***	0.292	0.312	0.419

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Minor change due to routine program adjustments.			
Accomplishments/Planned Programs Subtotals	24.868	25.677	23.281

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• IS7: *INFORMATION SYSTEMS (OP SYS DEV)*	10.293	12.203	15.552	-	15.552	16.951	16.492	15.163	13.211	Continuing	Continuing
• G47101: *JOINT WARNING & REPORTING NETWORK (JWARN)*	3.889	0.981	0.502	-	0.502	0.445	0.400	0.375	0.380	Continuing	Continuing
• JC0208: *JOINT EFFECTS MODEL (JEM)*	3.069	0.983	0.911	-	0.911	0.696	0.731	0.746	0.761	Continuing	Continuing
• JS5230: *SOFTWARE SUPPORT ACTIVITY (SSA)*	0.300	0.096	0.094	-	0.094	0.082	0.075	0.071	0.068	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.

CBRN INFORMATION SYSTEMS

CBRN-IS acquisition strategy utilizes a Family-of-Systems (FoS) approach to align multiple programs of record capabilities to the CBRN-IS architecture and operational environment. CBRN-IS enterprise will initially integrate appropriate JPEO-CBD products into a FoS framework beginning with the Joint Warning and Reporting (JWARN)

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and Joint Effects Model (JEM) program capabilities. CBRN-IS leverages the concepts of CBRN Hazard Awareness and Understanding and DISA Enterprise Services to integrate current CBRN capabilities, and other information and intelligence services, applications, and systems to provide increased situational awareness and decision support to commanders for CBRN defense. The strategy supports the implementation of integrated early warning capabilities by incorporating the inclusion of mature science and technology products and emerging technologies from existing advanced technology demonstrations (ATD) and experimental capability demonstrations (ECD). CBRN-IS utilizes the Agile software development process with the IT Box acquisition strategy to provide for the spiral development and fielding of modular capability packages.

JOINT EFFECTS MODEL (JEM)

JEM 2 acquisition will utilize the JROC's "IT Box" construct for software development. The intent is to provide the next generation of capability with current and future technologies, as stated in the IS ICD, in less time and fielding products to the service more frequently than an incremental delivery approach.

IT Box enables programs to tailor the incrementally fielded software program model in the DODI 5000.02 to conduct multiple, more frequent fielding events in lieu of a single fielding event. Programs conduct a single Milestone B (MS B) decision by the Milestone Decision Authority (MDA) that covers the entire program. MS B is followed by a series of supporting Build Decisions (BDs) associated with each RDP as they are released. The supporting BDs will ensure incorporation of mature technology and development efforts culminating in incremental deliveries of capability to Joint and Service Command and Control (C2) architectures. Instead of a single Milestone C (MS C) decision and fielding event for one increment, the program will return to the MDA for more frequent fielding decisions, as often as annually, as portions of capability are determined suitable and operationally effective. These multiple fielding efforts are based on providing capabilities with the most value to the operators based on Warfighter priorities/needs, maturation of the technology being incorporated and available resources supporting the effort.

As part of this strategy a single JEM integrator, General Dynamics Information Technology (GDIT), was selected as the prime development contract in March 2017.

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

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

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

JOINT WARNING & REPORTING NETWORK (JWARN)

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

JWARN 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 (MS B) decision by the Milestone Decision Authority (MDA) that covers the entire program. MS B is followed by a series of supporting Build Decisions (BDs) associated with each RDP as they are released. The supporting BDs will ensure incorporation of mature technology and development efforts culminating in incremental deliveries of capability to Joint and Service Command and Control (C2) architectures. Instead of a single Milestone C (MS C) decision and fielding event for one increment, the program will return to the MDA for more frequent fielding decisions, as often as annually, as portions of capability are determined suitable and operationally effective. These multiple fielding efforts are based on providing capabilities with the most value to the operators based on Warfighter priorities/needs, maturation of the technology being incorporated and available resources supporting the effort.

The JWARN Program will find an appropriate Sensor Connectivity Capability (SCC) to facilitate the transfer of CBRN sensor information from legacy CBRN sensors to DoD networks. This solution will be external to the CBRN Sensors and Service-identified network transmission device(s).

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

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

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

SOFTWARE SUPPORT ACTIVITY (SSA)

The SSA provides enterprise-wide services and coordination across all CBDP programs that contain data or software, or are capable of linking to the Global Information Grid (GIG). The SSA facilitates interoperability, integration, and supportability of existing and developing IT and National Security Systems (NSS). This will be followed by coordination to facilitate the concepts of interoperability, integration and supportability of enterprise-wide services. Next follows work with user communities to develop and demonstrate enterprise-wide common architectures, products and services. The SSA will support the application of the enterprise-wide architectures, products and services into the programs, with verification of compliance with the defined products and services.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BSP - SW S - software - BSP software development	FFRDC	Johns Hopkins University - Applied Physics Lab : Laurel, MD	6.954	7.682	Dec 2016	5.319	Mar 2018	3.787	Dec 2018	-		3.787	Continuing	Continuing	0.000
CBRN IS - SW S - software - integration with BSP, JEM, JWARN	MIPR	Various : Various	0.000	0.942	Feb 2017	1.394	Dec 2017	1.058	Dec 2018	-		1.058	Continuing	Continuing	0.000
JEM - SW SB -2 - Hazard Prediction Model Development and Integration	C/CPAF	General Dynamics Information Technologies : Fairfax, VA	11.526	0.993	Apr 2017	1.676	Apr 2018	1.356	Apr 2019	-		1.356	Continuing	Continuing	0.000
JWARN - 2- SW S - Soft Dev Follow-On	C/CPAF	TBD : TBD	0.000	0.000		0.000		5.239	Jun 2019	-		5.239	Continuing	Continuing	0.000
JWARN - 1&2- SW S - Software Development	C/CPAF	Northrop Grumman Corp. : Winter Park, FL	4.210	2.768	Feb 2017	4.475	Feb 2018	0.000		-		0.000	Continuing	Continuing	0.000
SSA - SW S - CBRN Data Model	C/CPAF	Various : Various	6.958	0.698	Mar 2017	0.749	Mar 2018	1.003	Mar 2019	-		1.003	Continuing	Continuing	0.000
		Subtotal	29.648	13.083		13.613		12.443		-		12.443	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CBRN IS - ES S - Support Costs - Cybersecurity and IA updates, architecture documentation	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	0.000	1.313	Feb 2017	0.774	Dec 2017	0.565	Dec 2018	-		0.565	Continuing	Continuing	0.000
SSA - ES S - Support Costs	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	8.386	0.683	Nov 2016	0.707	Dec 2017	0.946	Dec 2018	-		0.946	Continuing	Continuing	0.000
		Subtotal	8.386	1.996		1.481		1.511		-		1.511	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BSP - BSP-DTE S - Software	MIPR	Various : Various	0.998	1.317	Dec 2016	0.991	Dec 2017	0.358	Dec 2018	-		0.358	Continuing	Continuing	0.000
BSP - BSP- OTE S - Software - MOT&E	MIPR	Various : Various	1.135	1.544	Dec 2016	1.091	Dec 2017	0.928	Dec 2018	-		0.928	Continuing	Continuing	0.000
CBRN IS - OTE S - Operational Test - service-specific testing, joint test	MIPR	Various : Various	0.000	0.706	Feb 2017	0.894	Dec 2017	0.679	Dec 2018	-		0.679	Continuing	Continuing	0.000
JEM - DTE SB - 2 - Hazard Prediction Model Development Test	MIPR	Naval Surface Warfare Center (NSWC) - Dahlgren Center : Dahlgren, VA	9.342	0.492	Nov 2016	1.046	Dec 2017	1.785	Dec 2018	-		1.785	Continuing	Continuing	0.000
JEM - OTHT C - Increment 2 - OT&E Hazard Prediction Modeling software	MIPR	Various : Various	2.087	0.734	Dec 2016	0.859		0.000		-		0.000	Continuing	Continuing	0.000
JWARN - 2- DTE S - Completed Development Test and Evaluation of JWARN 2 in support of JWARN 2 IOT&E	MIPR	Various : Various	0.850	0.273	Dec 2016	1.571	Dec 2017	1.839	Dec 2018	-		1.839	Continuing	Continuing	0.000
JWARN - 2 - OTE S - Multi-service Operational Test and Evaluation of JWARN 2 software	MIPR	Various : Various	1.251	1.304	Dec 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
SSA - DTE S - Test and Evaluation	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	3.656	0.524	Dec 2016	0.561	Dec 2017	0.751	Dec 2018	-		0.751	Continuing	Continuing	0.000
		Subtotal	19.319	6.894		7.013		6.340		-		6.340	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BSP - PM/MS S - Program Management	Various	Various : Various	0.867	1.300	Dec 2016	1.114	Dec 2017	0.793	Dec 2018	-		0.793	Continuing	Continuing	0.000
CBRN IS - PM/MS S - Program Management - Planning, Programming, and Budgeting	MIPR	Various : Various	0.000	0.250	Feb 2017	0.299	Dec 2017	0.250	Dec 2018	-		0.250	Continuing	Continuing	0.000
JEM - PM/MS S - Program Office - Planning and Programming	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	7.223	0.525	Dec 2016	1.074	Dec 2017	0.627	Dec 2018	-		0.627	Continuing	Continuing	0.000
JWARN - 2- PM/MS C - Program Management Support	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	0.925	0.544	Nov 2016	0.787	Dec 2017	0.921	Nov 2018	-		0.921	Continuing	Continuing	0.000
SSA - PM/MS S - Management Services	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	2.926	0.276	Dec 2016	0.296	Dec 2017	0.396	Dec 2018	-		0.396	Continuing	Continuing	0.000
		Subtotal	11.941	2.895		3.570		2.987		-		2.987	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	69.294	24.868		25.677		23.281		-		23.281	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

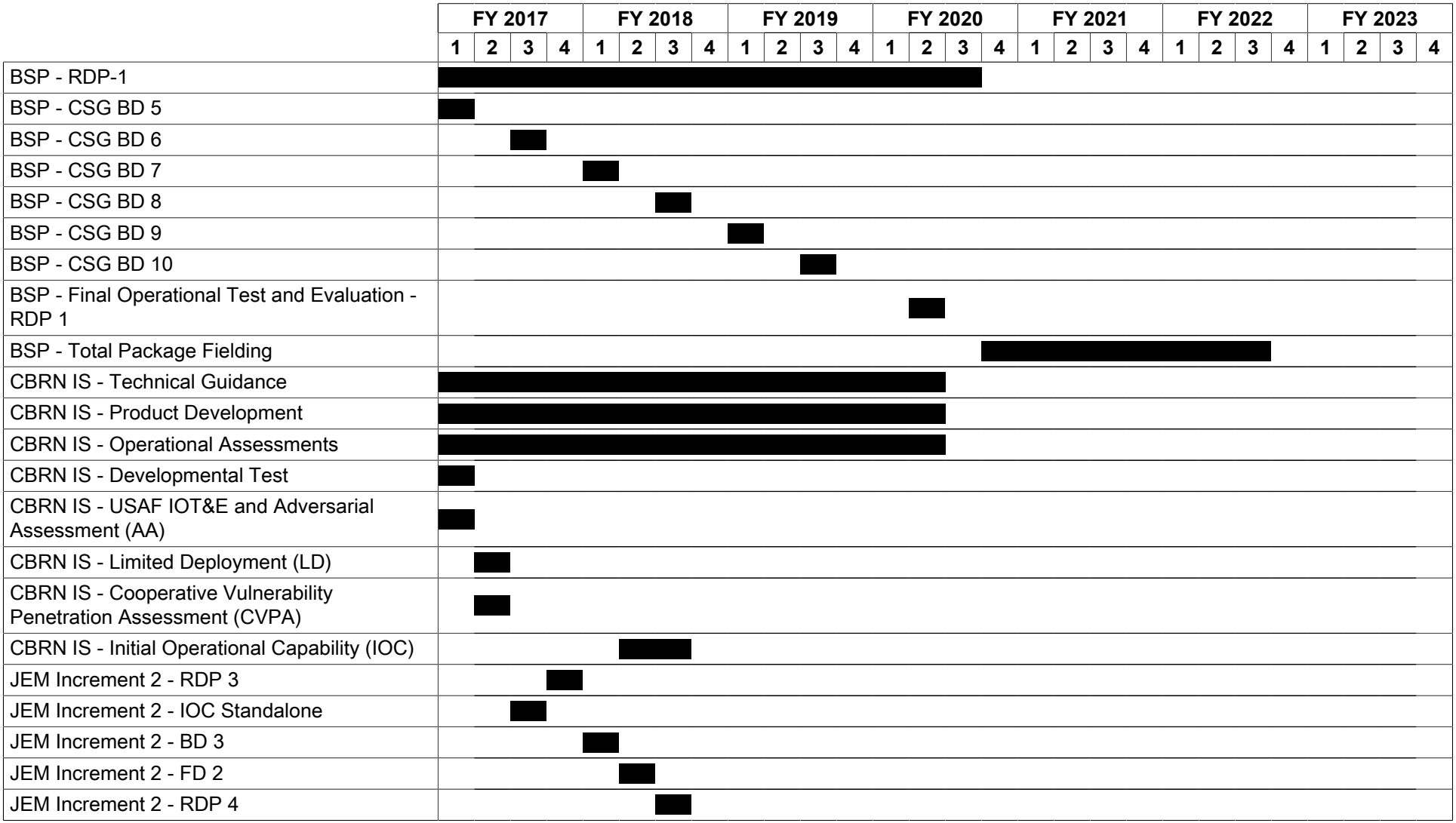

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

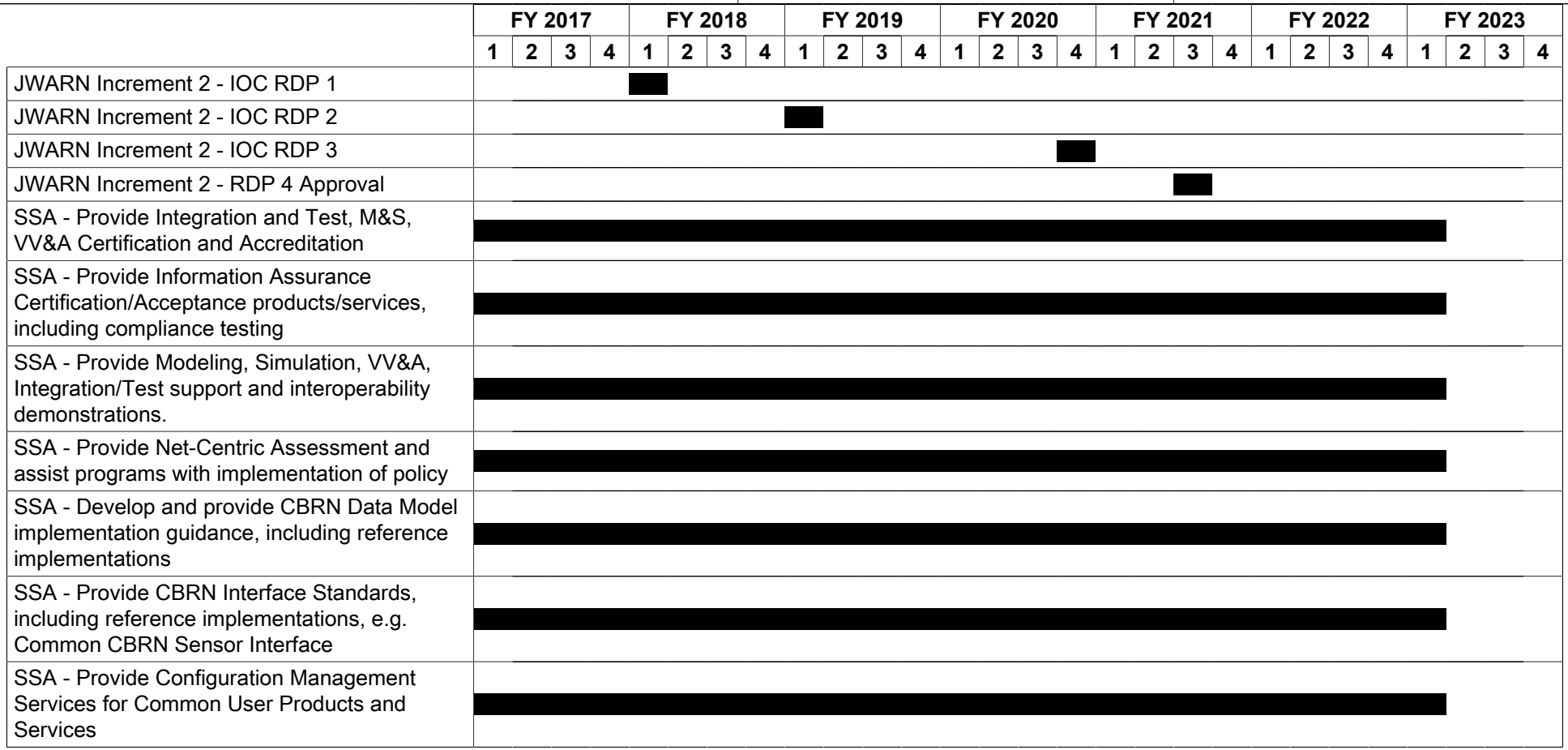

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
BSP - RDP-1	1	2017	3	2020
BSP - CSG BD 5	1	2017	1	2017
BSP - CSG BD 6	3	2017	3	2017
BSP - CSG BD 7	1	2018	1	2018
BSP - CSG BD 8	3	2018	3	2018
BSP - CSG BD 9	1	2019	1	2019
BSP - CSG BD 10	3	2019	3	2019
BSP - Final Operational Test and Evaluation - RDP 1	2	2020	2	2020
BSP - Total Package Fielding	4	2020	3	2022
CBRN IS - Technical Guidance	1	2017	2	2020
CBRN IS - Product Development	1	2017	2	2020
CBRN IS - Operational Assessments	1	2017	2	2020
CBRN IS - Developmental Test	1	2017	1	2017
CBRN IS - USAF IOT&E and Adversarial Assessment (AA)	1	2017	1	2017
CBRN IS - Limited Deployment (LD)	2	2017	2	2017
CBRN IS - Cooperative Vulnerability Penetration Assessment (CVPA)	2	2017	2	2017
CBRN IS - Initial Operational Capability (IOC)	2	2018	3	2018
JEM Increment 2 - RDP 3	4	2017	4	2017
JEM Increment 2 - IOC Standalone	3	2017	3	2017
JEM Increment 2 - BD 3	1	2018	1	2018
JEM Increment 2 - FD 2	2	2018	2	2018
JEM Increment 2 - RDP 4	3	2018	3	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *INFORMATION SYSTEMS (EMD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JEM Increment 2 - FD 3	3	2019	3	2019
JEM Increment 2 - FD 4	3	2020	3	2020
JEM Increment 2 - C2 Integration Development Test	2	2017	1	2018
JEM Increment 2 - Govt DT / OT / V&V	1	2017	4	2020
JEM Increment 2 - BD 4	4	2018	1	2019
JEM Increment 2 - BD 5	2	2019	2	2019
JEM Increment 2 - RDP 5	2	2018	1	2019
JEM Increment 2 - IOC C-2 Systems	3	2018	3	2018
JEM Increment 2 - FOC Standalone	2	2019	2	2019
JEM Increment 2 - IOC Emerging Capabilities	4	2019	4	2019
JEM Increment 2 - FOC C-2 Systems	4	2022	4	2022
JEM Increment 2 - IOC Analyst Tools	4	2018	4	2018
JEM Increment 2 - FOC Analyst Tools	2	2019	4	2019
JEM Increment 2 - Limited Deployment for RDP-2	3	2017	3	2017
JWARN Increment 2 - Govt DT / OT / UFEs / OAs / FOTs	1	2017	2	2021
JWARN Increment 2 - RDP 3 Approval	1	2017	1	2017
JWARN Increment 2 - Modernization and Update	1	2017	1	2020
JWARN Increment 2 - RDP 2 Build Decision 2	1	2018	1	2018
JWARN Increment 2 - RDP 3 Build Decision	2	2018	2	2018
JWARN Increment 2 - Fielding Decision 1	3	2017	3	2017
JWARN Increment 2 - Fielding Decision 2	4	2018	4	2018
JWARN Increment 2 - Fielding Decision 3	2	2019	1	2020
JWARN Increment 2 - IOC RDP 1	1	2018	1	2018
JWARN Increment 2 - IOC RDP 2	1	2019	1	2019
JWARN Increment 2 - IOC RDP 3	4	2020	4	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JWARN Increment 2 - RDP 4 Approval	3	2021	3	2021
SSA - Provide Integration and Test, M&S, VV&A Certification and Accreditation	1	2017	1	2023
SSA - Provide Information Assurance Certification/Acceptance products/services, including compliance testing	1	2017	1	2023
SSA - Provide Modeling, Simulation, VV&A, Integration/Test support and interoperability demonstrations.	1	2017	1	2023
SSA - Provide Net-Centric Assessment and assist programs with implementation of policy	1	2017	1	2023
SSA - Develop and provide CBRN Data Model implementation guidance, including reference implementations	1	2017	1	2023
SSA - Provide CBRN Interface Standards, including reference implementations, e.g. Common CBRN Sensor Interface	1	2017	1	2023
SSA - Provide Configuration Management Services for Common User Products and Services	1	2017	1	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	Project (Number/Name) MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
MB5: *MEDICAL BIOLOGICAL DEFENSE (EMD)*	-	92.313	136.553	107.815	-	107.815	141.385	170.160	154.262	153.288	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.

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

The Emerging Infectious Diseases Therapeutics (EID Tx) program is developing and will deliver a Food and Drug Administration (FDA) approved, broad-spectrum medical countermeasure to the Warfighter for protection against naturally occurring or biologically engineered viruses. The first indication being pursued is influenza due to a clear and established FDA regulatory approval pathway. The product in development failed during phase 3 clinical trials as a result the flu effort is being terminated. The development of a broad spectrum medical countermeasure will continue under the Antiviral Therapeutic program.

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 Antiviral Therapeutic Program (AV TX) will develop and deliver FDA approved antiviral therapeutics for the warfighter. 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.

Medical Countermeasure Platform Technologies (MCMPT) will leverage platform technologies to streamline the MCM delivery to the Force by reducing developmental risk and a subset of these technologies will be adapted to deliver a rapid response capability to novel and emerging threats. The first platform being established as part of an Advanced Technology Demonstration (ATD) is the Advanced Development and Manufacturing Antibody Technologies (ADAMANT). A second platform technology will be established which will focus on a vaccine platform capability. 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 NGDS is an evolutionary acquisition family of systems to provide increments of capability over time across many echelons of the Combat Health Support System. The mission of the NGDS is to provide Chemical, biological and radiological (CBR) threat, and infectious disease identification and FDA-cleared diagnostics to inform individual patient treatment and CBR situational awareness and disease surveillance. NGDS 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. NGDS 2 will provide additional capability for diagnosis of CBR-induced diseases, suitable for use in far forward environments.

The DoD provides for the development of vaccines that are directed against validated biological warfare (BW) weapons to include bacteria, viruses, and toxins of biological origin. Effective medical countermeasures are urgently needed to negate the threat of these BW agents. Vaccines have been identified as the most efficient countermeasure against the validated threat of BW weapons. Products under development in this budget item include Recombinant Botulinum A/B, Plague, and Next Generation Anthrax vaccines. Efforts to be conducted during the Engineering Manufacturing Development (EMD) Phase include the development of large scale manufacturing process and validation of that process, nonclinical studies, demonstration of manufacturing consistency, and expanded clinical human safety studies. The results of these efforts, and those conducted during the EMD phase, will be used to submit a Biologic License Application (BLA) to the Food and Drug Administration (FDA) for product licensure. To evaluate vaccine effectiveness, pivotal animal studies will be conducted concurrently with the Phase 3 clinical trial to satisfy the requirements of the FDA's "Animal Rule". The DoD anticipates that the FDA will approve these products for the Recombinant Botulinum A/B, Plague, and Next Generation Anthrax vaccine programs using the Animal Rule, which allows for the demonstration of efficacy in relevant animal model(s). Upon FDA licensure, the product will transition to full-scale licensed production.

The DoD also has the mission to maintain Investigational New Drug (IND) vaccines in Good Manufacturing Practice (GMP) storage and to conduct the periodic potency and sterility testing of these materials to support submissions to the FDA. These IND vaccines will be used to provide additional levels of protection to laboratory workers in the Special Immunizations Program (SIP) conducting research on these diseases.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) MCMPT	-	0.500	2.961
Description: ADAMANT BOT A/B			
FY 2018 Plans: Initiate establishment of advanced platform technologies within the DoD's Advanced Development Manufacturing (ADM) facility.			
FY 2019 Plans: Continue the establishment phase of the ADAMANT platform capability. Complete cGMP manufacturing and conduct IND-enabling studies and IND preparation.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Program/project transitioned to Engineering and Manufacturing Development Phase.			
Title: 2) MCMPT ***Description:*** Program Management ***FY 2019 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 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Engineering and Manufacturing Development Phase.	-	-	0.113
Title: 3) CMDR-B ***Description:*** Clinical ***FY 2019 Plans:*** Execute Advanced Development Contract(s) for mature drug products. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Engineering and Manufacturing Development Phase.	-	-	4.975
Title: 4) NGDS 2 ***Description:*** Program Management ***FY 2019 Plans:*** Continue strategic/tactical planning, Government system engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, regulatory and technical support. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	5.775	-	2.188
Title: 5) NGDS 2 ***Description:*** Man Portable Diagnostic System (MPDS) ***FY 2018 Plans:***	5.168	9.174	3.428

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Continue Engineering & Manufacturing Development on required system engineering activities and complete operational test activities for Man Portable Diagnostic System. ***FY 2019 Plans:*** Continue Engineering & Manufacturing Development and initiate clinical trials for Man Portable Diagnostics System (MPDS). ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.			
Title: 6) NGDS 2 In Vitro Diagnostic Assay Development and Maturation ***FY 2018 Plans:*** Optimize In Vitro Diagnostic assays for NGDS 2 man-portable diagnostic system. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to fact of life change in the program/project.	-	6.612	-
Title: 7) CRP ***Description:*** Development/expansion of biological select agents reference materials.	1.461	-	-
Title: 8) CRP ***Description:*** Development of immunoassays and nucleic acid based genomic assays.	0.893	-	-
Title: 9) CRP - ADAMANT ***Description:*** Advanced Development and Manufacturing of Antibody Technologies	5.439	-	-
Title: 10) CRP ***Description:*** QA/QC Testing	1.177	-	-
Title: 11) CRP ***Description:*** Maintain yearly accreditation audits.	0.029	-	-
Title: 12) CRP ***Description:*** OSCAR Support	0.691	-	-
Title: 13) DBPAP	-	2.473	3.016

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: Threat Agent Reference Materials ***FY 2018 Plans:*** Continue (CRP) development/expansion of biological select agents reference materials to known and emerging threats. ***FY 2019 Plans:*** Continue development/expansion of biological threat agents reference materials to known and emerging threats. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase due to fact of life change in the program/project.			
Title: 14) DBPAP ***Description:*** Development of Immunoassays ***FY 2018 Plans:*** Continue (CRP) development of immunoassays and nucleic acid based genomic assays to support fielded and developmental systems. ***FY 2019 Plans:*** Continue development of immunoassays and nucleic acid based genomic assays to support fielded and developmental systems. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	-	1.765	1.843
Title: 15) DBPAP ***Description:*** QA/QC Testing ***FY 2018 Plans:*** Continue (CRP) QA/QC testing to encompass the transition and fielding of biological detection assays. ***FY 2019 Plans:*** Continue QA/QC testing to encompass the transition and fielding of biological detection assays. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase due to fact of life change in the program/project.	-	1.147	2.430
Title: 16) DBPAP ***Description:*** Accreditation Audits	-	1.323	0.063

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2018 Plans: Continue (CRP) to maintain yearly accreditation audits such as ISO 9001, 17025, and Guide 34 certifications. Continue quality actions throughout to maintain the quality managed systems. ***FY 2019 Plans:*** Continue to maintain yearly accreditation audits such as ISO 9001, 17025, and Guide 34 certifications. Continue quality actions throughout to maintain the quality managed systems. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to fact of life change in the program/project.			
Title: 17) DBPAP ***Description:*** Unified Culture Collection ***FY 2018 Plans:*** Continue (CRP) development of prototypes/information for strains contained in Unified Culture Collection. ***FY 2019 Plans:*** Continue development of prototypes/information for strains contained in Unified Culture Collection. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to fact of life change in the program/project.	-	2.118	1.426
Title: 18) EID TX ***Description:*** Nonclinical	2.578	-	-
Title: 19) AV TX ***Description:*** Enabling Technologies ***FY 2018 Plans:*** Clinical: Conduct clinical trials studying efficacy to include continued resistance monitoring. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.	10.933	1.100	-
Title: 20) AV TX ***Description:*** Nonclinical	-	22.142	0.500

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2018 Plans: Non-clinical: Continue efficacy studies with Non Human Primates infected with Ebola virus. ***FY 2019 Plans:*** Non-clinical: Continue efficacy studies with Non Human Primates infected with Ebola virus. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.			
Title: 21) VAC BOT - Recombinant Botulinum Vaccine ***Description:*** Manufacturing ***FY 2018 Plans:*** Initiate and complete cGMP and PPQ runs for drug product fill-finish(vialing/fill and finish bottling the product)of drug substance in preparation for the Phase 3 Clinical Trial. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project is entering completion and all activities will be closed.	22.092	4.500	-
Title: 22) VAC BOT - Recombinant Botulinum Vaccine ***Description:*** Analytical Testing ***FY 2018 Plans:*** Continue drug substance comparability efforts. Initiate and completion of drug product GMP con lots and testing in preparation for the Phase 3 Clinical Trial. ***FY 2019 Plans:*** Complete drug substance comparability efforts. Phase III Clinical Trial activities ramp up with patient recruitment, preparation in anticipation of first subject/first vaccination. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to accelerated development effort.	2.652	31.629	23.136
Title: 23) VAC BOT ***Description:*** Program Management ***FY 2018 Plans:***	4.605	2.010	7.306

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Continue to provide strategic/tactical planning, Government systems engineering, program/financial management, costing, technology assessment, contracting, scheduling, acquisition oversight, and technical support. ***FY 2019 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 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 24) VAC NGA ***Description:*** NonClinical ***FY 2019 Plans:*** Qualify assays and reference standards. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	-	-	5.000
Title: 25) VAC PLG ***Description:*** NonClinical ***FY 2018 Plans:*** Continue pivotal animal efficacy and reproductive toxicity studies to meet FDA licensure (in life activities, and immunological testing). Continue ongoing requirements for safeguarding biological select agents and toxins. ***FY 2019 Plans:*** Continue pivotal animal efficacy and reproductive toxicity studies to meet FDA licensure (in life activities, and immunological testing). Complete the first 2-Tier Dose Titration Study and initiate the second 2-Tier Dose Titration Study. Continue ongoing requirements for safeguarding biological select agents and toxins. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase due to change in program/project technical parameters.	9.043	14.001	16.491
Title: 26) VAC PLG ***Description:*** Clinical Trials ***FY 2018 Plans:***	3.011	19.854	15.569

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Continued in-life portions of the Phase 3 clinical trial to evaluate expanded safety and efficacy. ***FY 2019 Plans:*** Continued in-life portions of the Phase 3 clinical trial to evaluate expanded safety and efficacy. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to change in program/project technical parameters.			
Title: 27) VAC PLG ***Description:*** Manufacturing and Analytical Testing ***FY 2018 Plans:*** Initiate warm base manufacturing to prepare for FDA pre-approval inspections. ***FY 2019 Plans:*** Continue warm base manufacturing to prepare for FDA pre-approval inspections. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to change in program/project technical parameters.	0.475	11.501	3.310
Title: 28) VAC PLG ***Description:*** Program Management ***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. ***FY 2019 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 to FY 2019 Increase/Decrease Statement:*** Increase due to change in program/project technical parameters.	13.858	2.001	11.168
Title: 29) VAC SIP ***Description:*** Storage, Distribution, Potency Testing ***FY 2018 Plans:***	2.433	2.703	2.892

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Continue storage, distribution, potency testing, and biosurety compliance activities in support of the Special Immunization Program. ***FY 2019 Plans:*** Continue storage, distribution, potency testing, and biosurety compliance activities in support of the Special Immunization Program and support product availability for Interim Fielding Capabilities. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Accomplishments/Planned Programs Subtotals	92.313	136.553	107.815

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• MB7: *MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)*	6.999	11.950	9.850	-	9.850	3.728	6.060	6.532	2.969	Continuing	Continuing
• JM8788: *NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)*	5.095	6.938	5.842	-	5.842	2.919	4.826	2.644	4.704	Continuing	Continuing
• JX0005: *DOD BIOLOGICAL VACCINE PROCUREMENT (VACCINES)*	0.185	0.183	0.183	-	0.183	0.183	0.182	0.182	0.182	Continuing	Continuing
• JX0210: *DEFENSE BIOLOGICAL PRODUCTS ASSURANCE PROGRAM (DBPAP)*	1.005	0.995	0.975	-	0.975	0.972	0.874	0.788	0.764	Continuing	Continuing

Remarks

D. Acquisition Strategy

MCM PLATFORM TECHNOLOGIES (MCMPT)

The goal of the MCMPT is to rapidly counter a broad-spectrum 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.

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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. To meet the requirement to prevent or minimize the 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.

NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)

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

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

CRITICAL REAGENTS PROGRAM (CRP)

The Critical Reagents Program's (CRP) strategy establishes a core research and development capability to develop biological threat agent reference materials (antigens, nucleic acids, and antibodies) and detection and diagnostic assays for biothreat agent detection that shall be used across multiple detection and diagnostic platforms. In addition, this strategy includes a formal, validated advanced development process for transitioning new assays into production and subsequent integration with the appropriate detection/diagnostic platform. This program will transition to the Defense Biological Products Assurance Program (DBPAP) in FY18.

DEFENSE BIOLOGICAL PRODUCTS ASSURANCE PROGRAM (DBPAP)

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The Defense Biological Products Assurance Program's (DBPAP) strategy establishes a core research and development capability to develop biological threat agent reference materials (antigens, nucleic acids, and antibodies) and detection and diagnostic assays for biothreat agent detection that shall be used across multiple detection and diagnostic platforms. In addition, this strategy includes a formal, validated advanced development process for transitioning new assays into production and subsequent integration with the appropriate detection/diagnostic platform.

EMERGING INFECTIOUS DISEASES - THERAPUTIC (EID TX)

The goal of the EID Tx program is to develop a safe and effective MCM against biothreats of interest to the DoD. The first step of the acquisition strategy is to develop an MCM for influenza due to a clear and established FDA regulatory approval pathway. The Phase 2 clinical trial is complete, demonstrating both safety and efficacy in humans. Program was authorized by FDA to move forward at End of Phase 2 meeting on 3 SEP 13. Phase 3 clinical trials for EID Tx against influenza began during 1QFY14. The MCM was unsuccessful in the Phase 3 clinical trials, removing the expectation of FDA approval. In June 2016, the recommendation was made to end the EID - Flu product development contract and transition the program to AV Tx. It was determined that the influenza product, Favipiravir, would not meet contract requirements and program key performance parameters. The FDA informed the sponsor that the product under development did not provide a clinically significant benefit and was unlikely to be approved for the current indication. As a result, the program will package select data while removing all non-essential activities, allowing the contract to end with the current PoP in March 2017. The requirement for a broad-spectrum Antiviral will continue under the AV Tx Program.

ANTI-VIRAL THERAPEUTICS (AV TX)

The acquisition strategy combined the Hemorrhagic Fever Virus (HFV) and Emerging Infectious Diseases Therapeutics (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. The candidate selected for entry into the EMD phase of development will be executed under the Antiviral Therapeutic program in FY17. The candidate selected 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 a 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.

BOTULINUM VACCINE (VAC BOT)

The Prime System Contractor (Dynport Vaccine Company/DVC LLC, Frederick MD) will function as the FDA regulatory sponsor and will perform all ancillary, regulatory, quality assurance, and data management as required by the FDA. The current budget supports development through FDA licensure of a recombinant bivalent (A and B) botulinum vaccine. Other serotypes will be developed through an evolutionary approach, as funding becomes available. The Advanced Component Development and Prototypes (ACD&P) phase included the manufacture of candidate current Good Manufacturing Practices (cGMP) lots, animal safety testing, and initial clinical trials. During this phase, the vaccine was evaluated for safety and immunogenicity in a small human clinical trial (Phase 1). During the Engineering Manufacturing Development (EMD) Phase, the prime contractor stabilized the vaccine formulation, validated the manufacturing process and testing protocols, optimized the delivery

systems and manufactured consistency lots. Phase 2 clinical trials were performed and provided additional safety data. The evaluation of efficacy in pivotal animal studies to satisfy FDA requirements for the Animal Rule has been completed. The remaining efforts to be conducted during the EMD phase include the Phase 3 clinical trial to demonstrate safety in an expanded volunteer population. The Low Rate Initial Production (LRIP) decision will be conducted after the manufacturing process has been validated and consistency lots have been produced. A Biologics License Application (BLA) is be submitted to the FDA including all clinical, nonclinical, and manufacturing data. The FDA grants licensure to products that are determined to be safe and efficacious.

NEXT GENERATION ANTHRAX VACCINE (VAC NGA)

The Next Generation Anthrax vaccine program strategy supports the development and qualification of immunological assays and required reference materials to support potential future anthrax vaccine programs. Once qualified, these assays will provide the DOD with data to support future decisions related to the anthrax pre-exposure vaccine program.

PLAGUE VACCINE (VAC PLG)

The Advanced Component Development and Prototypes (ACD&P) phase included the manufacture of candidate current Good Manufacturing Practices (cGMP) lots, animal safety testing, and initial clinical trials. During this phase, the vaccine was evaluated for safety and immunogenicity in a small human clinical trial (Phase 1). In order to reduce technical program risk in the Plague vaccine program, the program office conducted competitive prototyping between a US vaccine candidate and a United Kingdom vaccine candidate. During the 2008 Resource Allocation Decision, the US Plague Vaccine candidate was selected for development through licensure under a Prime System Contract. The Prime System Contractor (Dynport Vaccine Company/DVC LLC, Frederick MD) currently functions as the FDA regulatory sponsor and performs all ancillary, regulatory, quality assurance, and data management as required by the FDA. A Project Arrangement is in place with the United Kingdom and Canada. During the Engineering Manufacturing Development (EMD) Phase, the prime contractor stabilized the vaccine formulation, validated the manufacturing process and testing protocols, optimized the delivery systems and manufactured consistency lots. Phase 2 clinical trials were performed and provided additional safety data. The remaining efforts to be conducted during the EMD phase include the Phase 3 clinical trial to demonstrate safety in an expanded volunteer population and evaluation of efficacy and duration of protection in pivotal animal studies to satisfy FDA requirements for the Animal Rule . The Low Rate Initial Production (LRIP) decision will be conducted after the manufacturing process has been validated and consistency lots have been produced. A Biologics License Application will be submitted to the FDA with all clinical, nonclinical, and manufacturing data. The FDA grants licensure to products that are determined to be safe and efficacious.

SPECIAL IMMUNIZATION PROGRAM (VAC SIP)

The SIP effort Life Cycle Cost Estimate (LCCE) manages the IND vaccines which provide additional protection to laboratory workers performing research on the infectious agents for Tularemia, Eastern Equine Encephalitis (EEE), Western Equine Encephalitis (WEE), Venezuelan Equine Encephalitis (VEE), Q-Fever and to support product availability for Interim Fielding Capabilities. Efforts include Good Manufacturing Practices (GMP) storage and periodic potency testing to support the FDA regulated Investigational New Drug (IND) reporting requirements. This Department of Defense program supports the Federal interagency with this effort, as well as academic and industry partners.

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E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program			Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MCMPT - HW S - ADAMANT BOT A/B establishment	C/CPFF	TBD : TBD	0.000	0.000		0.450	Jan 2018	2.961	Jan 2019	-		2.961	Continuing	Continuing	0.000
CMDR-B - Advanced Development Contract	C/CPIF	TBD : TBD	0.000	0.000		0.000		3.334	Jan 2019	-		3.334	Continuing	Continuing	0.000
NGDS - HW C - IVD Assay Development and Maturation Activities	Various	TBD : TBD	0.000	0.000		5.088	Dec 2017	0.000		-		0.000	Continuing	Continuing	0.000
NGDS - HW C - Man Portable Diagnostic System	C/CPFF	MRIGlobal : Kansas City, MO	0.000	5.168	Aug 2017	7.060	Dec 2017	3.428	Dec 2018	-		3.428	Continuing	Continuing	0.000
CRP - HW C - ADAMANT	C/CPFF	Nanotherapeutics. Inc. : Alachua, FL	0.000	5.439		0.000		0.000		-		0.000	Continuing	Continuing	0.000
CRP - HW C - Development of Select Biological Threat Agent Reference Materials and Assays	MIPR	Various : Various	12.622	0.643	Jan 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
DBPAP - HW C - Scale-up of Select Biological Threat Agent Reference Materials	MIPR	Various : Various	0.000	0.000		2.043	Jun 2018	0.000		-		0.000	Continuing	Continuing	0.000
DBPAP - HW C - Development of Select Biological Threat Agent Reference Materials and Assays	MIPR	Various : Various	0.000	0.000		1.826	Jun 2018	1.327	Jun 2019	-		1.327	Continuing	Continuing	0.000
AV TX - Enabling Technologies (Joint Mobile Emerging Disease Intervention Clinical Capability)	Various	Various : Various	0.000	5.124	Dec 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
AV TX - Pivotal Animal Efficacy Studies (Clinical)	C/FP	Gilead Sciences : San Francisco, CA	0.000	0.000		0.700	Mar 2018	0.000		-		0.000	Continuing	Continuing	0.000

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AV TX - Gilead Filo Candidate	C/FP	Gilead Sciences : San Francisco, CA	0.000	0.000		17.160	Nov 2017	0.333	Nov 2018	-		0.333	Continuing	Continuing	0.000
VAC BOT - HW S - Manufacturing, Validation and Consistency Lot Production	C/CPAF	DynPort Vaccine Company (DVC) LLC. : Frederick, MD	7.970	16.492	Dec 2016	36.139	Dec 2017	1.000	Dec 2018	-		1.000	Continuing	Continuing	0.000
VAC BOT - HW S - Manufacturing Tech Transfer	MIPR	Battelle Memorial Institute : Columbus, OH	12.336	1.023	Jan 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
VAC PLG - HW S - Manufacturing, Validation, and Consistency Lot Production	C/CPAF	DynPort Vaccine Company (DVC) LLC. : Frederick, MD	11.255	8.008	Dec 2016	19.500	Dec 2017	8.376	Dec 2018	-		8.376	Continuing	Continuing	0.000
		Subtotal	44.183	41.897		89.966		20.759		-		20.759	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGDS - ES C - Studies and WIPT Support	MIPR	Various : Various	0.200	0.000		0.971	Dec 2017	0.000		-		0.000	Continuing	Continuing	0.000
CRP - ES C - Select Biological Threat Agent Reference Material Support	MIPR	Various : Various	5.227	1.005	Jan 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
CRP - ES C - Select Biological Threat Agent Reference Material Regulatory/Quality Assurance (QA) Support	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	3.113	0.518	Jun 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
DBPAP - ES C - Select Biological Threat Agent Reference Material Support	MIPR	Various : Various	0.000	0.000		0.820	Jun 2018	2.075	Jun 2019	-		2.075	Continuing	Continuing	0.000

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DBPAP - ES C - Select Biological Threat Agent Reference Material Regulatory/Quality Assurance (QA) Support	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		1.280	Jun 2018	1.071	Jun 2019	-		1.071	Continuing	Continuing	0.000
VAC BOT - TD/D C - Regulatory Integration (Environmental and FDA Documentation) and Delivery System	C/CPAF	DynPort Vaccine Company (DVC) LLC. : Frederick, MD	23.974	3.754	Dec 2016	0.000		5.136	Dec 2018	-		5.136	Continuing	Continuing	0.000
VAC PLG - TD/D C - Regulatory Integration (Environmental and FDA Documentation) and Delivery System	C/CPAF	Various : Various	19.623	3.497	Dec 2016	3.000	Dec 2017	3.436	Dec 2018	-		3.436	Continuing	Continuing	0.000
VAC SIP - Storage and Distribution of Vaccines	SS/FP	Fisher BioServices : Rockville, MD	0.990	0.333	Dec 2016	0.423	Dec 2017	0.437	Feb 2019	-		0.437	Continuing	Continuing	0.000
		Subtotal	53.127	9.107		6.494		12.155		-		12.155	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGDS - OTHT C - Test and evaluate interagency	MIPR	TBD : TBD	0.300	0.000		0.300	Mar 2018	0.842	Dec 2018	-		0.842	Continuing	Continuing	0.000
VAC BOT - DTE C - Clinical Trials - Nonclinical Studies	C/CPAF	DynPort Vaccine Company (DVC) LLC. : Frederick, MD	78.985	2.500	Dec 2016	0.000		17.000	Dec 2018	-		17.000	Continuing	Continuing	0.000
VAC NGA - DTE C - TBD	Various	TBD : TBD	0.000	0.000		0.000		5.000	Jan 2019	-		5.000	Continuing	Continuing	0.000
VAC PLG - DTE C - Clinical Trials/Non-Clinical Studies	C/CPAF	DynPort Vaccine Company (DVC) LLC. : Frederick, MD	86.459	4.549	Dec 2016	15.877	Dec 2017	30.538	Dec 2018	-		30.538	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	Project (Number/Name) MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
VAC SIP - OTHT C - Potency Testing of Vaccines	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	9.075	1.194	Dec 2016	1.926	Dec 2017	2.100	Dec 2018	-		2.100	Continuing	Continuing	0.000
		Subtotal	174.819	8.243		18.103		55.480		-		55.480	Continuing	Continuing	N/A

Remarks

Rate of program activities has decreased while the current CONOPS and capability are assessed by the Services.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MCMPT - PM/MS C - Management	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.000	0.000		0.050	Jan 2018	0.113	Jan 2019	-		0.113	Continuing	Continuing	0.000
CMDR-B - PM/MS SB - Management Support	Allot	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.746	Jan 2019	-		0.746	Continuing	Continuing	0.000
CMDR-B - PM/MS SB - Management Support #2	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.000	0.000		0.000		0.448	Jan 2019	-		0.448	Continuing	Continuing	0.000
CMDR-B - PM/MS SB - Contractor Systems Engineering/Program Management Support	Various	JPM Medical Countermeasure Systems (JPM MCS) : Fort Belvoir, VA	0.000	0.000		0.000		0.447	Jan 2019	-		0.447	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGDS - PM/MS S - Product Management Support	MIPR	Various : Various	0.000	2.938	Jan 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGDS - PM/MS S - Product Management Support #2	Allot	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	2.374	2.051	Dec 2016	0.136	Dec 2017	0.842	Dec 2018	-		0.842	Continuing	Continuing	0.000
NGDS - PM/MS SB - Product Management Systems Support	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	1.900	0.786	Dec 2016	2.231	Dec 2017	0.504	Dec 2018	-		0.504	Continuing	Continuing	0.000
CRP - PM/MS C - Product Management Support	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	4.701	1.186	Jan 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
CRP - PM/MS C - Guardian Support	Allot	Various : Various	0.000	0.390		0.000		0.000		-		0.000	Continuing	Continuing	0.000
CRP - PM/MS C - Product Management Support #2	SS/FFP	Various : Various	10.658	0.509	Jan 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
DBPAP - PM/MS C - Product Management Support	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.000	0.000		1.043	Jan 2018	2.449	Nov 2018	-		2.449	Continuing	Continuing	0.000
DBPAP - PM/MS C - Product Management Support #2	SS/FFP	Various : Various	0.000	0.000		1.123	Feb 2018	0.805	Feb 2019	-		0.805	Continuing	Continuing	0.000
DBPAP - PM/MS C - Guardian	Allot	JPM Guardian : Aberdeen Proving Ground, MD	0.000	0.000		0.691	Jun 2018	1.051	Jan 2019	-		1.051	Continuing	Continuing	0.000
EID TX - PM/MS SB - Management Support	Allot	JPM Medical Countermeasure Systems (JPM	6.341	0.209	Jan 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		MCS) : Fort Belvoir, VA													
EID TX - PM/MS SB - Management Support #2	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	2.943	2.150	Jan 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
EID TX - Contractor Systems Engineering/ Program Management Support	C/FP	Various : Various	7.061	0.219	Jan 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
AV TX - PM/MS - SB - Management Support	Allot	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	2.432	Jan 2017	1.232	Jan 2018	0.075	Jan 2019	-		0.075	Continuing	Continuing	0.000
AV TX - PM/MS - SB - Management Support #2	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.000	1.326	Jan 2017	1.573	Jan 2018	0.046	Jan 2019	-		0.046	Continuing	Continuing	0.000
AV TX - PM/MS - SB - Management Support #3	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Belvoir, VA	0.000	0.000		0.602	Jan 2018	0.046	Jan 2019	-		0.046	Continuing	Continuing	0.000
AV TX - PM/MS - SB - Management Support #4	C/FP	Various : Various	0.000	2.051	Jan 2017	1.975	Jan 2018	0.000		-		0.000	Continuing	Continuing	0.000
VAC BOT - PM/MS C - JPM Chemical and Biological Medical Systems (JPM CBMS), Fort Detrick, MD	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	15.734	1.178	Dec 2016	2.000	Dec 2017	2.738	Dec 2018	-		2.738	Continuing	Continuing	0.000
VAC BOT - PM/ MS S - JPEO-CBD	Allot	JPEO Chem/Bio Defense (JPEO-	0.000	4.402	Oct 2016	0.000		4.568	Dec 2018	-		4.568	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MANAGEMENT SUPPORT		CBD) : Aberdeen Proving Ground, MD													
VAC PLG - PM/MS S - Joint Vaccine Acquisition Program Management Office	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	19.636	6.000	Dec 2016	2.000	Dec 2017	4.188	Dec 2018	-		4.188	Continuing	Continuing	0.000
VAC PLG - PM/MS S - Program Management Support	Allot	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	38.590	4.333	Dec 2017	6.980	Dec 2017	0.000	Dec 2018	-		0.000	Continuing	Continuing	0.000
VAC SIP - PM/MS SB - Management Support	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	1.309	0.906	Mar 2017	0.300	Mar 2018	0.355	Mar 2019	-		0.355	Continuing	Continuing	0.000
VAC SIP - SBIR/STTR - SBIR/STTR Tax	Allot	USA Research Dev & Engr Cmd (RDECOM) : Aberdeen Proving Ground, MD	0.000	0.000		0.054	Mar 2018	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	111.247	33.066		21.990		19.421		-		19.421	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	383.376	92.313		136.553		107.815		-		107.815	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

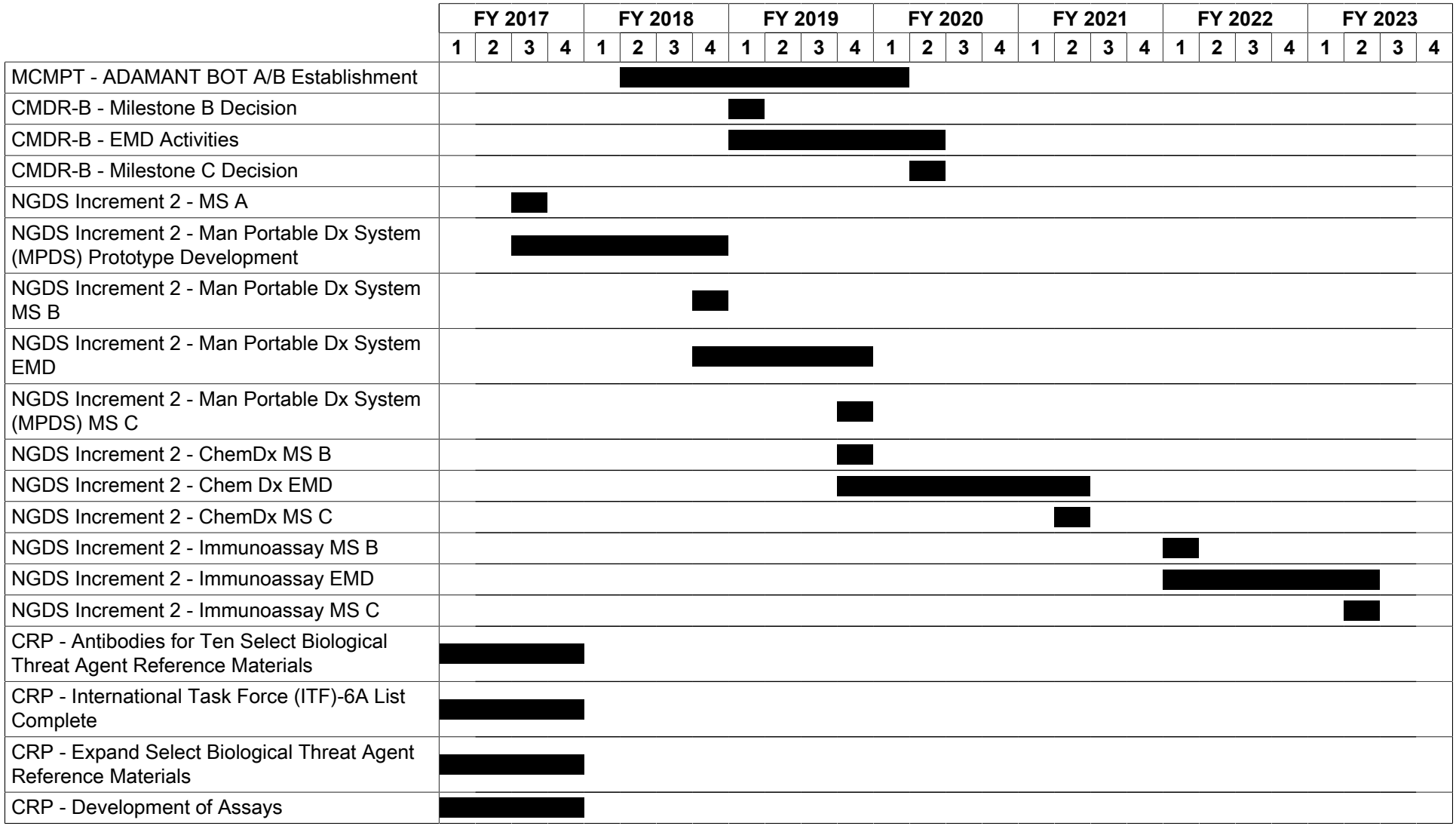

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

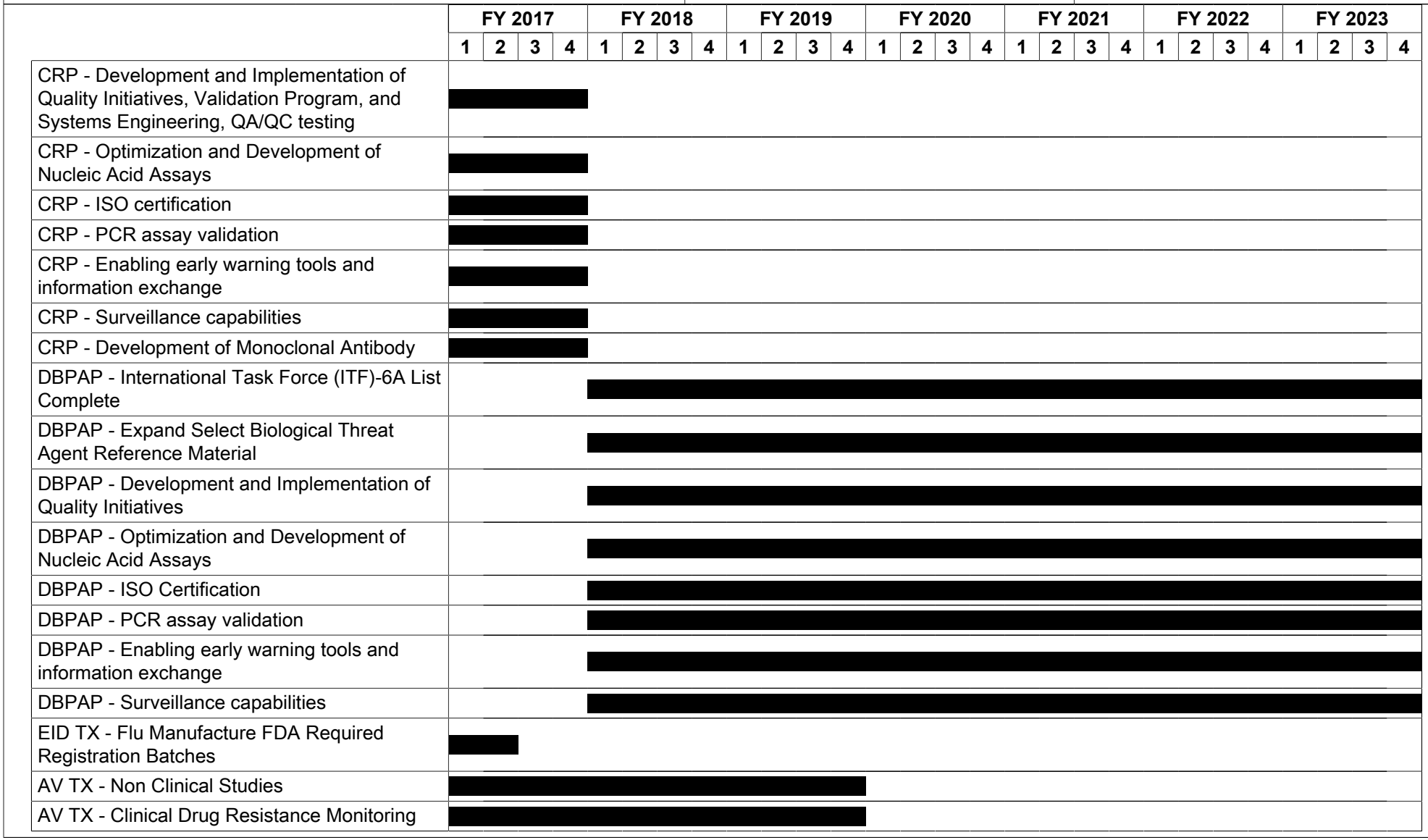

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

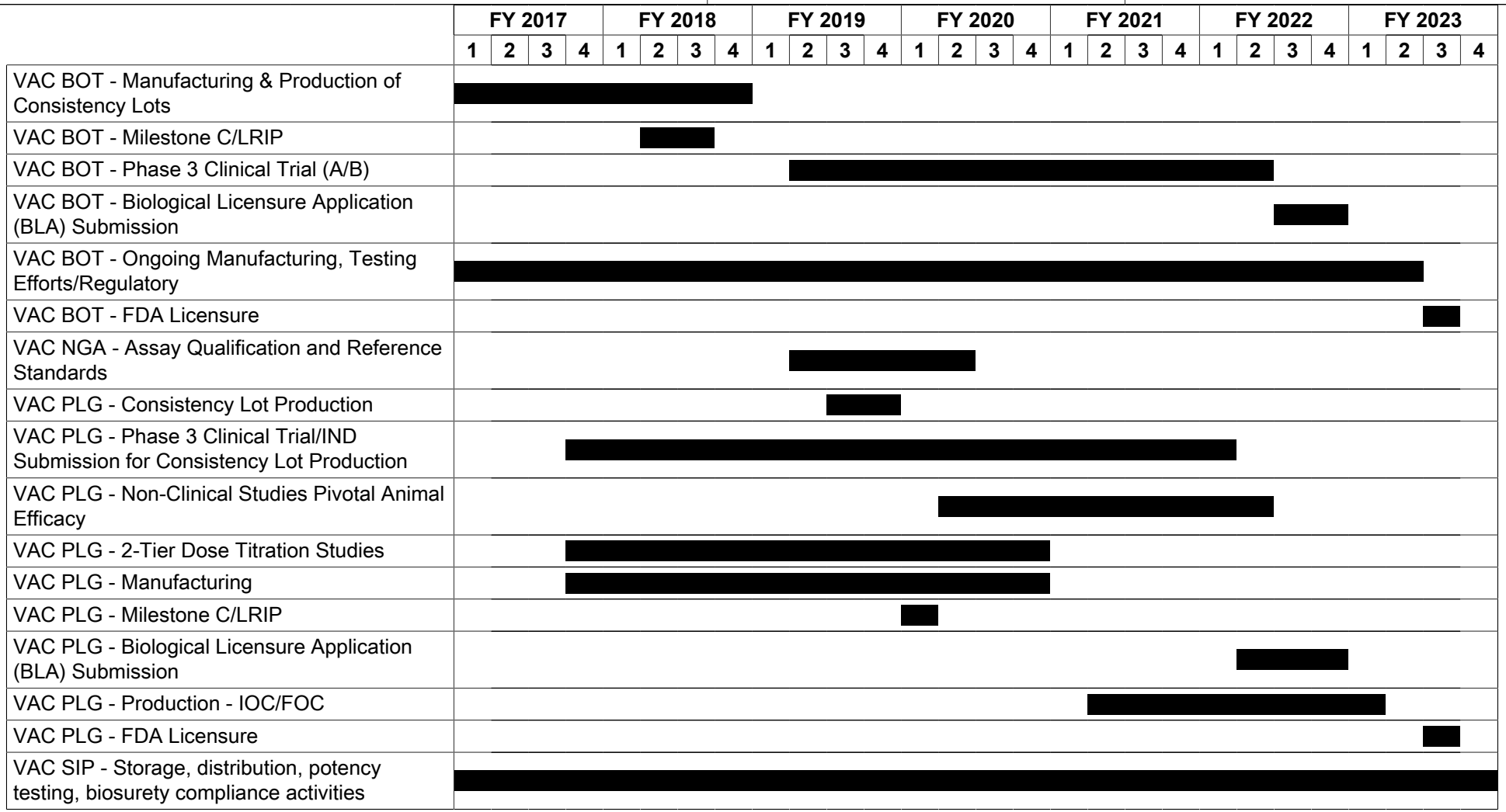

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MCMPT - ADAMANT BOT A/B Establishment	2	2018	1	2020
CMDR-B - Milestone B Decision	1	2019	1	2019
CMDR-B - EMD Activities	1	2019	2	2020
CMDR-B - Milestone C Decision	2	2020	2	2020
NGDS Increment 2 - MS A	3	2017	3	2017
NGDS Increment 2 - Man Portable Dx System (MPDS) Prototype Development	3	2017	4	2018
NGDS Increment 2 - Man Portable Dx System MS B	4	2018	4	2018
NGDS Increment 2 - Man Portable Dx System EMD	4	2018	4	2019
NGDS Increment 2 - Man Portable Dx System (MPDS) MS C	4	2019	4	2019
NGDS Increment 2 - ChemDx MS B	4	2019	4	2019
NGDS Increment 2 - Chem Dx EMD	4	2019	2	2021
NGDS Increment 2 - ChemDx MS C	2	2021	2	2021
NGDS Increment 2 - Immunoassay MS B	1	2022	1	2022
NGDS Increment 2 - Immunoassay EMD	1	2022	2	2023
NGDS Increment 2 - Immunoassay MS C	2	2023	2	2023
CRP - Antibodies for Ten Select Biological Threat Agent Reference Materials	1	2017	4	2017
CRP - International Task Force (ITF)-6A List Complete	1	2017	4	2017
CRP - Expand Select Biological Threat Agent Reference Materials	1	2017	4	2017
CRP - Development of Assays	1	2017	4	2017
CRP - Development and Implementation of Quality Initiatives, Validation Program, and Systems Engineering, QA/QC testing	1	2017	4	2017
CRP - Optimization and Development of Nucleic Acid Assays	1	2017	4	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CRP - ISO certification	1	2017	4	2017
CRP - PCR assay validation	1	2017	4	2017
CRP - Enabling early warning tools and information exchange	1	2017	4	2017
CRP - Surveillance capabilities	1	2017	4	2017
CRP - Development of Monoclonal Antibody	1	2017	4	2017
DBPAP - International Task Force (ITF)-6A List Complete	1	2018	4	2023
DBPAP - Expand Select Biological Threat Agent Reference Material	1	2018	4	2023
DBPAP - Development and Implementation of Quality Initiatives	1	2018	4	2023
DBPAP - Optimization and Development of Nucleic Acid Assays	1	2018	4	2023
DBPAP - ISO Certification	1	2018	4	2023
DBPAP - PCR assay validation	1	2018	4	2023
DBPAP - Enabling early warning tools and information exchange	1	2018	4	2023
DBPAP - Surveillance capabilities	1	2018	4	2023
EID TX - Flu Manufacture FDA Required Registration Batches	1	2017	2	2017
AV TX - Non Clinical Studies	1	2017	4	2019
AV TX - Clinical Drug Resistance Monitoring	1	2017	4	2019
VAC BOT - Manufacturing & Production of Consistency Lots	1	2017	4	2018
VAC BOT - Milestone C/LRIP	2	2018	3	2018
VAC BOT - Phase 3 Clinical Trial (A/B)	2	2019	2	2022
VAC BOT - Biological Licensure Application (BLA) Submission	3	2022	4	2022
VAC BOT - Ongoing Manufacturing, Testing Efforts/Regulatory	1	2017	2	2023
VAC BOT - FDA Licensure	3	2023	3	2023
VAC NGA - Assay Qualification and Reference Standards	2	2019	2	2020
VAC PLG - Consistency Lot Production	3	2019	4	2019
VAC PLG - Phase 3 Clinical Trial/IND Submission for Consistency Lot Production	4	2017	1	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *MEDICAL BIOLOGICAL DEFENSE (EMD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
VAC PLG - Non-Clinical Studies Pivotal Animal Efficacy	2	2020	2	2022
VAC PLG - 2-Tier Dose Titration Studies	4	2017	4	2020
VAC PLG - Manufacturing	4	2017	4	2020
VAC PLG - Milestone C/LRIP	1	2020	1	2020
VAC PLG - Biological Licensure Application (BLA) Submission	2	2022	4	2022
VAC PLG - Production - IOC/FOC	2	2021	1	2023
VAC PLG - FDA Licensure	3	2023	3	2023
VAC SIP - Storage, distribution, potency testing, biosurety compliance activities	1	2017	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program			Date: February 2018
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COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
MC5: *MEDICAL CHEMICAL DEFENSE (EMD)*	-	51.903	47.388	62.092	-	62.092	38.576	40.607	31.746	25.740	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the development of medical materiel and other medical equipment items necessary to provide an effective capability for medical defense against chemical warfare agent threats facing U.S. forces in the field. This project supports efforts in the Engineering and Manufacturing Development (EMD) phase of the acquisition strategy for prophylactic, pre-treatment, and therapeutic drugs and diagnostic medical devices for the protection, treatment, detection, and medical management of chemical warfare agent exposures. Project provides for the research and development of safety studies, manufacturing scale-up, process validation, drug interaction, performance test, and submission of the Food and Drug Administration (FDA) drug licensure application(s). This program currently includes: (1) Alternative Autoinjector (AUTOINJ), which consists of investigating an FDA approved alternative source(s), beyond the single current DoD source, for autoinjectors that deliver DoD nerve agent antidote and treatment capabilities to the warfighter; mitigates capability fielding and operational readiness risks. This resulted from the manufacturing and quality issues for the fielded ATNAA product, the oxime (2-PAM) and atropine in a dual chambered autoinjector. (2) The Advanced Anticonvulsant System (AAS), consists of Midazolam in an autoinjector for treatment of nerve agent induced seizures. Midazolam, injected intramuscularly, will treat traditional nerve agent and non-traditional agent-induced seizures and prevent subsequent neurological damage. Midazolam is more water-soluble than diazepam (the currently fielded medication to control nerve agent-induced seizures) and terminates nerve agent-induced seizures more quickly than diazepam. AAS will not eliminate the need for other protective and therapeutic systems; (3) Bioscavenger - Plasma (BSCAV-P), a new capability, to be used as a prophylaxis against nerve agents; (4) Improved Nerve Agent Treatment System (INATS) an enhanced chemical warfare nerve agent treatment regimen consisting of an improved oxime to replace the current fielded oxime 2-pralidoxime chloride (2-PAM), a centrally acting therapeutic to increase survival, and non-clinical studies to demonstrate the safety of pyridostigmine bromide (PB) as a pretreatment for nerve agents in addition to soman.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) AUTOINJ	2.846	3.241	1.000
Description: Manufacturing			
FY 2018 Plans: Continue manufacturing of autoinjector consistency lots.			
FY 2019 Plans: Continue manufacturing of autoinjector consistency lots.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Decrease due to change in program/project technical parameters.			
Title: 2) AUTOINJ ***Description:*** Testing ***FY 2018 Plans:*** Continue storage stability and bioequivalency testing for autoinjector. ***FY 2019 Plans:*** Continue storage stability and bioequivalency testing for atropine, 2PAM, diazepam & dual drug delivery autoinjectors. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase due to change in program/project technical parameters.	1.980	2.500	9.000
Title: 3) AUTOINJ ***Description:*** FDA ***FY 2018 Plans:*** Initiate FDA preparation, filing, and meetings for single and dual drug autoinjectors. ***FY 2019 Plans:*** Continue FDA preparation, filing, and meetings for single and dual drug autoinjectors.	0.218	0.500	0.500
Title: 4) AUTOINJ ***FY 2018 Plans:*** Initiate prototype development of single and dual drug autoinjector ***FY 2019 Plans:*** Continue prototype development of single and dual drug autoinjector. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	-	2.250	2.191
Title: 5) AUTOINJ ***FY 2018 Plans:*** Initiate human factors and environmental testing for single and dual drug autoinjectors. ***FY 2019 Plans:***	-	1.350	1.000

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Continue human factors and environmental testing for single and dual drug autoinjectors. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 6) AAS ***FY 2019 Plans:*** Continue non-clinical efficacy studies in non-human primates to address FDA concerns. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase due to change in program/project technical parameters.	-	-	9.640
Title: 7) BSCAV-P ***Description:*** Non-clinical ***FY 2018 Plans:*** Continue pilot nonclinical toxicity and pharmacokinetic (PK) and efficacy studies. ***FY 2019 Plans:*** Continue/complete pilot nonclinical toxicity and pharmacokinetic (PK) and efficacy studies. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase due to change in program/project technical parameters.	7.018	4.337	8.000
Title: 8) BSCAV-P ***Description:*** Manufacturing ***FY 2018 Plans:*** Continue cGMP manufacturing for clinical and nonclinical studies. ***FY 2019 Plans:*** Continue cGMP manufacturing for clinical and nonclinical studies. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase due to change in program/project technical parameters.	15.809	8.505	13.001
Title: 9) BSCAV-P ***Description:*** Clinical	4.100	3.255	2.000

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2018 Plans: Continue phase 1 clinical pharmacokinetic (PK) and safety studies. ***FY 2019 Plans:*** Continue phase 1 clinical pharmacokinetic (PK) and safety studies. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to change in program/project technical parameters.			
Title: 10) BSCAV-P ***Description:*** Manufacturing ***FY 2018 Plans:*** Initiate Human Clinical Phase 2/3 Study for expanded safety. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to change in program/project schedule.	6.600	4.830	-
Title: 11) BSCAV-P ***Description:*** Non-clinical ***FY 2018 Plans:*** Continue nonclinical studies to evaluate drug-drug interactions in small animal models. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to change in program/project schedule.	3.400	2.520	-
Title: 12) INATS ***Description:*** Non-clinical	1.500	-	-
Title: 13) INATS ***Description:*** Manufacturing	1.800	-	-
Title: 14) INATS ***Description:*** Clinical ***FY 2018 Plans:***	3.000	5.400	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Complete centrally acting phase 1 clinical trial. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Engineering and Manufacturing Development Phase.			
Title: 15) INATS ***Description:*** Manufacturing ***FY 2018 Plans:*** Continue large-scale centrally acting current Good Manufacturing Practice (cGMP) efforts and manufacturing of clinical trial material. ***FY 2019 Plans:*** Continue large-scale centrally acting current Good Manufacturing Practice (cGMP) efforts and manufacturing of clinical trial material. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase due to fact of life change in the program/project.	3.632	2.294	6.304
Title: 16) INATS ***FY 2018 Plans:*** Initiate & complete centrally acting reformulation efforts and bridging studies. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to delay of a Milestone decision.	-	6.406	-
Title: 17) INATS ***Description:*** Clinical ***FY 2019 Plans:*** Initiate Centrally Acting phase two clinical trial. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Engineering and Manufacturing Development Phase.	-	-	3.116
Title: 18) INATS ***Description:*** Studies	-	-	5.516

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2019 Plans: Continue Centrally Acting animal & efficacy studies. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project transitioned to Engineering and Manufacturing Development Phase.			
Title: 19) INATS ***Description:*** Studies ***FY 2019 Plans:*** Continue Pyridostigmine Bromide (PB) safety studies. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase/Decrease due to fact of life change in the program/project.	-	-	0.824
Accomplishments/Planned Programs Subtotals	51.903	47.388	62.092

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• JM6677: *ADVANCED ANTICONVULSANT SYSTEM (AAS)*	0.000	0.000	0.360	-	0.360	0.360	2.700	2.700	4.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

ALTERNATE AUTOINJECTOR MANUFACTURER CAPABILITY (AUTOINJ)

The Alternative Autoinjector Investigation will identify an alternative source(s) to develop, and provide required and FDA approved autoinjector-delivered nerve agent antidote and treatment capabilities to the services. Currently, a single DoD source provides all of these capabilities. That single source is experiencing manufacturing and quality issues leading to risk that the services may not meet their operational requirements. This effort leverages previous work begun under the Advanced Anticonvulsant System (AAS) autoinjector-delivered product wherein the single manufacturer notified the AAS program office that the FDA had noted manufacturing and quality issues which impacted the AAS program as well as all other DoD autoinjector-delivered nerve agent antidotes and treatments. At that time, the AAS program began investigating alternative sources through the release of a request for Information (RFI). Subsequent to the RFI, the AAS program awarded a task order under an existing IDIQ contract vehicle to begin the identification efforts. As this issue is well beyond the scope of the AAS program and impacts all developmental and fielded

autoinjector-delivered capabilities, the Joint Program Executive Office, Chemical and Biological Defense (JPEO-CBD) approved the strategy to expand the alternative autoinjector effort beyond AAS, thus initiating a new effort benefiting both fielded and developmental capabilities. The JPEO-CBD also approved the management and oversight of the effort via a series of In-Process Reviews (IPRs). The effort will proceed through the submission of a New Drug Application and will culminate with FDA approval of an alternative autoinjector source(s).

ADVANCED ANTICONVULSANT SYSTEM (AAS)

The Advanced Anticonvulsant System, consists of Midazolam in an autoinjector for treatment of nerve agent induced seizures. Midazolam, injected intramuscularly, will treat traditional nerve agent and non-traditional nerve agent-induced seizures and prevent subsequent neurological damage. Midazolam is more water-soluble than diazepam (the currently fielded medication to control nerve agent-induced seizures) and terminates nerve agent-induced seizures more quickly than diazepam. AAS will not eliminate the need for other protective and therapeutic systems.

A contractor shall be responsible for conducting activities associated with drug development in a manner consistent with eventual approval by the Food and Drug Administration (FDA). The contractor shall sponsor the drug to the FDA and hold all approvals and/or licenses. During the System Development and Demonstration (SDD) Phase, large scale manufacturing, Phase 2 human clinical safety studies and definitive animal efficacy studies will be conducted. FDA approval of the countermeasure is an exit criterion for the SDD phase. During the Production and Deployment Phase, sufficient quantities of product to meet Initial Operational Capability will be purchased. Subsequent purchases will be made by the Defense Logistics Agency. Any post-marketing surveillance requested by the FDA will be the responsibility of the contractor.

BIOSCAVENGER (BSCAV)

Used a serial evaluation of candidates to achieve competitive prototyping in the Technology Maturation and Risk Reduction phase which culminated in a down-select decision. The Bioscavenger program issued a Request For Proposal (RFP) to select the best value for the government for a prophylaxis to support an initial limited user group. During the System Development and Demonstration (SDD) phase the program will continue to exercise management oversight with system integration support of a commercial partner to ensure that manufacturing of the product is in accordance with Food and Drug Administration (FDA) regulations and guidelines. Prior to FDA licensure, a commercial partner will perform a Phase 2 human clinical safety study, definitive animal efficacy studies, and toxicology studies. The system integrator will also develop and manufacture a product formulation and product packaging and will submit a Biologics License Application and seek FDA approval. The SDD phase will culminate in FDA licensure of the Bioscavenger. During the Production and Deployment phase, the Bioscavenger-Plasma (BSCAV-P) program, in conjunction with a commercial partner, will pursue full rate production. Any post-marketing surveillance requested by the FDA will be the responsibility of the contractor. Concurrently the Bioscavenger program will conduct an analysis of alternative manufacturing technologies, investigate additional product indications, and pursue an expanded force prophylaxis once alternate technologies have matured.

IMPROVED NERVE AGENT TREATMENT SYSTEM (INATS)

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

The INATS' evolutionary Acquisition Strategy has expanded to insert a centrally-acting (CA) anticholinergic agent. This strategy employs an incremental approach to provide independent, and more rapid development and delivery in a combined treatment regimen of (1) an improved oxime, and (2) CA capabilities, and to evaluate safety of PB when treating exposure of other traditional and novel organophosphorous nerve agents. 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 nonclinical studies to evaluate safety of pyridostigmine bromide (PB) when used to counter other traditional and novel organophosphorus nerve agents. In the Engineering and Manufacturing Development (EMD) phase for the oxime and CA components, 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 products. 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-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AUTOINJ - HW S - Autoinjector - Manufacturing of Consistency Lots	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	2.236	Dec 2016	3.000	Dec 2017	1.000	Dec 2018	-		1.000	Continuing	Continuing	0.000
AUTOINJ - HW C - Dual Drug Delivery Device (D4) Prototype Development	C/CPFF	Emergent Biosolutions : Gaithersburg/ Rockville, MD	0.000	0.500	Jul 2017	0.000		5.000	Nov 2018	-		5.000	Continuing	Continuing	0.000
AUTOINJ - HW C - Prototype Development	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.000		2.125	Oct 2017	2.000	Nov 2018	-		2.000	Continuing	Continuing	0.000
BSCAV-P - HW S - cGMP Manufacturing and Process Validation	C/CPFF	DynPort Vaccine Company (DVC) LLC. : Frederick, MD	22.043	13.695	Jan 2017	7.055	Jan 2018	11.222	Jan 2019	-		11.222	Continuing	Continuing	0.000
BSCAV-P - HW S - Evaluation of Alternative Source Material	C/CPFF	DynPort Vaccine Company (DVC) LLC. : Frederick, MD	13.100	6.024	Dec 2016	3.844	Jan 2018	0.000		-		0.000	Continuing	Continuing	0.000
INATS - HW C - cGMP Efforts and Manufacture of Material	C/CPFF	Battelle Memorial Institute : Columbus, OH	2.665	4.774	Dec 2016	2.163	Dec 2017	5.494	Dec 2018	-		5.494	Continuing	Continuing	0.000
INATS - HW C - Reformulation & Bridging Studies	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.000		5.135	Oct 2017	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	37.808	27.229		23.322		24.716		-		24.716	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AUTOINJ - TD/D S - Autoinjector - FDA NDA coordination	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.190	Jun 2017	0.363	Oct 2017	1.000	Nov 2018	-		1.000	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	Project (Number/Name) MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
INATS - ILS S - Regulatory Support	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.664	0.260	Jun 2017	0.275	Jun 2018	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	0.664	0.450		0.638		1.000		-		1.000	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AUTOINJ - DTE S - Autoinjector - Stability Testing	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	1.760	Jun 2017	2.215	Oct 2017	2.000	Nov 2018	-		2.000	Continuing	Continuing	0.000
AUTOINJ - DTE C - Human Factors Testing	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.000		1.200	Oct 2017	1.386	Nov 2018	-		1.386	Continuing	Continuing	0.000
AAS - DTE C - Non-clinical studies	C/CPFF	TBD : TBD	0.000	0.000		0.000		9.158	Nov 2018	-		9.158	Continuing	Continuing	0.000
BSCAV-P - OTHT S - Phase 1 PK and Safety Studies	C/CPFF	DynPort Vaccine Company (DVC) LLC. : Frederick, MD	0.000	3.310	Jan 2017	2.326	Jan 2018	1.445	Jan 2019	-		1.445	Continuing	Continuing	0.000
BSCAV-P - OTHT S - Nonclinical Studies to evaluate drug-drug interactions	C/CPFF	DynPort Vaccine Company (DVC) LLC. : Frederick, MD	0.000	1.870	Jan 2017	1.924	Jan 2018	0.000		-		0.000	Continuing	Continuing	0.000
BSCAV-P - OTHT S - Pilot Nonclinical PK Efficacy Studies	C/CPFF	DynPort Vaccine Company (DVC) LLC. : Frederick, MD	7.663	6.340	Jan 2017	4.152	Jan 2018	6.256	Jan 2019	-		6.256	Continuing	Continuing	0.000
INATS - DTE S - Centrally Acting Animal & Efficacy Studies	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.000		0.000		4.800	Nov 2018	-		4.800	Continuing	Continuing	0.000
INATS - DTE S - Centrally Acting Phase 2 Clinical Trial	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.000		0.000		2.804	Nov 2018	-		2.804	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
INATS - DTE S - Pyridostigmine Bromide (PB) Safety Studies	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.000		0.000		0.788	Nov 2018	-		0.788	Continuing	Continuing	0.000
INATS - DTE S - Nonclinical Studies for PB	C/CPFF	Battelle Memorial Institute : Columbus, OH	4.600	1.140	Jan 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
INATS - DTE S - INATS - Centrally Acting Phase 1 Trial	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	2.240	Dec 2016	4.797	Dec 2017	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	12.263	16.660		16.614		28.637		-		28.637	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AUTOINJ - PM/MS S - Autoinjector - Program Support	PO	JPM Chem/Bio Medical Systems (JPM CBMS) : Fort Detrick, MD	0.000	0.358	Dec 2016	0.938	Dec 2017	1.305	Nov 2018	-		1.305	Continuing	Continuing	0.000
AAS - PM/MS C - Medical Countermeasure Systems (MCS)	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	1.727	0.000		0.000		0.482	Nov 2018	-		0.482	Continuing	Continuing	0.000
BSCAV-P - PM/MS S - MCS Management Support	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	4.286	1.657	Mar 2017	1.031	Mar 2018	1.011	Mar 2019	-		1.011	Continuing	Continuing	0.000
BSCAV-P - PM/MS S - Product Management Support	C/FFP	Various : Various	4.322	1.457	Jun 2017	1.210	Jun 2018	1.187	Jun 2019	-		1.187	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BSCAV-P - PM/MS S - Product Management Support #2	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	1.396	0.240	Mar 2017	0.240	Mar 2018	0.247	Mar 2019	-		0.247	Continuing	Continuing	0.000
BSCAV-P - PM/MS C - Program Management Support	Allot	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	4.225	2.334	Mar 2017	1.665	Mar 2018	1.633	Mar 2019	-		1.633	Continuing	Continuing	0.000
INATS - PM/MS S - Product Management Support	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.460	0.165	Dec 2016	0.170	Dec 2017	0.176	Dec 2018	-		0.176	Continuing	Continuing	0.000
INATS - PM/MS S - Program Management Support	Allot	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.950	0.528	Mar 2017	0.630	Mar 2018	0.704	Mar 2019	-		0.704	Continuing	Continuing	0.000
INATS - PM/MS S - Product Management Support #2	C/FFP	Various : Various	0.985	0.825	Jun 2017	0.930	Jun 2018	0.994	Jun 2019	-		0.994	Continuing	Continuing	0.000
		Subtotal	18.351	7.564		6.814		7.739		-		7.739	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	69.086	51.903		47.388		62.092		-		62.092	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

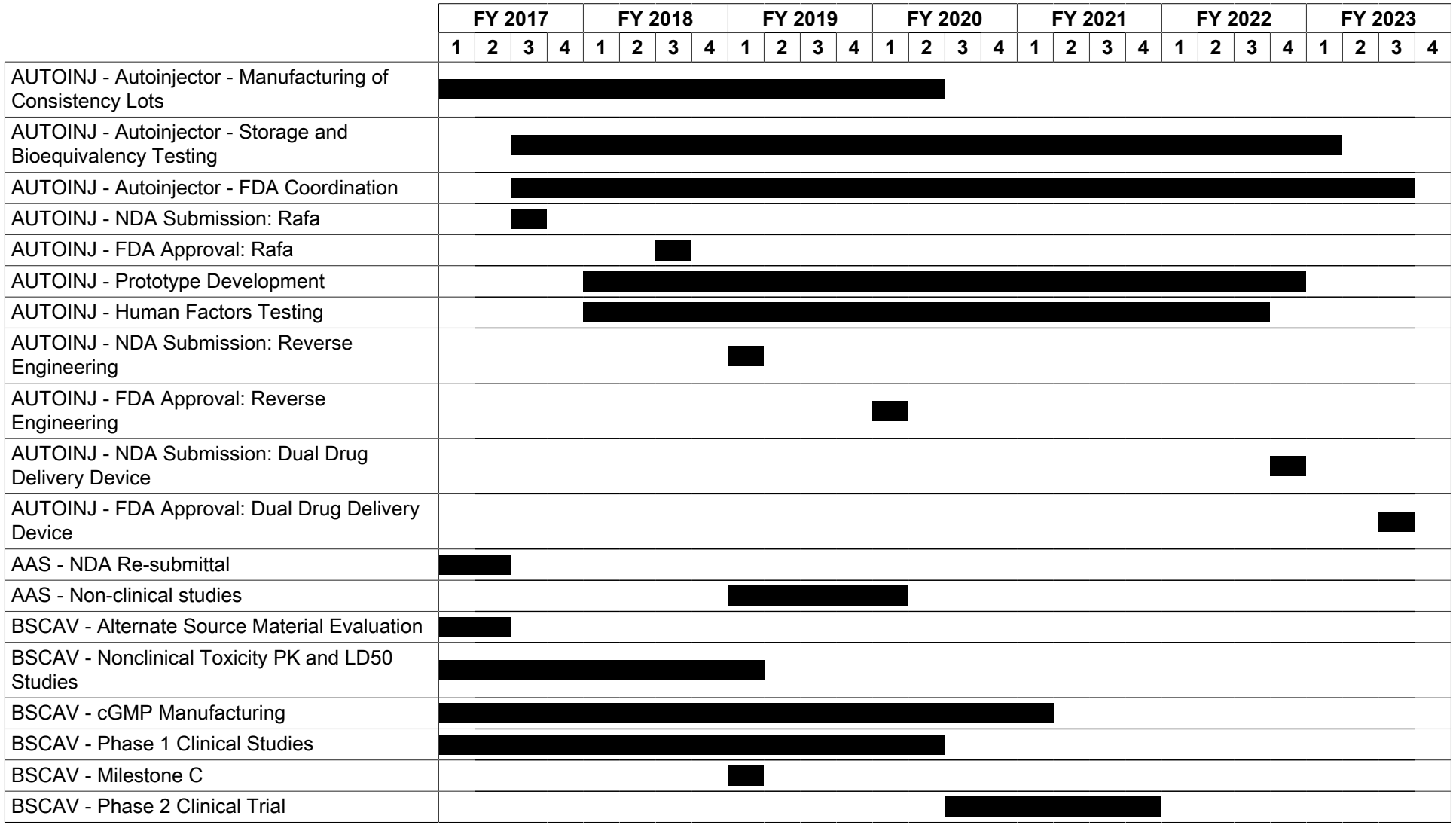

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

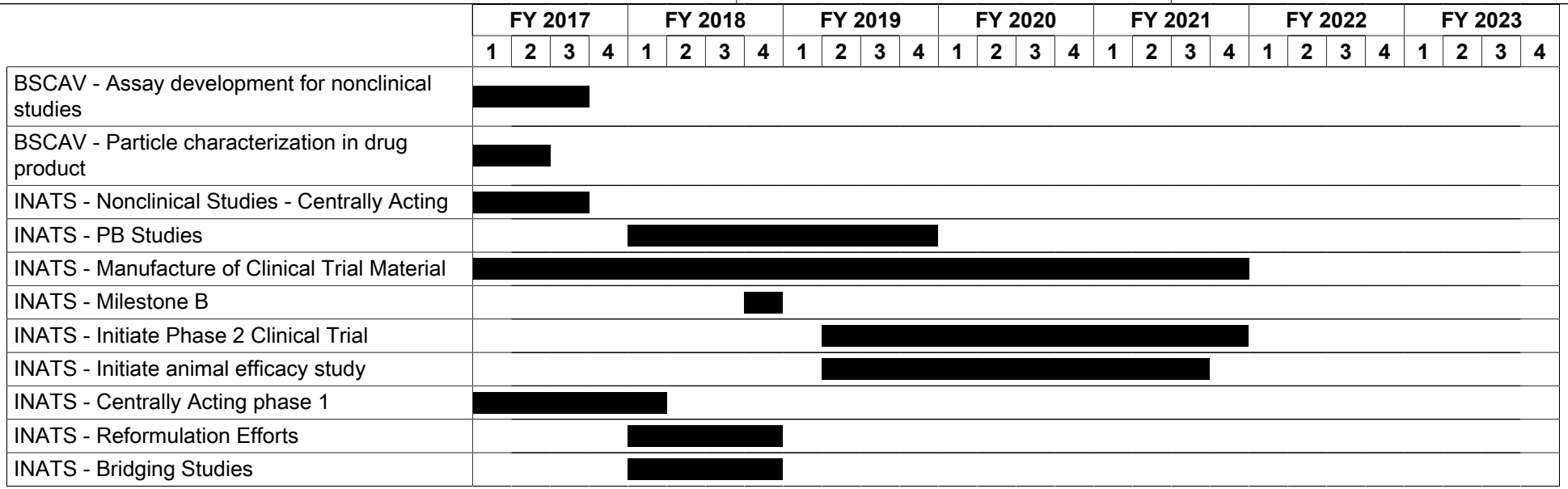

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AUTOINJ - Autoinjector - Manufacturing of Consistency Lots	1	2017	2	2020
AUTOINJ - Autoinjector - Storage and Bioequivalency Testing	3	2017	1	2023
AUTOINJ - Autoinjector - FDA Coordination	3	2017	3	2023
AUTOINJ - NDA Submission: Rafa	3	2017	3	2017
AUTOINJ - FDA Approval: Rafa	3	2018	3	2018
AUTOINJ - Prototype Development	1	2018	4	2022
AUTOINJ - Human Factors Testing	1	2018	3	2022
AUTOINJ - NDA Submission: Reverse Engineering	1	2019	1	2019
AUTOINJ - FDA Approval: Reverse Engineering	1	2020	1	2020
AUTOINJ - NDA Submission: Dual Drug Delivery Device	4	2022	4	2022
AUTOINJ - FDA Approval: Dual Drug Delivery Device	3	2023	3	2023
AAS - NDA Re-submittal	1	2017	2	2017
AAS - Non-clinical studies	1	2019	1	2020
BSCAV - Alternate Source Material Evaluation	1	2017	2	2017
BSCAV - Nonclinical Toxicity PK and LD50 Studies	1	2017	1	2019
BSCAV - cGMP Manufacturing	1	2017	1	2021
BSCAV - Phase 1 Clinical Studies	1	2017	2	2020
BSCAV - Milestone C	1	2019	1	2019
BSCAV - Phase 2 Clinical Trial	3	2020	4	2021
BSCAV - Assay development for nonclinical studies	1	2017	3	2017
BSCAV - Particle characterization in drug product	1	2017	2	2017
INATS - Nonclinical Studies - Centrally Acting	1	2017	3	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *MEDICAL CHEMICAL DEFENSE (EMD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
INATS - PB Studies	1	2018	4	2019
INATS - Manufacture of Clinical Trial Material	1	2017	4	2021
INATS - Milestone B	4	2018	4	2018
INATS - Initiate Phase 2 Clinical Trial	2	2019	4	2021
INATS - Initiate animal efficacy study	2	2019	3	2021
INATS - Centrally Acting phase 1	1	2017	1	2018
INATS - Reformulation Efforts	1	2018	4	2018
INATS - Bridging Studies	1	2018	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program											Date: February 2018	
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*				Project (Number/Name) TE5 / *TEST & EVALUATION (EMD)*			
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
TE5: *TEST & EVALUATION (EMD)*	-	2.744	9.548	9.056	-	9.056	7.788	7.990	7.394	7.394	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports the Chemical Biological Defense Portfolio (CBDP) Product Director, Test, Equipment, Strategy, and Support (PD TESS). Budget Item will continue as Chem Bio Material Assessment Infrastructure (CBMAI) beginning in fiscal year 2019. PD TESS/CBMAI provides test infrastructure products for testing and evaluating chemical and biological defense systems throughout the life cycle acquisition process. PD TESS/CBMAI products are aligned in two groups to include: (1) Laboratory; (2) Field. The program name changed to highlight the Assessment function, which includes: analysis and analytical products conducted in support of infrastructure improvements.

(1) Laboratory: The products for this area are the Non-Traditional Agent Defense Test System (NTADTS) improvements and 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 Aerosol-Vapor Chemical Agent Detector (AVCAD) (formerly Next Generation Chemical Detector (NGCD 1)), Proximity Chemical Agent Detector (PCAD) (formerly NGCD 2), Multiphase Chemical Agent Detector (MPCAD) (formerly NGCD 3), Wearable Chemical Agent Detector (WCAD) (formerly NGCD 4), Joint Sensitive Equipment Wipes (JSEW), and Common Analytical Laboratory System (CALS). Future efforts will include the development of test methods and methodologies for additional classes of agents.

(2) Field: The products for this area are Test Grid, Open Architecture Data Management System (OADMS), 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 OADMS is an open architecture 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 Multi Commodity Agent Chamber (MCAC) is an agent chamber that will be configurable for use by multiple commodities with emphasis placed on CBRN Sensor Integration on Robotic Platforms (C-SIRP). The CBD acquisition programs supported are the Joint Expeditionary Collective Protection (JECP), Next Generation Chemical Detector (NGCD), Joint Biological Tactical Detection System (JBTDS), Uniform Integrated Protection Ensemble (UIPE), CBRN Sensor Integration on Robotic Platforms (C-SIRP), and the Joint USFK Point and Integrated Threat Recognition (JUPITR) Enhanced Capability Demonstration (ECD).

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

Exhibit R-2A, RDT&E Project Justification: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** TE5 / *TEST & EVALUATION (EMD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 1) PD TESS - Program Management ***Description:*** Program Management ***FY 2018 Plans:*** Continue Government Integrated Product Team program management, systems engineering and IPT support. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.	0.853	2.700	-
Title: 2) PD TESS- Tech Refresh ***Description:*** Initiated a methodology and design change study to Upgrade referee equipment and fixtures at West Desert Test Center. ***FY 2018 Plans:*** Initiate upgrades for obsolescence of referee equipment and fixtures. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.	-	1.948	-
Title: 3) PD TESS - Non-Traditional Agent Defense Test System (NTADTS) ***Description:*** The NTADTS infrastructure is multi-component advanced threat test system designed to test CBDP equipment against advanced threats in all states of matter and under environmental conditions. ***FY 2018 Plans:*** Continue to transition additional validated test subsystems to the CB T&E community. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.	0.485	2.800	-
Title: 4) PD TESS - Test Grid ***Description:*** Provided the network referee and dissemination equipment in the data management system (DMS) to synchronize test and meta data under a single GPS clock for accuracy.	1.406	-	-
Title: 5) PD TESS - Joint Ambient Breeze Tunnel (JABT) ***Description:*** Conducted study on methodology and design changes to prevent future impacts of wind channeling effects in the ASC and algorithm changes in the Test Grid Data Management System (DMS).	-	0.900	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2018 Plans: Complete upgrades and transition. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.			
Title: 6) PD TESS - Active Standoff Chamber - (ASC) ***Description:*** Replaced and improved the data network of the chamber test data collection and data recoding system to the Test Grid Data Management System (DMS) for accuracy. ***FY 2018 Plans:*** Complete upgrades and transition. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.	-	1.200	-
Title: 7) CBMAI - Program Management ***Description:*** Program Management ***FY 2019 Plans:*** Continue Government Integrated Product Team program management, systems engineering, and IPT Support. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	2.750
Title: 8) CBMAI - Non-Traditional Agent Defense Test System (NTADTS) ***Description:*** The NTADTS infrastructure is multi-component advanced threat test system designed to test CBDP equipment against advanced threats in all states of matter and under environmental conditions. ***FY 2019 Plans:*** Complete transition of validated aerosol dissemination infrastructure. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	0.750
Title: 9) CBMAI - Open Architecture Data Management System (OADMS) ***Description:*** Provides a plug-and-play capability to the Test Grid using Open Architecture protocol to integrate legacy systems.	-	-	1.200

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2019 Plans: Conduct software modifications to the DMS. Miniaturize the dissemination system to meet requirements for portable capabilities. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.			
Title: 10) CBMAI - Integrated Early Warning ***Description:*** The stand-off chamber is to review, redesign and upgrade a passive stand-off chamber for testing of modified passive FT-IR systems. ***FY 2019 Plans:*** Upgrade test infrastructure (TI) to support single and multi pixel standoff detection both proximal and long range applications. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	2.500
Title: 11) CBMAI - Multi Commodity Agent Chamber (MCAC) ***Description:*** Environmentally controlled live agent test chamber to support component and system level tests that provide T&E level data representative of operational agent exposure across commodities (test modules). ***FY 2019 Plans:*** Modify chamber to support programs of records such as Chemical Sensor Integration on Robotic Platforms (C-SIRP) and Chemical Surface Detection (CSD). ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	1.606
Title: 12) Upgrades, V&V, Transitions ***Description:*** Upgrades, Validation & Verification (V&V), and Transitions ***FY 2019 Plans:*** Conduct infrastructure upgrades, conduct V&V against requirements, and prepare for transition. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	-	-	0.250
Accomplishments/Planned Programs Subtotals	2.744	9.548	9.056

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• TE7: *TEST & EVALUATION (OP SYS DEV)*	2.551	6.605	6.318	-	6.318	5.416	5.733	5.733	5.733	Continuing	Continuing

Remarks

D. Acquisition Strategy

TEST EQUIPMENT, STRATEGY & SUPPORT (PD TESS)

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

CHEMICAL BIOLOGICAL MATERIEL ASSESSMENT INFRASTRUCTURE (CBMAI)

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

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program			Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PD TESS - HW S - Test Grid	C/CPFF	Harris : Inc, Herdnon, VA	0.000	0.754	Jul 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - HW S - Test Grid- Top Level Drawings	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.002	Dec 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - HW S - Test Grid #2	MIPR	Various : Various	0.000	0.340	Dec 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - Test Infrastructure - HW S - Test Grid Instrumentation/ Data Network	MIPR	Dugway Proving Ground (DPG) : Dugway, UT	5.913	0.310	Dec 2016	0.000		0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - Test Infrastructure - HWS - NTA Defense Test System Design/Fabrication/ Installation	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	3.113	0.485	Dec 2016	4.063	Dec 2017	0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - HW S - ASC Component Upgrades	C/CPFF	Various : Various	0.000	0.000		0.960	Jan 2018	0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - HW S - ASC Component Upgrades #2	MIPR	Various : Various	0.000	0.000		0.240	Jan 2018	0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - HW S - JABT Component Upgrades	C/CPFF	TBD : TBD	0.000	0.000		0.585	Jan 2018	0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - HW S - JABT Component Upgrades #2	MIPR	Various : Various	0.000	0.000		0.315	Jan 2018	0.000		-		0.000	Continuing	Continuing	0.000
CBMAI - HW S - Open Architecture Data Management System (OADMS) Software Modifications	C/CPFF	Various : Various	0.000	0.000		0.000		1.200	Dec 2018	-		1.200	Continuing	Continuing	0.000
CBMAI - HW S - NTA Defense Test System Fabrication/Installation	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.750	Dec 2018	-		0.750	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program		Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CBMAI - HW S - Standoff Detection	C/CPFF	Various : Various	0.000	0.000		0.000		2.500	Dec 2018	-		2.500	Continuing	Continuing	0.000
CBMAI - HW S - Multi Commodity Agent Chamber (MCAC)	C/CPFF	MRIGlobal : Kansas City, MO	0.000	0.000		0.000		1.606	Dec 2018	-		1.606	Continuing	Continuing	0.000
		Subtotal	9.026	1.891		6.163		6.056		-		6.056	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CBMAI - OTHT S - Upgrades, V&V, Transition	Various	Various : Various	0.000	0.000		0.000		0.250	Jan 2019	-		0.250	Continuing	Continuing	0.000
		Subtotal	0.000	0.000		0.000		0.250		-		0.250	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PD TESS - Test Infrastructure - PM/MS S - Program Management/ Systems Engineering Support	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	9.225	0.853	Nov 2016	3.385	Dec 2017	0.000		-		0.000	Continuing	Continuing	0.000
CBMAI - PM/MS S - Program Management/ Systems Engineering Support	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.000	0.000		0.000		2.750	Dec 2018	-		2.750	Continuing	Continuing	0.000
		Subtotal	9.225	0.853		3.385		2.750		-		2.750	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Chemical and Biological Defense Program			Date: February 2018
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	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	18.251	2.744		9.548		9.056		-		9.056	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** TE5 / *TEST & EVALUATION (EMD)*

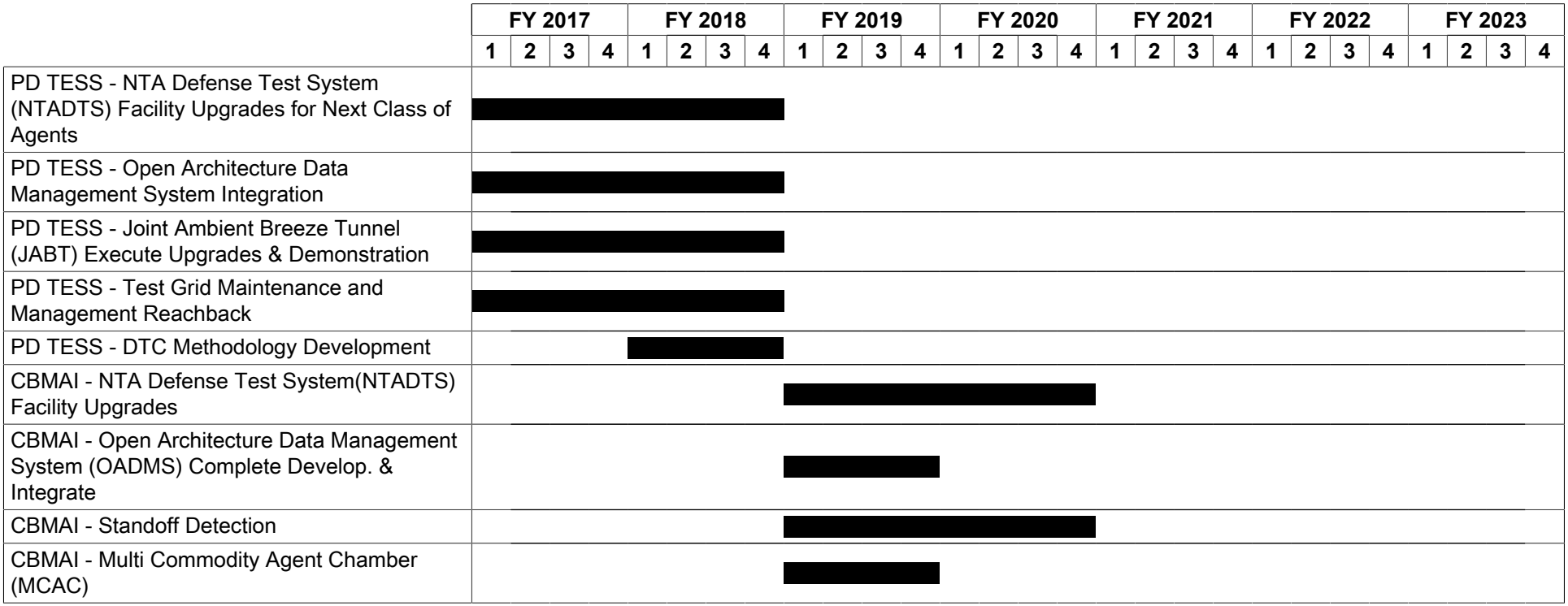

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Chemical and Biological Defense Program		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** TE5 / *TEST & EVALUATION (EMD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
PD TESS - NTA Defense Test System (NTADTS) Facility Upgrades for Next Class of Agents	1	2017	4	2018
PD TESS - Open Architecture Data Management System Integration	1	2017	4	2018
PD TESS - Joint Ambient Breeze Tunnel (JABT) Execute Upgrades & Demonstration	1	2017	4	2018
PD TESS - Test Grid Maintenance and Management Reachback	1	2017	4	2018
PD TESS - DTC Methodology Development	1	2018	4	2018
CBMAI - NTA Defense Test System(NTADTS) Facility Upgrades	1	2019	4	2020
CBMAI - Open Architecture Data Management System (OADMS) Complete Develop. & Integrate	1	2019	4	2019
CBMAI - Standoff Detection	1	2019	4	2020
CBMAI - Multi Commodity Agent Chamber (MCAC)	1	2019	4	2019