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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Chemical and Biological Defense Program	Date: March 2019
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Appropriation/Budget Activity	R-1 Program Element (Number/Name)											
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>											
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	135.322	115.886	83.662	-	83.662	101.792	95.322	103.284	96.769	Continuing	Continuing
CA4: <i>CONTAMINATION AVOIDANCE (ACD&P)</i>	-	30.844	31.527	19.074	-	19.074	8.864	8.215	15.106	13.706	Continuing	Continuing
DE4: <i>DECONTAMINATION SYSTEMS (ACD&P)</i>	-	9.888	6.117	8.735	-	8.735	10.258	9.511	6.044	5.905	Continuing	Continuing
IP4: <i>INDIVIDUAL PROTECTION (ACD&P)</i>	-	4.421	3.228	1.997	-	1.997	1.997	2.994	0.000	0.000	0.000	14.637
IS4: <i>INFORMATION SYSTEMS (ACD&P)</i>	-	5.336	0.854	0.528	-	0.528	0.174	0.070	0.067	0.067	Continuing	Continuing
MB4: <i>MEDICAL BIOLOGICAL DEFENSE (ACD&P)</i>	-	71.070	65.209	48.166	-	48.166	75.343	70.991	78.526	73.550	Continuing	Continuing
MC4: <i>MEDICAL CHEMICAL DEFENSE (ACD&P)</i>	-	4.666	2.388	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.054
TE4: <i>TEST & EVALUATION (ACD&P)</i>	-	9.097	6.563	5.162	-	5.162	5.156	3.541	3.541	3.541	Continuing	Continuing

A. Mission Description and Budget Item Justification

The projects in this program element (PE) support technology, engineering, integration, and life-cycle cost risk reduction activities (e.g. component development, prototyping, and experimentation) prior to Milestone B.

Individual projects include:

- Contamination Avoidance (CA4): development of reconnaissance, detection, identification, and hazard prediction equipment, hardware, and software that minimize CBR contamination and prevent further cross-contamination during operations.

- Decontamination Systems (DE4): development of Contamination Mitigation (ConMit) systems utilizing solutions that will remove and/or detoxify contaminated material without damaging combat equipment, personnel, or the environment.

- Individual Protection (IP4): development of the next generation protective ensembles (e.g., suits, boots, and gloves) which enable the Joint Force to survive and continue the mission in CBR contaminated environments.

- Information Systems (IS4): component development and prototyping of information architectures and applications for shaping the battlespace against CBRN threats.

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Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 4: Advanced Component Development & Prototypes (ACD&P)		R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				
<p>- Medical Biological Defense (MB4): development of medical countermeasure platform technologies, medical countermeasures (vaccines and therapeutics), reagents, assays, and diagnostic equipment to provide an effective capability for medical defense against biological warfare agent threats facing U.S. Forces in the field.</p> <p>- Medical Chemical Defense (MC4): development of medical materiel and other medical equipment items (e.g., diagnostic equipment, prophylactic, pre-treatment, and therapeutic drugs, and individual/casualty decontamination compounds) necessary to provide an effective capability for medical defense against chemical warfare agent threats facing U.S. Forces in the field.</p> <p>- Test and Evaluation (TE4): critical test capabilities, planning, and infrastructure improvements/modifications necessary to evaluate Chemical, Biological, Radiological, and Nuclear (CBRN) Defense systems in realistic operating environments.</p> <p>The projects in this PE support the advanced component technology development phase of the DoD acquisition system and are therefore correctly placed in Budget Activity 4.</p>						
B. Program Change Summary (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget		148.518	129.886	81.757	-	81.757
Current President's Budget		135.322	115.886	83.662	-	83.662
Total Adjustments		-13.196	-14.000	1.905	-	1.905
• Congressional General Reductions		-	-			
• Congressional Directed Reductions		-9.925	-14.000			
• Congressional Rescissions		-	-			
• Congressional Adds		0.000	-			
• Congressional Directed Transfers		0.000	-			
• Reprogrammings		-0.402	-			
• SBIR/STTR Transfer		-2.869	-			
• Other Adjustments		0.000	-	1.905	-	1.905
Change Summary Explanation						
Funding: FY18 (-\$9.925M): Congressional Directed Reductions.						
FY18 ((-\$4.02M): Reprogramming adjustments to balance overall portfolio efforts.						
FY18 (-\$2.869M): Transfer of funding to support Small Business Innovative Research/Small Business Technology Transfer efforts.						
FY19 (-\$14.000M): Congressional Directed Reductions.						
FY20 (+\$8.000M): Program Increase for Advanced Development and Manufacturing (ADM) Capability Development.						

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FY20 (-\$6.095M): Program adjustments to balance overall portfolio efforts and resource Services highest priority detection, protection, and MCM development efforts in BA5.		
Schedule: N/A		
Technical: N/A		

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Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) CA4 / CONTAMINATION AVOIDANCE (ACD&P)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
CA4: CONTAMINATION AVOIDANCE (ACD&P)	-	30.844	31.527	19.074	-	19.074	8.864	8.215	15.106	13.706	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Contamination Avoidance Advanced Component Development and Prototypes (ACD&P) Project supports reconnaissance, detection, identification, and hazard prediction equipment, hardware, and software.

Efforts included in this project are:

- (1) Next Generation Chemical Detector (NCGD 4)
- (2) Wearable Chemical Agent Detector (WCAD) (formerly Next Generation Chemical Detector (NGCD) 4)
- (3) Biosurveillance (BSV)
- (4) CBRN Sensor Integration on Robotics Platforms (CSIRP)
- (5) Chemical Biological Radiological Nuclear, Dismounted Reconnaissance Sets (CBRN DRS)
- (6) Enhanced Capability Demonstration Integrated Early Warning (ECD IEW)
- (7) Enhanced Capability Demonstration Joint Chemical Biological Radiological Nuclear Advanced Capability Sets (ECD JCACS)
- (8) Non-Traditional Agent (NTA) Defense, and
- (9) Reactive Chemistry Orthogonal Surface and Environmental Threat Ticket Array (ROSETTA).

The WCAD (formerly known as NGCD 4) is designed to be an unobtrusive, low-profile chemical detection capability that will continuously, and autonomously, monitor and alert general and specialized units to an unsafe environment without further burdening the warfighters payload or interfering with the primary mission. The small form factor is amenable to both man-worn and unmanned aerial or unmanned ground systems operations in order to enable timely personnel protective action and other force protection decisions. In FY20, WCAD is aligned with CSIRP to identify and develop chemical sensors for unmanned applications.

BSV programs provide a set of capabilities that acquire, integrate, and analyze medical, environmental, and incident management data using existing and next generation systems, medical and non-medical sample collection tools and identifiers/diagnostics. BSV will address medical and physical CBRN mission needs spanned in over eleven requirements documents and through Combatant Commander (COCOM) identified needs. BSV supports the Capabilities to Enable NBC Threat Awareness, Understanding, and Response (CENTAUR) effort, and immediate operational needs, which find, demonstrate, transition, and transfer the best operational concepts and technology solutions in support of a holistic approach to countering CB threats from the laboratory to operational use and theater confirmation of a CB Event. CENTAUR serves as the baseline configuration for ECD IEW.

CSIRP is a prototyping and fielding effort that will focus on repackaging and integrating modular CBRN sensor solutions to enhance Unmanned Air Systems (UAS) and Unmanned Ground Systems (UGS) Programs of Record (PORs) to provide situational awareness across the echelons of command in order to enable freedom

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<p>of maneuver and action on the battlefield. An integrated CSIRP capability will exploit advances in machine learning and autonomy, sensing and communication capabilities that enable timely and accurate detection, warning and reporting of CBRN hazards for increased risk reduction opportunities at tactical and operational echelons in mounted and dismounted configurations. CSIRP gives the Joint Force an opportunity to enhance capabilities and maintain operational advantage in a lethal and sophisticated operating environment.</p> <p>The CBRN DRS supports Dismounted Reconnaissance, Surveillance, and CBRN Sensitive Site Assessment missions which enables more detailed and near real-time CBRN information flow for the Warfighter. The CBRN DRS will provide an Advanced Capabilities Set to meet emerging requirements for the follow-on technical forces to conduct more in-depth dismounted CBRN reconnaissance, sensitive site assessment, characterization of WMD/hazardous materials, events, or accidents, and sensitive site exploitation/elimination. The Chemical Biological Radiological Nuclear, Dismounted Reconnaissance Sets Advanced Capability Set will provide more sensitive and reliable detection and identification of CBRN threats, enhanced personal protective equipment (PPE) for longer duration missions, and increased situation awareness through networked communications of the hazard. The CBRN DRS configurations will be tailored to meet individual Service mission tasks. The technology upgrade and refresh effort for CBRN DRS transitions from CA4 to CA7 for implementation starting in FY20.</p> <p>The ECD IEW will integrate advanced technologies and currently fielded capabilities into a common architecture with situational understanding decision tools to facilitate effective (timely) decision making, so the force can continue military operations or assist partners or civilians in a Chemical Biological Radiological and Nuclear (CBRN) environment. The Joint Force requires tactical, enhanced, and CBRN detection, protection, contamination mitigation, contamination characterization, situational awareness, and hazard understanding early warning capability and decision tools to provide operational commanders time, space, and confidence for decisions that enable mission success. ECD IEW will demonstrate these capabilities by focusing on the complex integration of currently disconnected and disparate battlefield systems to enable a Joint Integrated Early Warning Capability for all phases of operations.</p> <p>The ECD JCACS demonstrated new technologies to enhance the ability of Joint operators to locate, identify, characterize, sample, digitally report, protect against, and mitigate CBRN threats. The ECD JCACS will integrate advanced technologies to provide capability sets of equipment and situational awareness tools to protect against and mitigate the effects of contamination during WMD interdiction and site characterization missions. In FY20, ECD JCACS will focus on the use of robotics to enhance these missions.</p> <p>NTA Defense program works with the Joint Services, interagency, and international partners to focus RDT&E resources to determine readiness against Pharmaceutical Based Agents (PBA). Program provides support to the CBDP Enterprise by assessing technology and equipment to enable rapid fielding options for all users.</p> <p>The ROSETTA is a modernization effort to provide a higher confidence chemical liquid hazard detection ticket in the currently fielded M256A2 kit for the Warfighter to make timely decisions. These decisions will reduce casualties and improve the combat effectiveness of troops engaged in conflicts involving the use of chemical warfare agents. ROSETTA is based on colorimetric technology and will be eye-readable. In addition, the ROSETTA ticket will provide improved hazard detection performance with reduced false alarm rate, potential for increased number of chemicals detected, reduced detection time especially for certain compounds of interest, and potential for integration onto unmanned platforms especially micro-sized unmanned aerial sensors. In FY20, ROSETTA will be testing vendor prototypes to develop technical data packages.</p>		

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
Title: 1) NGCD 4 (Next Generation Chemical Detector) Description: Program testing and support			0.550	-	-
Title: 2) Wearable Chemical Agent Detector (WCAD) Description: Program Management and technology assessment FY 2019 Plans: Initiate and complete evaluation efforts from previous work under NGCD 4. This includes technology readiness evaluations, table top exercises and modeling & simulation. FY 2019 to FY 2020 Increase/Decrease Statement: Decrease due to fact of life change in the program/project.			-	0.443	-
Title: 3) BSV Description: CENTAUR FY 2019 Plans: Continue to support efforts and overall transition of technologies to programs of record. Supports program management, AED, EW, BSP, BICS and systems engineering to ensure integration across residual capabilities for Assessment of Environmental Detectors (AED), Early Warning (EW), Biosurveillance Portal (BSP) and Biological Identification Capabilities Sets (BICS) within the USFK. FY 2020 Plans: Complete CENTAUR efforts. Transition residual capabilities to support ECD IEW and programs of record within the enterprise (Joint Biological Tactical Detection System (JBTDS), Next Generation Diagnostic System (NGDS), Enhanced Maritime Biological Detection (EMBD)). FY 2019 to FY 2020 Increase/Decrease Statement: Program/project is entering completion and all activities will be closed.			-	6.432	0.397
Title: 4) BSV Description: CENTAUR residual capability and operational demonstration test support FY 2019 Plans: Continue to provide residual capability (through contractor logistics support) and operational demonstration test support for AED,			15.018	3.500	-

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
EW, BSP and BICS for CENTAUR.					
FY 2019 to FY 2020 Increase/Decrease Statement: Program/project is entering completion and all activities will be closed.					
Title: 5) CBRN Sensor Integration on Robotic Platforms (CSIRP) Description: Product Development FY 2019 Plans: Initiate sensor integration efforts for unmanned ground and air platforms, and mission modeling efforts. Initiate size, weight, and power trade studies for sensor integration. Purchase developmental test articles. Initiate unmanned technology demonstrations and provide support to test events requiring robotic platforms. Coordinate demonstrations by prototype vendors and end users evaluating the capabilities, reliability and usability of the integrated sensors onto the Unmanned Air Systems (UAS) and Unmanned Ground Systems (UGS). FY 2020 Plans: Continue sensor integration efforts for unmanned ground and air platforms, and mission modeling efforts. Continue size, weight, and power trade studies for sensor integration. Purchase upgraded developmental test articles. Continue unmanned technology demonstrations and providing support to test events requiring robotic platforms. Coordinate additional demonstrations by new prototype vendors and end users evaluating the capabilities, reliability and usability of the integrated sensors onto the UAS and UGS. FY 2019 to FY 2020 Increase/Decrease Statement: Increase due to accelerated development effort.			-	2.496	6.139
Title: 6) CBRN Sensor Integration on Robotic Platforms (CSIRP) Description: Program Management FY 2019 Plans: Initiate Program Management including Government system engineering, program/financial management, costing, personnel support, travel and overhead. FY 2020 Plans: Continue Program Management including Government system engineering, program/financial management, costing, personnel support, travel and overhead. FY 2019 to FY 2020 Increase/Decrease Statement:			-	2.504	1.848

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
Decrease due to accelerated development effort.					
Title: 7) CBRN DRS Description: Provide Chemical Biological Radiological Nuclear, Dismounted Reconnaissance Sets Advanced Capability Set (CBRN DRS ACS) market assessment and requirement decomposition to assist capability developers in scoping requirements. Efforts include decomposing requirements into performance parameters and specifications, assessing the commercial market, and procuring and testing candidates as required. FY 2019 Plans: Assess potential materiel solutions to meet requirement capabilities, and continue to provide program management support. FY 2019 to FY 2020 Increase/Decrease Statement: Program/project funding transferred to another funding line. The technology upgrade and refresh effort for CBRN DRS transitions from CA4 to CA7.			0.835	0.500	-
Title: 8) ECD IEW Description: Early Warning common CBRN architecture development and capability integration. FY 2019 Plans: Continue Early Warning capability integration for remote CBRN and Non-CBRN sensors and decision support. FY 2020 Plans: Demonstrate Early Warning capability integration for remote CBRN and Non-CBRN sensors and decision support and deploy prototypes to operational unit for experimentation and feedback. FY 2019 to FY 2020 Increase/Decrease Statement: Decrease due to change in program/project technical parameters.			3.453	3.117	2.975
Title: 9) ECD IEW Description: Early Warning capability RDT&E test article procurement and assessment. FY 2019 Plans: Continue Early Warning capability RDT&E test article procurement and assessment. FY 2020 Plans: Complete Early Warning capability RDT&E test article procurement and assessment for fixed site operational units. FY 2019 to FY 2020 Increase/Decrease Statement:			1.000	0.750	0.500

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
Decrease due to change in program/project technical parameters.					
Title: 10) ECD IEW AIM Description: The Hybrid Accelerator effort is to facilitate the necessary technical and subject matter expert (SME) support to enable event/project-based prototyping, concept exploration and divergent and innovative collaboration for USSOCOM emerging challenges.			1.000	-	-
Title: 11) ECD JCACS Description: Product Development FY 2019 Plans: Initiate and complete award for prototype construction and testing, provide support to CSIRP test events requiring robotic platforms, support IEW remote sensing data requirements. Initiate and complete integration efforts for unmanned air and ground platforms, complete mission modeling efforts. Initiate and complete size, weight and power trade studies on sensor integration. FY 2019 to FY 2020 Increase/Decrease Statement: Program/project is entering completion and all activities will be closed.			6.489	7.299	-
Title: 12) ECD JCACS Description: Program Management FY 2019 Plans: Initiate and complete Program Management support including Government system engineering, program/financial management, costing, personnel labor, travel and overhead. FY 2019 to FY 2020 Increase/Decrease Statement: Program/project is entering completion and all activities will be closed.			-	1.285	-
Title: 13) ECD JCACS Description: Residual Equipment Sustainment FY 2020 Plans: Initiate and complete a list of residual equipment and provide sustainment support of that residual equipment to include material, maintenance labor and training. FY 2019 to FY 2020 Increase/Decrease Statement:			-	-	1.923

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Program/project is entering completion and all activities will be closed.				
Title: 14) NTA Defense Description: NTA Defense program provides assessment and improvement of detection, protection, and decontamination capabilities to protect the Joint Services against emerging threats, to include PBAs. Specific efforts include: assessment of technologies and prototyping for rapid fielding to the Joint Services; sharing of classified and unclassified data, information, and knowledge regarding PBAs and emerging threats. Efforts seek to minimize duplication of effort and maximize cost-sharing opportunities across the whole of government and with international partners. FY 2019 Plans: Continue analysis of operationally-relevant threat composition and presentation to inform the assessment of capabilities against PBAs. Continue to conduct market surveys and assessments of technologies for rapid fielding of CBDP capabilities. Invest in technology prototyping and assessment to provide capability improvements. Conduct capability trade off analyses to inform acquisition decisions pertaining to PBAs. Continue work with interagency and international partners to establish a FOUO data portal for sharing PBA information. FY 2020 Plans: Leverage expanded requirements to broaden FY18-19 data set for PBAs. Produce additional data to fully assess capabilities against new requirements and inform rapid fielding decisions. Develop/assess/publish enhanced techniques for sample collection/preparation and decontamination against PBAs. Expand classified NTA Data Library and FOUO PBA data portal with newly available data to ensure widest dissemination possible. FY 2019 to FY 2020 Increase/Decrease Statement: Increase due to accelerated development effort.		0.802	1.534	3.258
Title: 15) NTA Defense support for Threat Agent Characterization Description: The International Novel Threat Agent Characterization Trials (INTACT) effort is a series of laboratory and field experiments to characterize the properties of emerging chemical threats and assess potential capabilities against those emerging threats in an operationally-realistic manner. INTACT is a collaboration with other Chemical Biological Defense Program (CBDP) partners, as well as with other nations, under the Chemical Biological Radiological Memorandum of Understanding (CBR MOU).		0.405	-	-
Title: 16) NTA Defense Description: Program Management FY 2019 Plans:		1.292	1.172	2.034

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B. Accomplishments/Planned Programs (\$ in Millions)										FY 2018	FY 2019	FY 2020
Initiate Program Management including Government system engineering, program/financial management, costing, personnel support, travel and overhead. FY 2020 Plans: Initiate Program Management including Government system engineering, program/financial management, costing, personnel support, travel and overhead. FY 2019 to FY 2020 Increase/Decrease Statement: Increase due to change in program/project technical parameters.												
Title: 17) ROSETTA Description: Provide system engineering design and program management FY 2019 Plans: Initiate development of colorimetric sensor, prepare contract package and test planning for prototype testing. FY 2019 to FY 2020 Increase/Decrease Statement: Program/project transitioned to Engineering and Manufacturing Development Phase.										-	0.495	-
Accomplishments/Planned Programs Subtotals										30.844	31.527	19.074
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
• CA5: CONTAMINATION AVOIDANCE (EMD)	95.134	111.781	131.985	-	131.985	75.093	53.146	38.807	38.987	Continuing	Continuing	
• JF0100: JOINT CHEMICAL AGENT DETECTOR (JCAD)	4.483	1.698	4.493	-	4.493	6.828	7.574	8.197	8.368	Continuing	Continuing	
• JX0300: BIOSURVEILLANCE (BSV)	18.188	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	18.188	
• MC0100: JOINT NBC RECONNAISSANCE SYSTEM (JNBCRS)	0.468	0.000	0.300	-	0.300	0.300	0.300	7.981	7.981	Continuing	Continuing	
• MC0101: CBRN DISMOUNTED RECONNAISSANCE SYSTEMS (CBRN DRS)	69.945	98.081	53.020	-	53.020	45.344	50.798	55.510	43.067	Continuing	Continuing	

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C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• MX0001: JOINT BIO TACTICAL DETECTION SYSTEM (JBTDS)	0.000	0.000	0.000	-	0.000	47.915	50.785	65.244	60.849	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
NEXT GENERATION CHEMICAL DETECTOR (NGCD)											
NGCD used Full and Open competition to award Technology Maturation and Risk Reduction (TMRR) contracts. In FY18 NGCD 4 awarded a wearable technology assessment (WTA) contract to provide brassboard and breadboard prototypes for Government evaluation. Beginning in FY19 NGCD BA4 will be renamed WCAD.											
WEARABLE CHEMICAL AGENT DETECTOR (WCAD)											
WCAD will complete Technology Readiness Evaluation, Modeling & Simulation, Table Top Exercises, and initiate Business Case Analysis efforts to support contractual development for a Milestone A award when program funding restarts. WCAD will continue engagement with OGA stakeholders and industry to inform documentation decisions and program decisions.											
BIOSURVEILLANCE (BSV)											
BSV will utilize residual capabilities from CENTAUR. With the Close out of CENTAUR at Busan Pier 8, BSV will transition and integrate successful technologies into a baseline IEW framework, to support USFK & 8th Army's need for environmental monitoring and surveillance, in support of immediate force health protection requirements. Applicable technologies, will be developed, integrated, deployed, operated and sustained, through Other Transactional Agreements (OTA) and procurement contracts. Completion of the effort will serve as a baseline configuration for IEW efforts with in the CBDP, technologies, lessons learned, test data, will be transitioned to the programs of record associated with the CBDP (such as IEW ECD, EMBD, NGDS, JBTDS & Common Analytical Laboratory System (CALS)).											
CBRN SENSOR INTEGRATION ON ROBOTIC PLATFORMS (CSIRP)											
CSIRP is a streamlined acquisition effort to rapidly prototype and field capabilities distinct from the traditional acquisition system. CSIRP will provide unmanned CBRN payloads in 2 year capability sets based on service requirements. The 2 year capability sets will utilize a streamlined acquisition process in order to keep pace with industry and the rapid advancement of technologies. CSIRP strategy is to utilize the rapid prototyping process enabled by the Other Transactional Agreements (OTA) contract vehicle.											

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) CA4 / <i>CONTAMINATION AVOIDANCE (ACD&P)</i>
<p>Upon award, the awardees will have up to two years to produce 10 working prototype sensors that are integrated onto service chosen (air and/or land) platforms. These prototypes will be demonstrated, evaluated and tested by the services as well as laboratories and academia. The most successful will be transitioned to the services for the next steps in acquisition, production and eventual fielding.</p> <p>CBRN DISMOUNTED RECONNAISSANCE SYSTEMS</p> <p>The Chemical Biological Radiological Nuclear, Dismounted Reconnaissance Sets (CBRN DRS) will provide more sensitive and reliable detection and identification of CBRN threats, enhanced personal protective equipment (PPE) for longer duration missions, and increased situation awareness through networked communications of the hazard. The program will assess requirements and the market for future technology upgrades and refresh efforts to be transferred to and executed under CA7.</p> <p>ENHANCED CAPABILITY DEMO INTEGRATED EARLY WARNING (ECD IEW)</p> <p>The Enhanced Capability Demonstration Integrated Early Warning (ECD IEW) will conduct an analysis of alternatives and leverage the DTRA IEW ATD, JUPITR ATD, and various operational responses to procure developmental equipment and decision support tools for experimentation and demonstration to reduce risk and inform supporting materiel solutions, CONOPS TTPs, Non-CBRN sensors, and requirements to provide operational commanders time and space for freedom to maneuver and action. The ECD IEW will utilize Table Top Exercises (TTX), Operational Demonstrations, and other test events to provide cross commodity equipment sets evaluation leading to the operational deployment through rapid prototyping to a unit to be determined, further requirements development, CBDP program of record insertion, and concepts of employment.</p> <p>ENHANCED CAPABILITY DEMONSTRATION JOINT CBRNE ADV CAPABILITY SETS (ECD JCACS)</p> <p>The Enhanced Capability Demonstration (ECD) Joint Chemical Biological Radiological Nuclear Advanced Capability Sets (JCACS) evaluates various equipment during User Feedback Events (UFE) and other test events. The acquisition strategy is to use Other Transactional Agreements (OTAs) and collaborate with CBRN Sensor Integration onto Robotic Platforms (CSIRP) to acquire the equipment and technical support required. Additionally, JCACS and CSIRP will utilize Government Agencies and Federally Funded Research and Development Centers to provide development, testing and technical support. ECD JCACS will work together with CSIRP to focus on the use and integration of robotics to enhance these missions.</p> <p>NON TRADITIONAL AGENT DEFENSE (NTA DEFENSE)</p> <p>The NTA Defense program will transition information, technologies, and capabilities for PBAs and other emerging threats 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).</p> <p>REACTIVE CHEMISTRY ORTHOGONAL SURFACE AND ENVIRONMENTAL THREAT TICKET ARRAY (ROSETTA)</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) CA4 / <i>CONTAMINATION AVOIDANCE (ACD&P)</i>
<p>ROSETTA will use a streamlined approach. This approach is based on technology that will transition from Science and Technology Efforts and industry. It will be developed using the Countering Weapons of Mass Destruction (CWMD) OTA to award multiple development contracts. The M256A3 Production Contract will use Army Working Capital Funds (AWCF) to purchase the new kits. The ROSETTA funding will complete the development and testing of the new ROSETTA ticket as well as update the currently fielded M256A2 technical data package via an engineering change proposal (ECP) to create a new M256A3 kit that will be available to all Services. The M256A3 kit will replace the M256A2 kit by attrition.</p> <p><u>E. Performance Metrics</u> N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) CA4 / CONTAMINATION AVOIDANCE (ACD&P)					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
NGCD - HW C - NGCD4-Modeling and Simulation (M&S)	MIPR	Institute for Defense Analysis (IDA) : Alexandria, VA	0.000	0.099	Jul 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGCD - HW C - NGCD4-Table Top Exercise	MIPR	STRATCOM : Omaha, NE	0.000	0.133	Aug 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
CSIRP - HW C - Chemical and Biological Sensor Integration	C/CPFF	TBD : TBD	0.000	0.000		2.000	Jan 2019	2.789	Dec 2019	-		2.789	Continuing	Continuing	0.000
CSIRP - HW C - Government SE & Technical Management Team	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		1.712	Jan 2019	0.650	Oct 2019	-		0.650	Continuing	Continuing	0.000
CBRN DRS - Non Intrusive Detection Support	Various	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.000	0.221	Nov 2017	0.077	Nov 2018	0.000		-		0.000	Continuing	Continuing	0.000
ECD IEW - AIM	C/FFP	TBD : TBD	0.000	0.980	Oct 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
ECD JCACS - HW C - Product Development	MIPR	Various : Various	0.000	3.447	Mar 2018	5.000	Mar 2019	0.000		-		0.000	Continuing	Continuing	0.000
NTA DEFENSE - HW C - Product Contractor Development Team	C/FFP	Patricio Enterprises : Inc., Woodbridge, VA	0.000	0.090	Feb 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NTA DEFENSE - HW S - Technology Assessments	MIPR	Various : Various	0.167	0.000		0.263	Dec 2018	0.436	Dec 2019	-		0.436	Continuing	Continuing	0.000
NTA DEFENSE - NHW S - Threat Understanding	MIPR	Various : Various	0.476	0.111	Mar 2018	0.340	Dec 2018	0.955	Dec 2019	-		0.955	Continuing	Continuing	0.000
NTA DEFENSE - HW S - Systems Engineering	MIPR	Various : Various	0.436	0.000		0.400	Dec 2018	0.465	Dec 2019	-		0.465	Continuing	Continuing	0.000
NTA DEFENSE - HW S - Strategic Coordination/ Data Sharing	C/CPFF	Various : Various	0.174	0.289	Nov 2017	0.269	Dec 2018	0.500	Dec 2019	-		0.500	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>						Project (Number/Name) CA4 / <i>CONTAMINATION AVOIDANCE (ACD&P)</i>			
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
NTA DEFENSE - HW S - Government SE & Technical Management Team	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.758	Nov 2017	0.773	Dec 2018	1.240	Dec 2019	-		1.240	Continuing	Continuing	0.000
Subtotal			1.253	6.128		10.834		7.035		-		7.035	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
BSV - TD/D C -BSP - JACCS/BSP integration development	C/CPFF	Johns Hopkins University - Applied Physics Lab : Laurel, MD	4.049	0.538	Jan 2018	0.684	Jan 2019	0.000		-		0.000	Continuing	Continuing	0.000
BSV - ES S - Assessment of Environmental Detectors	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	3.863	5.138	Jan 2018	2.223	Jan 2019	0.000		-		0.000	Continuing	Continuing	0.000
BSV - TD/D C - Biological Identification Capability Sets sustainment assays	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	4.644	1.266	Jan 2018	1.326	Jan 2019	0.000		-		0.000	Continuing	Continuing	0.000
BSV - ES S - Early Warning sustainment costs for software package	MIPR	Various : Various	7.529	6.457	Jan 2018	3.709	Jan 2019	0.000		-		0.000	Continuing	Continuing	0.000
CSIRP - HW/SW Sensor Interface Design and Concept Development	Various	Various : Various	0.000	0.000		0.096	Dec 2018	1.550	Feb 2020	-		1.550	Continuing	Continuing	0.000
CBRN DRS - ES C Market Analysis	Various	Various : Various	0.000	0.522	Nov 2017	0.348	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
ECD IEW - AIM Travel	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.020	Oct 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>						Project (Number/Name) CA4 / <i>CONTAMINATION AVOIDANCE (ACD&P)</i>			
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ECD IEW - Acquisition, Integration and decision tool demonstration	C/CPFF	TBD : TBD	0.000	1.355	Aug 2018	1.617	Jan 2019	1.475	Jan 2020	-		1.475	Continuing	Continuing	0.000
ECD IEW - System Integration	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.500	Jan 2018	0.200	Jan 2019	0.200	Jan 2020	-		0.200	Continuing	Continuing	0.000
ECD JCACS - ES C - Support Costs	MIPR	Various : Various	0.000	0.000		0.899	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
NTA DEFENSE - ES S - Technology Assessments/Threat Understanding	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.115	Apr 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
Subtotal			20.085	15.911		11.102		3.225		-		3.225	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
NGCD - NGCD 4 Technology Readiness Evaluation (TRE)	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.218	Aug 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
BSV - DTE S - Developmental Testing, Operational Assessment, Busan Event	MIPR	Army Test and Evaluation Command (ATEC) : Aberdeen Proving Ground, MD	2.494	0.000		0.750	Jan 2019	0.000		-		0.000	Continuing	Continuing	0.000
CSIRP - Integration, Operational Demonstrations and Evaluation Services - ATEC	MIPR	Army Test and Evaluation Command (ATEC) : Aberdeen Proving Ground, MD	0.000	0.000		0.400	Apr 2019	1.800	Mar 2020	-		1.800	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) CA4 / CONTAMINATION AVOIDANCE (ACD&P)					
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ECD IEW - TTX & OP DEMOS	MIPR	Various : Various	0.000	1.000	Jan 2018	0.750	Jan 2019	0.500	Jan 2020	-		0.500	Continuing	Continuing	0.000
ECD JCACS - DTE - Test and Evaluation	MIPR	Various : Various	0.000	1.689	Apr 2018	1.400	Apr 2019	0.000		-		0.000	Continuing	Continuing	0.000
NTA DEFENSE - DTE S - Technology Assessments	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.262	Dec 2018	0.436	Jan 2020	-		0.436	Continuing	Continuing	0.000
NTA DEFENSE - DTE S - Threat Understanding	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.263	Nov 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NTA DEFENSE - DTE S - Systems Engineering	MIPR	Various : Various	0.000	0.000		0.000		0.466	Jan 2020	-		0.466	Continuing	Continuing	0.000
NTA DEFENSE - OTE S - International Novel Threat Agent Characterization Trials (INTACT)	C/CPFF	MA Institute of Tech - Lincoln Labs (MIT- LL) : Lexington, MA	0.000	0.405	Jan 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
ROSETTA - DTE C - Technology Readiness Assessment	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.360	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
Subtotal			2.494	3.575		3.922		3.202		-		3.202	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
NGCD - NGCD4 Management Support	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	33.504	0.100	Jul 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>						Project (Number/Name) CA4 / <i>CONTAMINATION AVOIDANCE (ACD&P)</i>			
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
WCAD - PM/MS C - Management Support	MIPR	Various : Various	0.000	0.000		0.357	Jan 2019	0.000		-		0.000	Continuing	Continuing	0.000
WCAD - PM/MS S - Wearable Chemical Agent Detector (WCAD)	MIPR	TBD : TBD	0.000	0.000		0.086	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
BSV - PM/MS S - BMO Labor & Travel Support	MIPR	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.810	0.671	Jan 2018	0.735	Jan 2019	0.236	Jan 2020	-		0.236	Continuing	Continuing	0.000
BSV - PM/MS S - ECBC ATD Team	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.716	0.948	Jan 2018	0.505	Jan 2019	0.161	Jan 2020	-		0.161	Continuing	Continuing	0.000
CSIRP - Project Management	MIPR	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	0.000		0.792	Dec 2018	1.198	Dec 2019	-		1.198	Continuing	Continuing	0.000
CBRN DRS - CBRN DRS ACS - PM/MS-Program Management and System Engineering Support	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.000	0.092	Mar 2018	0.075	Nov 2018	0.000		-		0.000	Continuing	Continuing	0.000
ECD IEW - ECBC ECD Team	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.348	Jan 2018	0.200	Jan 2019	0.200	Jan 2020	-		0.200	Continuing	Continuing	0.000
ECD IEW - ECBC Matrix Govt labor	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.500	Jan 2018	0.350	Jan 2019	0.350	Jan 2020	-		0.350	Continuing	Continuing	0.000
ECD IEW - Labor and Travel Support	MIPR	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	0.750	Jan 2018	0.750	Jan 2019	0.750	Jan 2020	-		0.750	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) CA4 / CONTAMINATION AVOIDANCE (ACD&P)					
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ECD JCACS - PM-Program Management and System Engineering Support	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.000	1.353	Dec 2017	1.285	Dec 2018	1.923	Jan 2020	-		1.923	Continuing	Continuing	0.000
NTA DEFENSE - PM/MS S - IPT Support/Program Management	MIPR	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.841	0.468	Dec 2017	0.399	Dec 2018	0.794	Dec 2019	-		0.794	Continuing	Continuing	0.000
ROSETTA - PM/MS C	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.000	0.000	Nov 2017	0.135	Oct 2018	0.000		-		0.000	Continuing	Continuing	0.000
Subtotal			35.871	5.230		5.669		5.612		-		5.612	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			59.703	30.844		31.527		19.074		-		19.074	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Chemical and Biological Defense Program **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) CA4 / <i>CONTAMINATION AVOIDANCE (ACD&P)</i>
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NGCD Increment 4 - WCAD - Pre TMRR																												
WCAD - NGCD 4 PRE-TMRR																												
BSV - CENTAUR																												
BSV - CENTAUR Support Residuals																												
BSV - Biological Identification Capability Sets (BICS)																												
BSV - Early Warning																												
BSV - Additional Systems																												
BSV - Transition of residual end items																												
CSIRP - OTA Request For Information																												
CSIRP - Materiel Development Decision																												
CSIRP - Request for Prototyping Plan - Capability Set #1																												
CSIRP - OTA Prototype Award for Capability Set #1																												
CSIRP - Prototype Plan from Awardees on Capability Set #1																												
CSIRP - Test and Evaluation of Prototypes - Capability Set #1																												
CSIRP - Transition Decision for Capability Set #1																												
CSIRP - Rapid Fielding Decision - Capability Set #1																												
CSIRP - CSIRP Baseline Capability Set #1 Delivery																												
CSIRP - Request for Prototyping Plan Capability Set #2																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Chemical and Biological Defense Program																	Date: March 2019											
Appropriation/Budget Activity										R-1 Program Element (Number/Name)								Project (Number/Name)										
0400 / 4										PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)								CA4 / CONTAMINATION AVOIDANCE (ACD&P)										
	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
CSIRP - OTA Prototype Award for Capability Set #2																												
CSIRP - Prototype Plan from Awardees for Capability Set #2																												
CSIRP - Test and Evaluation of Prototypes - Capability Set #2																												
CSIRP - Demonstration Decision Capability Set #2																												
CSIRP - Transition Decision for Capability Set #2																												
CSIRP - Rapid Fielding Decision - Capability Set #2																												
CSIRP - CSIRP Capability Set #2 Delivery																												
CSIRP - OTA Prototype Award for Capability Set #3																												
CSIRP - Request for Prototyping Plan for Capability Set #3																												
CSIRP - Prototype Plan from Awardees on Capability Set #3																												
CSIRP - Test and Evaluation of Prototypes - - Capability Set #3																												
CSIRP - Demonstration Decision Capability Set #3																												
CSIRP - Transition Decision for Capability Set #3																												
CBRN DRS Increment 2 - ACS - Materiel Requirements Analysis																												
CBRN DRS Increment 2 - CBRN DRS ACS - Assessment of Potential Solutions																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Chemical and Biological Defense Program																Date: March 2019												
Appropriation/Budget Activity 0400 / 4										R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)								Project (Number/Name) CA4 / CONTAMINATION AVOIDANCE (ACD&P)										
	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ECD JCACS - Prototype Testing and Assessment																												
ECD JCACS - Extended Evaluation																												
NTA DEFENSE - Technology Assessments																												
NTA DEFENSE - Strategic Coordination/ Information Management																												
NTA DEFENSE - Threat Understanding/ECD Front End Analysis																												
NTA DEFENSE - System Engineering																												
NTA DEFENSE - International Novel Threat Agent Characterization Trials (INTACT)																												
ROSETTA - Engineering Design																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Chemical and Biological Defense Program			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) CA4 / <i>CONTAMINATION AVOIDANCE (ACD&P)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NGCD Increment 4 - WCAD - Pre TMRR	1	2018	4	2019
WCAD - NGCD 4 PRE-TMRR	1	2018	4	2019
BSV - CENTAUR	1	2018	4	2020
BSV - CENTAUR Support Residuals	1	2018	1	2020
BSV - Biological Identification Capability Sets (BICS)	1	2018	4	2018
BSV - Early Warning	1	2018	4	2018
BSV - Additional Systems	1	2018	2	2018
BSV - Transition of residual end items	1	2018	3	2019
CSIRP - OTA Request For Information	4	2018	1	2019
CSIRP - Materiel Development Decision	1	2019	2	2020
CSIRP - Request for Prototyping Plan - Capability Set #1	1	2019	1	2019
CSIRP - OTA Prototype Award for Capability Set #1	2	2019	2	2019
CSIRP - Prototype Plan from Awardees on Capability Set #1	2	2019	4	2020
CSIRP - Test and Evaluation of Prototypes - Capability Set #1	3	2019	2	2020
CSIRP - Transition Decision for Capability Set #1	4	2020	4	2020
CSIRP - Rapid Fielding Decision - Capability Set #1	1	2021	1	2021
CSIRP - CSIRP Baseline Capability Set #1 Delivery	1	2020	1	2021
CSIRP - Request for Prototyping Plan Capability Set #2	1	2021	1	2021
CSIRP - OTA Prototype Award for Capability Set #2	2	2021	2	2021
CSIRP - Prototype Plan from Awardees for Capability Set #2	2	2021	4	2022
CSIRP - Test and Evaluation of Prototypes - Capability Set #2	3	2021	2	2022
CSIRP - Demonstration Decision Capability Set #2	3	2022	3	2022

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Chemical and Biological Defense Program				Date: March 2019	
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>		Project (Number/Name) CA4 / <i>CONTAMINATION AVOIDANCE (ACD&P)</i>	
		Start		End	
Events	Quarter	Year	Quarter	Year	
CSIRP - Transition Decision for Capability Set #2	4	2022	4	2022	
CSIRP - Rapid Fielding Decision - Capability Set #2	1	2023	1	2023	
CSIRP - CSIRP Capability Set #2 Delivery	1	2023	1	2023	
CSIRP - OTA Prototype Award for Capability Set #3	2	2023	2	2023	
CSIRP - Request for Prototyping Plan for Capability Set #3	1	2023	1	2023	
CSIRP - Prototype Plan from Awardees on Capability Set #3	2	2023	4	2024	
CSIRP - Test and Evaluation of Prototypes - - Capability Set #3	3	2023	2	2024	
CSIRP - Demonstration Decision Capability Set #3	3	2024	3	2024	
CSIRP - Transition Decision for Capability Set #3	4	2024	4	2024	
CBRN DRS Increment 2 - ACS - Materiel Requirements Analysis	1	2019	4	2019	
CBRN DRS Increment 2 - CBRN DRS ACS - Assessment of Potential Solutions	3	2019	4	2019	
ECD JCACS - Prototype Testing and Assessment	1	2019	4	2019	
ECD JCACS - Extended Evaluation	2	2020	4	2022	
NTA DEFENSE - Technology Assessments	1	2018	4	2024	
NTA DEFENSE - Strategic Coordination/Information Management	1	2018	4	2024	
NTA DEFENSE - Threat Understanding/ECD Front End Analysis	1	2018	4	2024	
NTA DEFENSE - System Engineering	1	2018	4	2024	
NTA DEFENSE - International Novel Threat Agent Characterization Trials (INTACT)	1	2018	3	2019	
ROSETTA - Engineering Design	2	2018	4	2019	

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) DE4 / DECONTAMINATION SYSTEMS (ACD&P)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
DE4: DECONTAMINATION SYSTEMS (ACD&P)	-	9.888	6.117	8.735	-	8.735	10.258	9.511	6.044	5.905	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports the development of Contamination Mitigation (ConMit) systems that reduce operational impact and logistics burden, reduce sustainment costs, increase safety, and minimize environmental effects associated with decontamination and contamination mitigation operations.

Efforts included in this Project are:

- (1) Contaminated Human Remains System (CHRS)
- (2) Tactical Disablement System (TACDS)
- (3) Mass Personnel Decontamination (MPD).

The CHRS Program is based on capability gaps identified within both the Contamination Mitigation Initial Capabilities Document (ICD), dated March 2011, and the Mortuary Affairs ICD, dated October 2008. The program consists of two capabilities that will allow for the mitigation of chemical, biological and radiological contaminants in order to safely repatriate DOD-affiliated personnel back to the United States for final interment. The two capabilities identified within the ConMit Initial Capabilities Document: a Contaminated Human Remains Transfer Case (CHRT) packaging solution to safely repatriate chemical, biological, or radiological contaminated human remains to the Continental United States and a sustainable Contaminated Remains Mitigation System (CRMS) to reduce the hazard to warfighters by decontaminating chemical, biological, or radiological contaminated human remains. CRMS was previously known as Contaminated Human Remains Decontamination System (CHRDS). The CHRT is a containment system that will protect personnel from the hazards associated with transporting human remains that are potentially contaminated with chemical, biological or radiological agents and Toxic Industrial Materials (TIM) without posing additional risk to the handlers or the environment in accordance with federal and international transportation standards. The CRMS is a system of tents, plumbing, generators, and medical equipment necessary to establish a decontamination site to perform decontamination, identification, and packaging of contaminated human remains for further disposition. The CRMS will reduce the hazards associated with contaminated human remains through decontamination of remains and enable positive identification of remains for the Armed Forces Medical Examiner before packaging in a CHRT. The CRMS efforts will continue in FY19 under the MPD funding line.

The TacDS, to be developed as a Family of Systems (FoS), will provide a tactical commander a suite of products to disable (delay, disrupt, and/or degrade) or defeat (destroy) small quantities of chemical or biological materials of concern (C/BMOC) contained in munitions and bulk containers in a hostile operational environment. C/ BMOC consists of Chemical Warfare Agents (CWA), Biological Warfare Agents (BWA), Non-Traditional Agents (NTA), as well as precursors. The TacDS will operate in locations both remote and accessible, during hostile and non-hostile conditions, and within time periods of minutes to hours, to reduce the employability of C/BMOC against the joint force and/or prevent proliferation to other actors of concern. TacDS is a new capability for the Department of Defense addressing multiple capability gaps.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program			Date: March 2019		
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)	Project (Number/Name) DE4 / DECONTAMINATION SYSTEMS (ACD&P)		
The MPD program is an FY19 new start intended to correct capability gaps identified within the Consequence Management ICD, dated 14 October 2010. The program will develop an array of rugged and reliable best-of-breed hardware in a manageably sized, easy to erect, modular system that can be quickly tailored to different Mass Casualty events in order to support decontamination of ambulatory and non-ambulatory patients, and allow for the processing of contaminated human remains.					
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
Title: 1) CHRS Description: Contaminated Human Remains Transfer Case (CHRT) Development and Support FY 2019 Plans: Complete Manufacturing Readiness Assessment and conduct Critical Design Review. Complete Developmental Testing and Operational Test Agency assessment Report (AOR) in preparation for an In Process Review. Validate and verify the Technical Manual, conduct Logistics Demonstration, and conduct Operational Testing (OT). FY 2019 to FY 2020 Increase/Decrease Statement: Program/project transitioned to Engineering and Manufacturing Development Phase.			3.432	2.319	-
Title: 2) CHRS Description: Contaminated Human Remains Transfer Case (CHRT) Prototypes FY 2019 Plans: Award contract to procure (30) production representative prototypes that will be destroyed in Operational Testing at a cost of \$10k each. FY 2019 to FY 2020 Increase/Decrease Statement: Program/project transitioned to Engineering and Manufacturing Development Phase.			1.317	0.300	-
Title: 3) CHRS Description: Contaminated Remains Mitigation System (CRMS) Prototypes			1.923	-	-
Title: 4) CHRS Description: Contaminated Remains Mitigation System (CRMS) Technology Development and Support			0.535	-	-
Title: 5) TacDS Description: Prototype Development and Evaluation FY 2019 Plans:			2.681	3.004	3.819

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program									Date: March 2019		
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) DE4 / DECONTAMINATION SYSTEMS (ACD&P)			
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2018	FY 2019	FY 2020
Conduct initial prototyping and evaluation for 1st product. Design / coordinate product-specific plans and develop product specific TEMP annex for first product to support TacDS T&E efforts. Initiate development of prototyping efforts for second TacDS product. FY 2020 Plans: Continue prototyping efforts and evaluation of TacDS products. FY 2019 to FY 2020 Increase/Decrease Statement: Minor change due to routine program adjustments.											
Title: 6) MPD Description: MPD MS A Support and Preliminary Systems Component Testing FY 2019 Plans: Begin product development of MPD systems to support achievement of MS A decision. FY 2020 Plans: Award contract to purchase prototype systems components (generators, heat pumps, roller systems, and spray bars) for Developmental Testing. Conduct Preliminary Systems Component Testing, Systems Readiness Review, Technology Readiness Assessment and Manufacturing Readiness Assessment. FY 2019 to FY 2020 Increase/Decrease Statement: Increase due to accelerated development effort.									-	0.494	4.916
Accomplishments/Planned Programs Subtotals									9.888	6.117	8.735
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• DE5: DECONTAMINATION SYSTEMS (EMD)	10.162	14.049	8.267	-	8.267	10.260	11.094	19.285	17.769	Continuing	Continuing
• JD0050: DECONTAMINATION FAMILY OF SYSTEMS (DFoS)	3.447	13.035	17.050	-	17.050	10.851	9.063	11.692	16.815	Continuing	Continuing
• JD0070: JOINT BIOLOGICAL AGENT DECONTAMINATION SYSTEM (JBADS)	0.917	1.000	24.608	-	24.608	2.373	0.838	1.361	0.000	0.000	31.097
Remarks											

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) DE4 / <i>DECONTAMINATION SYSTEMS (ACD&P)</i>
<p><u>D. Acquisition Strategy</u></p> <p>CONTAMINATED HUMAN REMAINS SYSTEM (CHRS)</p> <p>The CHRS Program will leverage existing efforts under a Joint Urgent Operational Needs Statement which has accelerated the CHRT project. Additional minor design modifications, developmental and operational testing is planned as part of the overall acquisition strategy. Product development will consist of the design and prototyping of a CHRT. The contracting strategy will make use of The Combatting Weapons of Mass Destruction (CWMD) Other Transaction Agreement (OTA) to procure prototype units, followed by Developmental Testing (DT).</p> <p>Following DT completion, an Operational Test Agency Assessment report will be prepared and an In Process Review will be conducted to determine readiness to proceed to production and Operational Testing. A Logistics Demonstration and Operational Testing will be conducted. An Operational Test Agency Evaluation Report will be written, and technical reviews will be conducted, in preparation for a Milestone C/Full Rate Production decision.</p> <p>TACTICAL DISABLEMENT SYSTEM (TACDS)</p> <p>Utilizing mature technologies, the TACDS program will take an incremental approach towards the development, integration, test and production of a family of systems (FoS). Developmental efforts in the Technology Maturation and Risk Reduction Phase (TMRR) and the Engineering and Manufacturing Development Phase (EMD) will be contracted through full and open competition. Production and Deployment will also be competed through full and open competition.</p> <p>MASS PERSONNEL DECON (MPD)</p> <p>The MPD Program will develop the equipment, processes and procedures for DoD-affiliated personnel contaminated by chemical, biological, and radiological agents to achieve ambulatory and non-ambulatory throughput requirements as dictated by the needs of the Services, while considering various mission scenarios. As part of the acquisition strategy, key product developmental efforts will begin with the program achieving a MS A, and includes efforts for the reduction of current MPD System sustainment costs by assessing existing MCD equipment and processes as well as new technology through the use of Request For Information from Industry's (RFI's), Market Research Analyses and Technology Demonstrations. A competitive/sole source contract for prototyping and production units will be awarded so that a combined developmental and operational testing can be performed on those assets. In-Process Review will take place followed by Milestone C/Full Rate Production Approval. These efforts will additionally support the development of hazardous waste disposal and integration with a Contaminated Human Remains capability.</p> <p><u>E. Performance Metrics</u></p> <p>N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) DE4 / <i>DECONTAMINATION SYSTEMS (ACD&P)</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CHRS - HW S - CHRT - Prototypes	C/FFP	Advanced Technologies International : Summerville, SC	0.000	1.317	Dec 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
CHRS - HW S - CHRT - Prototype Production Representative Assests	C/FFP	TBD : TBD	0.000	0.000		0.300	Jun 2019	0.000		-		0.000	Continuing	Continuing	0.000
CHRS - HW S - CRMS - Prototypes	C/FFP	Advanced Technologies International : Summerville, SC	0.000	1.174	Mar 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
CHRS - HW S - CRMS - Prototype	C/FFP	Advanced Technologies International : Summerville, SC	0.000	0.749	Aug 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
TACDS - HW S - Prototype Development	C/CPIF	TBD : TBD	0.000	1.155		0.853	Nov 2018	2.129	Nov 2019	-		2.129	Continuing	Continuing	0.000
MPD - HW S - Hardware System	C/FFP	TBD : TBD	0.000	0.000		0.000		1.494	Jan 2020	-		1.494	Continuing	Continuing	0.000
Subtotal			0.000	4.395		1.153		3.623		-		3.623	Continuing	Continuing	N/A

Remarks

CHRS: Contaminated Remains Mitigation System (CRMS) previously known as Contaminated Human Remains Decontamination System (CHRS). The CRMS portion of CHRS will be addressed by the Mass Personnel Decontamination (MPD) Program beginning in FY19.; MPD: Mass Personnel Decontamination funding cost increase in FY20 will provide for a contract award for Production Development efforts of prototype components (generators, heat pumps, roller systems, and spray bars),and program support.

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CHRS - TD/D S - IPT and Technical Support	MIPR	Various : Various	0.376	1.809	Nov 2017	1.120	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) DE4 / DECONTAMINATION SYSTEMS (ACD&P)					
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TACDS - TD/D S - Program Support Costs	Various	JPM Guardian : Aberdeen Proving Ground, MD	0.000	1.402		0.649	Jan 2019	0.000		-		0.000	Continuing	Continuing	0.000
MPD - ES SB - Eng Support Subsystem IPT Support	Various	Various : Various	0.000	0.000		0.393	Jan 2019	1.904	Nov 2019	-		1.904	Continuing	Continuing	0.000
Subtotal			0.376	3.211		2.162		1.904		-		1.904	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CHRS - Developmental Testing - CHRT	Various	Various : Various	0.000	0.764	May 2018	0.367	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
CHRS - CHRS - Operational Testing - CHRT	MIPR	Operational Test Command (OTC) : Ft. Hood, TX	0.000	0.000		0.300	Jun 2019	0.000		-		0.000	Continuing	Continuing	0.000
CHRS - IPT Test Planning - CRMS	Various	TBD : TBD	0.000	0.070		0.000		0.000		-		0.000	Continuing	Continuing	0.000
TACDS - DTE C - Prototype Proof of Concept	MIPR	TBD : TBD	0.000	0.000		0.336	Feb 2019	0.000		-		0.000	Continuing	Continuing	0.000
MPD - DTE SB - Preliminay System Components Testing	Various	TBD : TBD	0.000	0.000		0.000		0.500	Jan 2020	-		0.500	Continuing	Continuing	0.000
MPD - OTHT S - IPT ComponentsTest Planning	MIPR	TBD : TBD	0.000	0.000		0.000		0.050	Dec 2019	-		0.050	Continuing	Continuing	0.000
Subtotal			0.000	0.834		1.003		0.550		-		0.550	Continuing	Continuing	N/A
Remarks															
Contaminated Remains Mitigation System (CRMS) previously known as Contaminated Human Remains Decontamination System (CHRDS). The CRMS portion of CHRS will be addressed by the Mass Personnel Decontamination (MPD) Program beginning in FY19.															

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)					Project (Number/Name) DE4 / DECONTAMINATION SYSTEMS (ACD&P)				
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CHRS - PM/MS S - Program Management and Technical Support	MIPR	Various : Various	0.124	1.324	Nov 2017	0.408	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
CHRS - PM/MS C - DASD Reduction	Various	TBD : TBD	0.000	0.000		0.124	Oct 2018	0.000		-		0.000	Continuing	Continuing	0.000
TACDS - PM/MS S - Management	MIPR	Various : Various	0.000	0.124	Oct 2017	1.166	Dec 2019	1.690	Dec 2020	-		1.690	Continuing	Continuing	0.000
MPD - PM/MS C - DASD Reduction	Various	TBD : TBD	0.000	0.000		0.024	Oct 2018	0.000		-		0.000	Continuing	Continuing	0.000
MPD - PM/MS S - Management and Technical Support	MIPR	Various : Various	0.000	0.000		0.077	Jan 2019	0.968	Jan 2020	-		0.968	Continuing	Continuing	0.000
Subtotal			0.124	1.448		1.799		2.658		-		2.658	Continuing	Continuing	N/A
Remarks															
\$720K realigned out of FY18 TOA 10.22.18															
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.500	9.888		6.117		8.735		-		8.735	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Chemical and Biological Defense Program			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) DE4 / <i>DECONTAMINATION SYSTEMS (ACD&P)</i>	

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
CHRS - Milestone A - CHRT																												
CHRS - Contract Award - CHRT																												
CHRS - Development Test (DT) - CHRT																												
CHRS - In Process Review (IPR) - CHRT																												
CHRS - Operational Test (OT) - CHRT																												
CHRS - MS C/Full Rate Production (FRP) - CHRT																												
CHRS - Initial Operational Capability (IOC) - CHRT																												
CHRS - Full Operational Capability (FOC) - CHRT																												
TACDS - Draft CDD developed by Joint Requirements Office																												
TACDS - Milestone A Decision																												
TACDS - CDD development and approval																												
TACDS - Contract Kick-off meeting																												
TACDS - Test Readiness Review																												
TACDS - System Functional Review																												
TACDS - Milestone B Decision																												
TACDS - Program Baseline Review																												
MPD - MS A																												
MPD - Contract Award																												
MPD - Development/Operational Test (DT/OT)																												
MPD - IPR																												
MPD - MS C/ Full Rate Production Decision																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Chemical and Biological Defense Program																				Date: March 2019																	
Appropriation/Budget Activity 0400 / 4										R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)										Project (Number/Name) DE4 / DECONTAMINATION SYSTEMS (ACD&P)																	
										FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
										1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MPD - Initial Operational Capability																																					

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Chemical and Biological Defense Program			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) DE4 / <i>DECONTAMINATION SYSTEMS (ACD&P)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CHRS - Milestone A - CHRT	2	2018	2	2018
CHRS - Contract Award - CHRT	4	2018	4	2018
CHRS - Development Test (DT) - CHRT	4	2018	2	2019
CHRS - In Process Review (IPR) - CHRT	3	2019	3	2019
CHRS - Operational Test (OT) - CHRT	4	2019	4	2019
CHRS - MS C/Full Rate Production (FRP) - CHRT	3	2020	3	2020
CHRS - Initial Operational Capability (IOC) - CHRT	2	2021	2	2021
CHRS - Full Operational Capability (FOC) - CHRT	1	2022	1	2022
TACDS - Draft CDD developed by Joint Requirements Office	1	2018	1	2018
TACDS - Milestone A Decision	2	2018	2	2018
TACDS - CDD development and approval	2	2018	2	2020
TACDS - Contract Kick-off meeting	2	2019	2	2019
TACDS - Test Readiness Review	2	2020	2	2020
TACDS - System Functional Review	1	2021	1	2021
TACDS - Milestone B Decision	2	2021	2	2021
TACDS - Program Baseline Review	1	2021	1	2021
MPD - MS A	4	2019	4	2019
MPD - Contract Award	2	2020	2	2020
MPD - Development/Operational Test (DT/OT)	4	2021	1	2022
MPD - IPR	1	2022	1	2022
MPD - MS C/ Full Rate Production Decision	3	2023	3	2023
MPD - Initial Operational Capability	3	2024	3	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) IP4 / INDIVIDUAL PROTECTION (ACD&P)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
IP4: INDIVIDUAL PROTECTION (ACD&P)	-	4.421	3.228	1.997	-	1.997	1.997	2.994	0.000	0.000	0.000	14.637
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project includes the development of next generation individual protective ensembles (e.g., suits, boots, and gloves) which enable the Joint Force to survive and continue the mission in chemical, biological, and radiological (CBR) contaminated environments.

Efforts included in this project are:

- (1) the Uniform Integrated Protection Ensemble (UIPE) Increment 2
- (2) the Uniform Integrated Protection Ensemble Family of Systems (UIPE FoS)

In FY19, CBRN UIPE Increment 2 (UIPE 2) will transition to CBRN UIPE FoS. This is reflected not only in the name change but in the structure of the program. The program is designed to meet mission area needs, not individual Service 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. (2) the Tactical All-Hazards Threat Protective Ensemble (TATPE) will be a subset to the UIPE FoS and capitalize on the protection factor of commercial Level A with design modifications to align with the necessary operational imperatives to eliminate this risk paradox. This suit serves as an additional tool in the arsenal until technology matures to the point of delivering a similar capability applied against the range of military operations in all environments under all conditions.

UIPE FoS will develop a family of systems that will provide the broad spectrum of users individual percutaneous protective equipment with the ability to operate in a contaminated environment with no or minimal degradation in performance. UIPE FoS will provide 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. TATPE will provide high risk personnel (CBRN and Explosive Ordinance Disposal) increased protection against non-traditional and advanced threat agents during CWMD missions. These missions are representative of chemical production or bulk storage facility defeat, chemical weapon facility defeat, and interdiction or recovery of chemical weapons/devices while in transit.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: 1) UIPE - Increment 2	2.682	-	-
Description: Concept Design Evaluation/Technology Maturation and Risk Reduction			
Title: 2) UIPE - Increment 2	1.739	-	-
Description: Develop Tactical All-Hazards Threat Protective Ensemble (TATPE)			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019		
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) IP4 / INDIVIDUAL PROTECTION (ACD&P)				
B. Accomplishments/Planned Programs (\$ in Millions)										FY 2018	FY 2019	FY 2020
Title: 3) UIPE FoS										-	3.228	1.997
Description: Concept Design Evaluation/Technology Maturation and Risk Reduction												
FY 2019 Plans: Land Mission Area: Award Other Transaction Authority (OTA) contracts for prototypes; conduct material level testing on OTA and government prototypes; complete material level testing on non-developmental items; continue early user testing; continue system level testing on all prototypes and non-developmental item candidates, continue design phase activities (Design Verification Testing (DVT), detailed design, etc.) for all prototypes. Update the Business Case Analysis (BCA).												
FY 2020 Plans: Land Mission Area: Complete design phase activities, complete system level testing on all prototypes and non-developmental item candidates, begin Tradespace Analysis; update the Business Case Analysis (BCA).												
FY 2019 to FY 2020 Increase/Decrease Statement: Program/project transitioned to Engineering and Manufacturing Development Phase.												
Accomplishments/Planned Programs Subtotals										4.421	3.228	1.997
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
• IP5: INDIVIDUAL PROTECTION (EMD)	13.529	9.324	12.663	-	12.663	13.013	11.162	11.343	11.342	Continuing	Continuing	
• JI0002: JS AIRCREW MASK (JSAM)	25.086	54.775	69.416	-	69.416	72.863	67.612	50.622	8.280	Continuing	Continuing	
• JI0003: JOINT SERVICE GENERAL PURPOSE MASK (JSGPM)	53.154	16.927	13.209	-	13.209	12.499	25.193	3.891	0.000	0.000	124.873	
• MA0401: CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE (UIPE)	10.508	13.064	9.984	-	9.984	13.415	3.553	0.000	0.000	0.000	50.524	
Remarks												

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) IP4 / <i>INDIVIDUAL PROTECTION (ACD&P)</i>
<u>D. Acquisition Strategy</u> CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE (UIPE) Reference UIPE FOS acquisition strategy. CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE FAMILY OF SYSTEMS (UIPE FOS) The UIPE FoS will 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 form, fit, function, and integration with the current Warfighter kits compared to legacy systems. An Other Transaction Authority (OTA) contracting approach will be used to procure informational white papers during the Technology Maturation and Risk Reduction (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. UIPE FoS and the Services identified a mature solution that may meet Air Mission Area suit requirements. The program will identify data gaps from the United States Air Force's (USAF) test and evaluation of the Chemical, Biological, Radiological Layer (CBRL) of the Integrated Aircrew Ensemble. There is high confidence in the CBRL meeting the requirements for the Services. <u>E. Performance Metrics</u> N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) IP4 / INDIVIDUAL PROTECTION (ACD&P)					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
UIPE - HW SB - TATPE Design Development/ Configuration	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.100	0.243	Oct 2017	0.000		0.000		-		0.000	0.000	0.343	0.000
UIPE FOS - HW S - Prototype Development	Various	TBD : TBD	0.000	0.000		1.000	Dec 2018	0.400	Nov 2019	-		0.400	0.000	1.400	0.000
Subtotal			0.100	0.243		1.000		0.400		-		0.400	0.000	1.743	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
UIPE - TD/D S - Integrated Product Team (IPT), Program, Engineering, and Technical Support	MIPR	Various : Various	4.212	0.175	Oct 2017	0.000		0.000		-		0.000	0.000	4.387	0.000
UIPE - TD/D S - Tactical Advanced Threat Protective Ensemble (TATPE) Concept Design/ Engineering	MIPR	US Army Natick Soldier RD&E Center : Natick, MA	1.414	0.387	Oct 2017	0.000		0.000		-		0.000	0.000	1.801	0.000
UIPE - TD/D S - TATPE Engineering Analysis	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.506	1.109	Oct 2017	0.000		0.000		-		0.000	0.000	1.615	0.000
UIPE FOS - UIPE - TD/D S - Integrated	MIPR	Various : Various	0.000	0.000		0.546	Dec 2018	0.050	Nov 2019	-		0.050	0.000	0.596	0.000
UIPE FOS - UIPE - ES S - Systems	MIPR	Various : Various	0.000	0.000		0.546	Dec 2018	0.279	Nov 2019	-		0.279	0.000	0.825	0.000
Subtotal			6.132	1.671		1.092		0.329		-		0.329	0.000	9.224	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)					Project (Number/Name) IP4 / INDIVIDUAL PROTECTION (ACD&P)				
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
UIPE - DTE S - Design Concept/System Level Testing	MIPR	Various : Various	2.944	1.954	Jul 2018	0.000		0.000		-		0.000	0.000	4.898	0.000
UIPE FOS - UIPE - DTE S - Design	MIPR	Various : Various	0.000	0.000		0.445	Dec 2018	0.841	Nov 2019	-		0.841	0.000	1.286	0.000
Subtotal			2.944	1.954		0.445		0.841		-		0.841	0.000	6.184	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
UIPE - PM/MS S - Program Management Support	MIPR	Various : Various	1.495	0.553	Jan 2018	0.000		0.000		-		0.000	0.000	2.048	0.000
UIPE FOS - UIPE - PM/MS C	MIPR	Various : Various	0.000	0.000		0.691	Dec 2018	0.427	Nov 2019	-		0.427	0.000	1.118	0.000
Subtotal			1.495	0.553		0.691		0.427		-		0.427	0.000	3.166	N/A
Remarks \$250K realigned out of FY18 TOA 10.22.18															
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			10.671	4.421		3.228		1.997		-		1.997	0.000	20.317	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Chemical and Biological Defense Program			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) IP4 / <i>INDIVIDUAL PROTECTION (ACD&P)</i>	

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UIPE - TATPE Design Development and Configuration																												
UIPE - Air Baseline Testing																												
UIPE - Air Data Crosswalk																												
UIPE - Air Decision Point																												
UIPE - Initiate Land & Air Early User Test																												
UIPE - Initiate Land & Air Material Testing																												
UIPE FOS - Air System Testing																												
UIPE FOS - Land Early User Evaluation																												
UIPE FOS - Land and Air Material Testing																												
UIPE FOS - Air MS C Fielding Decision for USAF																												
UIPE FOS - Land System Testing																												
UIPE FOS - Air MS C Production Award																												
UIPE FOS - Air USN/USMC Initial Operational Test and Evaluation																												
UIPE FOS - Air Fielding Decision for USN/USMC																												
UIPE FOS - Land Milestone B																												
UIPE FOS - Land Developmental Testing/Operational Testing																												
UIPE FOS - Land Operational Assessment																												
UIPE FOS - Land Milestone C/Low Rate Initial Production																												
UIPE FOS - Land Multi-Service Operational Test and Evaluation																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Chemical and Biological Defense Program																				Date: March 2019												
Appropriation/Budget Activity 0400 / 4										R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)										Project (Number/Name) IP4 / INDIVIDUAL PROTECTION (ACD&P)												
					FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
					1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UIPE FOS - Land Full Rate Production					<div></div>																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Chemical and Biological Defense Program			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) IP4 / <i>INDIVIDUAL PROTECTION (ACD&P)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
UIPE - TATPE Design Development and Configuration	1	2018	4	2018
UIPE - Air Baseline Testing	1	2018	3	2018
UIPE - Air Data Crosswalk	2	2018	3	2018
UIPE - Air Decision Point	3	2018	3	2018
UIPE - Initiate Land & Air Early User Test	3	2018	4	2018
UIPE - Initiate Land & Air Material Testing	3	2018	4	2018
UIPE FOS - Air System Testing	1	2019	4	2019
UIPE FOS - Land Early User Evaluation	1	2019	1	2021
UIPE FOS - Land and Air Material Testing	1	2019	4	2019
UIPE FOS - Air MS C Fielding Decision for USAF	4	2019	4	2019
UIPE FOS - Land System Testing	4	2019	4	2020
UIPE FOS - Air MS C Production Award	1	2020	1	2020
UIPE FOS - Air USN/USMC Initial Operational Test and Evaluation	1	2020	2	2020
UIPE FOS - Air Fielding Decision for USN/USMC	3	2020	3	2020
UIPE FOS - Land Milestone B	2	2021	2	2021
UIPE FOS - Land Developmental Testing/Operational Testing	4	2021	3	2022
UIPE FOS - Land Operational Assessment	2	2022	2	2022
UIPE FOS - Land Milestone C/Low Rate Initial Production	1	2023	1	2023
UIPE FOS - Land Multi-Service Operational Test and Evaluation	2	2023	2	2023
UIPE FOS - Land Full Rate Production	4	2023	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) IS4 / INFORMATION SYSTEMS (ACD&P)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
IS4: INFORMATION SYSTEMS (ACD&P)	-	5.336	0.854	0.528	-	0.528	0.174	0.070	0.067	0.067	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project includes efforts responsible for providing the information architecture and applications for shaping the battlespace against the Chemical, Biological, Radiological and Nuclear (CBRN) threat. During this phase, efforts will continue prototyping and technology development and transition efforts for new technologies and capabilities to fulfill requirements.

Efforts included in this project are:

- (1) the Global-Biosurveillance Portal (G-BSP)
- (2) the Joint Effects Model 2 (JEM 2)
- (3) the Joint Warning and Reporting Network 2 (JWARN 2)
- (4) the Software Support Activity (SSA).

G-BSP will complete remaining efforts for prototyping, developing, and evaluating new technologies, models, and tools from both internal and external developers for transition into G-BSP, as needed.

This will be integrated into a web-based enterprise environment that facilitates collaboration, communication, and information sharing in support of the detection, management, and mitigation of man-made and naturally occurring biological hazards. This will result in a set of tools and capabilities that facilitate the timely identification and detection of CBRN events in order to minimize operational impacts to the local and global populations.

JEM 2 will continue to adapt and merge emerging science and technology (S&T) capability into a unified architecture and common software baseline that expedites transition of mature S&T into the JEM 2 baseline. This will be integrated into a web-based software application that supplies the Department of Defense (DoD) with the only operationally tested and accredited tool to effectively model and simulate the effects of Chemical, Biological, Radiological and Nuclear (CBRN) weapon strikes and incidents. This will provide 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. Additionally, this will support planning efforts to mitigate the effects of Weapons of Mass Destruction (WMD) and to provide rapid estimates of hazards and effects integrated into the Common Operational Picture (COP).

JWARN 2 will continue integration of emerging science and technology capabilities received from Advanced Technical Development (ATD) phase and complete JWARN Technology Demonstrations and User Assessments to evaluate and prove component and subsystem maturity of critical science and technology, system performance, and validate requirements within the IT BOX construct and Agile Process developed software prototype(s). This will be integrated into an accredited DoD warning and reporting system that enables an immediate and integrated response to threats of contamination by WMD, CBRN and TIM incidents. This will provide a digital display of CBRN 1-6 reports on the COP, displayed through Service provided Command, Control, Communications, Computers, and Intelligence (C4I) C2 systems resident at all

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program		Date: March 2019		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)	Project (Number/Name) IS4 / INFORMATION SYSTEMS (ACD&P)		
echelons of command. Commanders will be provided with enhanced situational awareness throughout the area of operation, supports warfighter battle management and continuity of operations in a contaminated environment.				
The SSA will continue required modifications to the integrated Architecture on host platforms and document the infrastructure and technical standards, developing an acquisition Cybersecurity/IA strategy and architecture products for the JWARN, JEM, Man portable radiological detection system, Radiological Detection System, Next generation Chemical detector and other JPEO CBD programs and initiatives. This will provide the Chem-Bio Defense user developmental support and service organization to facilitate net-centric interoperability of systems in acquisition for the Warfighter. This includes, but is not limited to, 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.				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Title: 1) Global-BSP Description: Program Management FY 2019 Plans: Continue management and oversight of technology development and transition efforts for new technologies and capabilities designed to satisfy Global-BSP requirements. FY 2020 Plans: Continue management and oversight of technology development and transition efforts for new technologies and capabilities designed to satisfy Global-BSP requirements. Coordinate Sustainment transition activities with Special Operations Command (SOCOM). FY 2019 to FY 2020 Increase/Decrease Statement: Minor change due to routine program adjustments.		0.340	0.201	0.021
Title: 2) Global-BSP Description: Product Development FY 2019 Plans: Complete remaining efforts for prototyping, developing, and evaluating new technologies, models, and tools from both internal and external developers for transition into Global-BSP as needed. FY 2020 Plans:		0.843	0.361	0.139

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program			Date: March 2019		
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>		Project (Number/Name) IS4 / <i>INFORMATION SYSTEMS (ACD&P)</i>	
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
Complete remaining efforts for risk-mitigation activities, developing, and evaluating new technologies. Continue efforts to provide high-fidelity models, tools, and resources from both internal and external developers for transition into Global-BSP as needed. Complete SOCOM-defined SIPR requirement for Global-BSP.					
FY 2019 to FY 2020 Increase/Decrease Statement: Minor change due to routine program adjustments.					
Title: 3) Global-BSP Description: Training and Logistics Support FY 2020 Plans: Perform Training Development, Integrated Logistic Support, and Configuration Management. FY 2019 to FY 2020 Increase/Decrease Statement: Minor change due to routine program adjustments.			-	-	0.048
Title: 4) JEM 2 Description: Prototyping and Development FY 2019 Plans: Continue integration of emerging science and technology capabilities received from Advanced Technical Development (ATD) phase and defined in Requirements Definition Package (RDP) 3 and 4. FY 2020 Plans: Continue to transition and integrate the JEM and Hazard Predication and Analysis Capability (HPAC) architecture, based on the Common Chemical, Biological, Radiological, and Nuclear (CBRN) Model Interface (CCMI)single architecture project and develop, transition, and integrate S&T capabilities. FY 2019 to FY 2020 Increase/Decrease Statement: Minor change due to routine program adjustments.			0.104	0.075	0.210
Title: 5) JEM 2 Description: Management Support FY 2020 Plans: Provide program/financial management, costing, contracting, scheduling, and acquisition oversight support. FY 2019 to FY 2020 Increase/Decrease Statement:			-	-	0.029

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program		Date: March 2019		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)	Project (Number/Name) IS4 / INFORMATION SYSTEMS (ACD&P)		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Increase due to change in program/project schedule.				
Title: 6) JWARN 2 Description: Prototyping FY 2019 Plans: Transition capabilities from advanced component development and prototype effort to system development. FY 2019 to FY 2020 Increase/Decrease Statement: Program/project transitioned to Production and Deployment Phase.		0.739	0.022	-
Title: 7) JWARN 2 Description: Product Development FY 2019 Plans: Complete JWARN Technology Demonstrations and User Assessments to evaluate and prove component and subsystem maturity of critical science and technology, system performance, and validate requirements within the IT BOX construct and Agile Process developed software prototype(s). FY 2019 to FY 2020 Increase/Decrease Statement: Program/project transitioned to Production and Deployment Phase.		1.186	0.037	-
Title: 8) JWARN 2 Description: Test and Evaluation (T&E) FY 2019 Plans: Complete Government developmental testing and analysis of component and subsystem maturity, to include Technology Readiness Assessment(s), of software submitted for evaluation during prototyping. Complete the DOD Information Assurance Certification and Accreditation and Joint Interoperability Certification process. Complete Operational Test (OT) of the JWARN systems (CD 2.1, 2.2, 2.4, & 2.5) capabilities to CBRN IS and Army, Marine, and Navy. FY 2019 to FY 2020 Increase/Decrease Statement: Program/project transitioned to Production and Deployment Phase.		0.687	0.020	-
Title: 9) JWARN 2 Description: Program Management Support		0.515	0.017	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program			Date: March 2019		
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>		Project (Number/Name) IS4 / <i>INFORMATION SYSTEMS (ACD&P)</i>	
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
<i>FY 2019 Plans:</i> Complete the strategic, tactical planning, program/financial management, costing, contracting, scheduling, acquisition oversight, and milestone documentation for the program within IT BOX construct and Agile Software development process.					
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Program/project transitioned to Production and Deployment Phase.					
<i>Title:</i> 10) JWARN 2 <i>Description:</i> Technical Support			0.826	0.027	-
<i>FY 2019 Plans:</i> Complete the engineering and technical support for JWARN development under the IT BOX construct and Agile Software development processes. Complete the independent system verification, validation, and class type accreditation as required.					
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Program/project transitioned to Production and Deployment Phase.					
<i>Title:</i> 11) SSA <i>Description:</i> Integrated Architecture			0.096	0.094	0.081
<i>FY 2019 Plans:</i> Continue the development of integrated architectures for Joint CBRN programs across the JPEO CBRND enterprise. Develop architecture products for the Joint Warning and Reporting Network, Joint Effects Model, Man portable radiological detection system, Radiological Detection System, Next generation Chemical detector. Continue required modifications to the integrated Architecture on host platforms and document the infrastructure and technical standards, developing an acquisition Cybersecurity/IA strategy.					
<i>FY 2020 Plans:</i> Continue to create, implement, validate, maintain, and continually shape a set of standard, enterprise-wide integrated CBRN Family of Systems architectures. Assists in development of acquisition program documents by providing early architecture products for inclusion and assists in the analysis and management of acquisition programs by producing architectural products that visualize system and program interdependencies, which help to expose gaps and requirements.					
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Minor change due to routine program adjustments.					
Accomplishments/Planned Programs Subtotals			5.336	0.854	0.528

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) IS4 / <i>INFORMATION SYSTEMS (ACD&P)</i>	

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• IS5: <i>INFORMATION SYSTEMS (EMD)</i>	21.789	22.215	22.111	-	22.111	17.935	13.781	7.695	7.694	Continuing	Continuing
• IS7: <i>INFORMATION SYSTEMS (OP SYS DEV)</i>	11.923	15.051	16.811	-	16.811	16.133	14.916	12.993	12.993	Continuing	Continuing
• G47101: <i>JOINT WARNING & REPORTING NETWORK (JWARN)</i>	0.933	0.502	0.442	-	0.442	0.394	0.370	0.375	0.375	Continuing	Continuing
• JC0208: <i>JOINT EFFECTS MODEL (JEM)</i>	0.880	0.911	0.689	-	0.689	0.720	0.735	0.749	0.749	Continuing	Continuing
• JS5230: <i>SOFTWARE SUPPORT ACTIVITY (SSA)</i>	0.092	0.094	0.081	-	0.081	0.074	0.070	0.067	0.067	Continuing	Continuing
• JX0301: <i>BIOSURVEILLANCE PORTAL (BSP)</i>	1.107	1.148	1.124	-	1.124	1.003	0.705	0.000	0.000	0.000	5.087

Remarks

D. Acquisition Strategy

BIOSURVEILLANCE PORTAL (BSP)

The Global-Biosurveillance Portal (Global-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 Global-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. The maintenance/sustainment of the capability as an IT system will continue within CBRN IS in FY23.

JOINT EFFECTS MODEL (JEM)

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) IS4 / <i>INFORMATION SYSTEMS (ACD&P)</i>
<p>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.</p> <p>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.</p> <p>As part of this strategy a single JEM 2 integrator, General Dynamics Information Technology (GDIT), was selected as the prime development contract in March 2017.</p> <p>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 contract. The contract utilizes full and open competition and is referred to as the JEM 1 and 2 development, modernization and sustainment contract.</p> <p>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.</p> <p>The maintenance/sustainment of the capability as an IT system will continue within CBRN IS in FY23.</p> <p>JOINT WARNING & REPORTING NETWORK (JWARN)</p> <p>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).</p> <p>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</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) IS4 / <i>INFORMATION SYSTEMS (ACD&P)</i>
<p>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.</p> <p>The JWARN 2 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).</p> <p>The current contractor for JWARN 2, Northrup Grumman, will provide all capabilities defined in the Requirement Definition Package 1 (RDP-1) and RDP-2 documents.</p> <p>As part of the strategy for a single JWARN 2 integrator, a follow-on contract was awarded in December 2018. The follow-on contractor, DCS Corp, 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 JWARN contract. The JWARN 2 follow-on contract will utilize full and open competition and will be referred to as the JWARN 2 software development and maintenance contract.</p> <p>The maintenance/sustainment of the capability as an IT system will continue within CBRN IS in FY23.</p> <p>SOFTWARE SUPPORT ACTIVITY (SSA)</p> <p>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.</p> <p><u>E. Performance Metrics</u></p> <p>N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) IS4 / INFORMATION SYSTEMS (ACD&P)					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
BSP - SW S - Software Development	FFRDC	Johns Hopkins University - Applied Physics Lab : Laurel, MD	1.398	0.843	Dec 2017	0.361	Dec 2018	0.185	Dec 2019	-		0.185	Continuing	Continuing	0.000
JEM - 2 - SW SB - Prototype development	C/CPAF	General Dynamics Information Technologies : Fairfax, VA	6.735	0.104	Apr 2018	0.075	Apr 2019	0.239	Apr 2020	-		0.239	Continuing	Continuing	0.000
JWARN - 2- SW S - Prototype Dev Follow-On	C/CPAF	DCS Corps : Alexandria, VA	0.000	0.001		0.059	Dec 2019	0.000		-		0.000	Continuing	Continuing	0.000
JWARN - 2- SW S - Prototype Development	C/CPFF	Northrop Grumman Corp. : Winter Park, FL	10.112	1.924	Dec 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
Subtotal			18.245	2.872		0.495		0.424		-		0.424	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
JWARN - 2 ES S - Engineering Support	MIPR	Various : Various	8.149	0.826	Dec 2017	0.027	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
SSA - TD/D C - Engineering Support	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	0.390	0.096	Dec 2017	0.094	Dec 2018	0.081	Dec 2019	-		0.081	Continuing	Continuing	0.000
Subtotal			8.539	0.922		0.121		0.081		-		0.081	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>						Project (Number/Name) IS4 / <i>INFORMATION SYSTEMS (ACD&P)</i>			
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
JWARN - 2 - OTHB SB - Gov't developmental testing	MIPR	Various : Various	3.096	0.687	Dec 2017	0.020	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
Subtotal			3.096	0.687		0.020		0.000		-		0.000	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
BSP - PM/MS S - Program Management Support	Various	Various : Various	0.762	0.340	Dec 2017	0.201	Dec 2018	0.023	Dec 2019	-		0.023	Continuing	Continuing	0.000
JWARN - 2 - PM/MS SB - Program management	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	4.795	0.515	Dec 2017	0.017	Nov 2018	0.000		-		0.000	Continuing	Continuing	0.000
Subtotal			5.557	0.855		0.218		0.023		-		0.023	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			35.437	5.336		0.854		0.528		-		0.528	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Chemical and Biological Defense Program										Date: March 2019			
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>					Project (Number/Name) IS4 / <i>INFORMATION SYSTEMS (ACD&P)</i>			

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
BSP - RDP-1																												
BSP - CSG BD 7																												
BSP - CSG BD 8																												
BSP - CSG BD 9																												
BSP - CSG BD 10																												
BSP - Final Operational Test and Evaluation - RDP 1																												
BSP - FOC																												
BSP - Total Package Fielding																												
JEM Increment 2 - BD 3																												
JEM Increment 2 - FD 2																												
JEM Increment 2 - RDP 4																												
JEM Increment 2 - FD 3																												
JEM Increment 2 - FD 4																												
JEM Increment 2 - C2 Integration Development Test																												
JEM Increment 2 - Govt DT / OT / V&V																												
JEM Increment 2 - BD 4																												
JEM Increment 2 - BD 5																												
JEM Increment 2 - RDP 5																												
JEM Increment 2 - IOC C-2 Systems																												
JEM Increment 2 - FOC Standalone																												
JEM Increment 2 - IOC Emerging Capabilities																												
JEM Increment 2 - FOC C-2 Systems																												
JEM Increment 2 - IOC Analyst Tools																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Chemical and Biological Defense Program **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) IS4 / <i>INFORMATION SYSTEMS (ACD&P)</i>
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JEM Increment 2 - FOC Analyst Tools																												
JWARN Increment 2 - Govt DT / OT / UFEs / OAs / FOTs																												
JWARN Increment 2 - Modernization and Update																												
JWARN Increment 2 - RDP 2 Build Decision 2																												
JWARN Increment 2 - RDP 3 Build Decision																												
JWARN Increment 2 - Fielding Decision 2																												
JWARN Increment 2 - Fielding Decision 3																												
JWARN Increment 2 - IOC RDP 1																												
JWARN Increment 2 - IOC RDP 2																												
JWARN Increment 2 - IOC RDP 3																												
JWARN Increment 2 - RDP 4 Approval																												
SSA - Demonstrate Technology Transition Capabilities																												
SSA - Provide Configuration Management Services for Common User Products and Services																												
SSA - Provide Data Model Implementation Guidance																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Chemical and Biological Defense Program			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) IS4 / <i>INFORMATION SYSTEMS (ACD&P)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
BSP - RDP-1	1	2018	3	2020
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 - FOC	3	2020	3	2020
BSP - Total Package Fielding	4	2020	3	2022
JEM Increment 2 - BD 3	1	2018	1	2018
JEM Increment 2 - FD 2	2	2018	3	2018
JEM Increment 2 - RDP 4	3	2019	4	2019
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	1	2018	1	2018
JEM Increment 2 - Govt DT / OT / V&V	1	2018	4	2022
JEM Increment 2 - BD 4	4	2018	1	2019
JEM Increment 2 - BD 5	3	2019	3	2019
JEM Increment 2 - RDP 5	1	2021	1	2021
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

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Chemical and Biological Defense Program **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) IS4 / <i>INFORMATION SYSTEMS (ACD&P)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
JEM Increment 2 - IOC Analyst Tools	4	2018	4	2018
JEM Increment 2 - FOC Analyst Tools	1	2021	1	2021
JWARN Increment 2 - Govt DT / OT / UFEs / OAs / FOTs	1	2018	4	2022
JWARN Increment 2 - Modernization and Update	1	2018	4	2022
JWARN Increment 2 - RDP 2 Build Decision 2	1	2018	1	2018
JWARN Increment 2 - RDP 3 Build Decision	2	2019	2	2019
JWARN Increment 2 - Fielding Decision 2	2	2018	4	2018
JWARN Increment 2 - Fielding Decision 3	2	2019	1	2020
JWARN Increment 2 - IOC RDP 1	2	2018	2	2018
JWARN Increment 2 - IOC RDP 2	2	2018	3	2018
JWARN Increment 2 - IOC RDP 3	4	2020	4	2020
JWARN Increment 2 - RDP 4 Approval	3	2021	3	2021
SSA - Demonstrate Technology Transition Capabilities	1	2018	1	2024
SSA - Provide Configuration Management Services for Common User Products and Services	1	2018	1	2024
SSA - Provide Data Model Implementation Guidance	1	2018	1	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019		
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MB4: MEDICAL BIOLOGICAL DEFENSE (ACD&P)	-	71.070	65.209	48.166	-	48.166	75.343	70.991	78.526	73.550	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project includes Medical Countermeasure platform technologies, Medical Countermeasures (vaccines and therapeutics), development of reagents, assays, diagnostic equipment, biosurveillance and supporting efforts.

Efforts included in this project are:

- (1) Medical Countermeasure Platform Technologies (MCMPT)
- (2) Advanced Development and Manufacturing (ADM) facility
- (3) Biosafety Level 4 Good Laboratory Practice Test and Evaluation (BSL4 GLP T&E)
- (4) Countermeasures for Multi-Drug Resistance-Bacterial (CMDR-B)
- (5) Next Generation Diagnostic System (NGDS)
- (6) Antiviral Therapeutic (AV TX)
- (7) Filovirus Vaccine (VAC FILO)
- (8) Ricin vaccine (VAC RIC)
- (9) Venezuelan Equine Encephalitis (VAC VEE)
- (10) Western, Eastern, and Venezuelan Equine Encephalitis (VAC WEVEE) Vaccine

The goal of the MCMPT is to counter a variety of threat agents using standardized discovery, design, manufacturing, and testing processes to reduce the medical countermeasure (MCM) development risks. Efforts will center on leveraging the DoD's Advanced Development Manufacturing (ADM) facility and developing robust manufacturing processes. MCMPT will leverage platform technologies to streamline and accelerate the MCM delivery to the Force by reducing developmental risk. 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 a thirty-six month Advanced Technology Demonstration (ATD) is the Advanced Development and Manufacturing Antibody Technologies (ADAMANT). This platform provides an enduring capability from which future candidates can be manufactured. 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 capability building effort at the DoD ADM will establish and enhance proven biopharmaceutical and vaccine manufacturing technologies to accelerate the delivery of medical countermeasures as part of a medical integrated layered defense. The return on investment is an increased level of preparedness and responsiveness to counter current and emerging chemical and biological threats. By establishing and enhancing proven enabling technologies, the DoD ADM will accelerate development of MCMs at all stages of development, enhance preparedness for existing threats, and accelerate response to emerging threats. MCMs impacted by these efforts

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<p>include: Vaccines for Viral Agents, Vaccines for Bacterial Agents and Toxins, Monoclonal antibodies, antibody fragments, and antibody conjugates for therapeutic and prophylactic use across all agent classes, and Adjuvants. Funds to support the state of readiness were previously provided through individual product development and manufacturing funding lines. In FY20 the Department is providing dedicated funds to support operational availability.</p> <p>The Medical Countermeasure BSL-4 GLP T&E capability performs T&E and provides the essential data packages to support US Food and Drug Administration approval of leading biodefense medical countermeasure candidates to protect the Warfighter and the Nation. This capability provides dedicated capacity for DoD to conduct biosafety level-4 (BSL-4) GLP T&E studies to meet programmatic needs following all applicable regulatory, biosurety, and safety standards.</p> <p>The CMDR-B program develops 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 candidate drug was approved by the FDA in Oct 18 for Community Acquired Bacterial Pneumonia (CAPB) that was required as part of the acquisition strategy for the antibiotic repurposing program from S&T to advanced development.</p> <p>The NGDS is a family of systems providing increments of diagnostic capabilities over time that address varied chemical, biological and radiological (CBR) threats across the different echelons of the Combat Health Support System. The mission of the NGDS is to provide CBR threat and infectious disease identification and FDA-cleared diagnostics to inform individual patient treatment and CBR situational awareness and disease surveillance. NGDS Increment 1 improves diagnostic capabilities in deployable and laboratory-based combat health support units. NGDS Increment 1 offers improved operational suitability and affordability over legacy systems by developing FDA cleared biological warfare agent (BWA) and infectious disease in vitro diagnostic (IVD) assays on an existing commercial diagnostic device with a well-established FDA regulatory history and pipeline of commercial non-BWA infectious disease diagnostic tests. 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, by developing lightweight, portable, and simple-to-use instruments and test kits.</p> <p>The AV TX Program is continuing the development of a Ebola Zaire therapeutic treatment drug that is on the regulatory path for FDA approval as an antiviral therapeutic for the warfighter. AV TX is continuing the development of models to test for alphavirus therapeutics that include several Natural History Studies required per FDA and animal rule regulatory requirements. Other pathogens on the biological warfare threat list, including viruses of interest from Filoviridae, Arenaviridae, Bunyaviridae, and Flaviviridae, are targets of future development efforts. 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.</p> <p>The VAC FILO Program develops vaccines that will offer protection against the threat of Ebola and Marburg viruses. The program office is prioritizing the development and delivery of a licensed Marburg vaccine while working with Science & Technology to further develop Ebola vaccine candidates to meet the DoD requirement. The current budget supports development of a single Marburg prototype to protect against the BW threat through TMRR phase. The DoD anticipates that the FDA will approve a vaccine using the Animal Rule, which allows for the demonstration of efficacy in a relevant animal model(s).</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program		Date: March 2019
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The VAC RIC program supports one DoD vaccine candidate including manufacturing GMP lots; and the continuation of animal model and assay development studies. The Ricin toxin is a validated bioweapon threat that is lethal, available and easily produced. The VAC RIC Program concluded development activities and transferred the technology to the ADMc in FY18.		
The VAC WEVEE Vaccine will protect the Warfighter against aerosolized exposure to three strains of alphaviruses; Western, Eastern and Venezuelan equine encephalitis viruses. Services have prioritized the development and delivery of an FDA-licensed Venezuelan Equine Encephalitis Virus (VEEV) vaccine. In FY19 the VAC WEVEE program shifted to the VAC VEE program. The VAC VEE program uses a parallel evaluation of Modified Vaccinia Ankara (MVA) and Virus Like Particle (VLP) vaccine prototypes through Phase I clinical trials to achieve competitive prototyping in the Technology Maturation & Risk Reduction phase. Several potential decision points will be used to assess the prototypes at competitive selection. The schedule is based on a competitive selection to one prototype. The Government will serve as the integrator during this phase by managing and coordinating the various vaccine development efforts. At MS B, the best prototype will be selected through a full and open competition to transition to the Engineering and Manufacturing Development (EMD) phase, with delivery of a FDA-licensed WEVEE vaccine. The development efforts will be a Cost Plus and Firm Fixed Price CLINs. Additionally, the Program Office will partner with Health and Human Services/National Institute of Allergies and Infectious Diseases (HHS/NIAID), DoD agencies, and laboratories to include U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID). This DoD program is the Public Health Emergency Medical Countermeasures lead for the advanced development of this vaccine and is leveraging expertise across the Federal and International sectors to ensure programmatic success.		
B. Accomplishments/Planned Programs (\$ in Millions)		
Title: 1) MCMPT Description: Rapid Response FY 2019 Plans: Continue development of a rapid response capability. FY 2020 Plans: Continue development of a rapid response capability. FY 2019 to FY 2020 Increase/Decrease Statement: Minor change due to routine program adjustments.		FY 2018 0.500 FY 2019 8.802 FY 2020 7.704
Title: 2) MCMPT Description: ADAMANT FY 2019 Plans: Initiate optimization of ADAMANT to support delivery of a product MCM. FY 2020 Plans:		- 16.331 7.189

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program			Date: March 2019		
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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
Continue optimization of ADAMANT to support delivery of a product MCM.					
FY 2019 to FY 2020 Increase/Decrease Statement: Minor change due to routine program adjustments.					
Title: 3) MCMPT Description: Vaccine Platform FY 2019 Plans: Initiate development efforts for the vaccine platform capability. FY 2020 Plans: Continue development efforts for the vaccine platform capability. FY 2019 to FY 2020 Increase/Decrease Statement: Minor change due to routine program adjustments.			-	3.445	1.397
Title: 4) DoD ADM Capability Building Description: Establish proven enabling manufacturing technologies at the DoD ADM. FY 2020 Plans: Initiate tech transfer and enhancement of manufacturing technologies to support MCM development against biological threats. FY 2019 to FY 2020 Increase/Decrease Statement: Increase due to change in program/project schedule.			-	-	8.000
Title: 5) BSL-4 GLP T&E Description: Clinical Studies FY 2019 Plans: Continue to conduct two GLP BSL-4 T&E medical countermeasure non-human primate studies in a safe and secure environment, implement laboratory draw-down and transition to new facility, continue to provide strategic planning, program management, and scheduling for GLP BSL-4 T&E capability. FY 2020 Plans:			7.027	6.696	5.734

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Continue to conduct two GLP BSL-4 T&E medical countermeasure non-human primate studies in a safe and secure environment, implement laboratory draw-down and transition to new facility, continue to provide strategic planning, program management, and scheduling for GLP BSL-4 T&E capability. FY 2019 to FY 2020 Increase/Decrease Statement: Minor change due to routine program adjustments.				
Title: 6) CMDR-B Description: Preclinical		10.230	-	-
Title: 7) CMDR-B Description: Anti-Bacterial Therapeutics FY 2019 Plans: Execute programmatic and engineering support. FY 2019 to FY 2020 Increase/Decrease Statement: Program/project transitioned to Advanced Development.		-	2.035	-
Title: 8) NGDS 2 Description: Chemical Diagnostic System FY 2019 Plans: Continue to develop and mature prototype for Chemical agent diagnostics. FY 2020 Plans: Complete development of prototype for Chemical agent diagnostics. FY 2019 to FY 2020 Increase/Decrease Statement: Program/project transitioned to Engineering and Manufacturing Development Phase.		4.472	8.653	0.619
Title: 9) AV TX Description: Filo Candidate / Enabling Technology		18.748	-	-
Title: 10) VAC FILO Description: Assays, nonclinical and clinical		7.330	6.667	6.303

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
FY 2019 Plans: Continue testing , continue nonclinical studies to evaluate vaccine prototype, and continue support of clinical trials.					
FY 2020 Plans: Continue nonclinical studies for vaccine prototype, and continue support of clinical trial.					
FY 2019 to FY 2020 Increase/Decrease Statement: Minor change due to routine program adjustments.					
Title: 11) VAC FILO Description: Manufacturing			5.619	5.751	6.500
FY 2019 Plans: Continue stability testing and manufacturing efforts.					
FY 2020 Plans: Continue stability testing and manufacturing efforts.					
FY 2019 to FY 2020 Increase/Decrease Statement: Increase due to change in program/project schedule.					
Title: 12) VAC RIC Description: Development Activities			0.483	-	-
Title: 13) VAC VEE Description: Non Clinical, Clinical, and Manufacturing			-	6.829	4.720
FY 2019 Plans: Continue clinical, nonclinical and manufacturing efforts for multiple candidates prior to competitive selection.					
FY 2020 Plans: Continue clinical, nonclinical and manufacturing efforts for multiple candidates prior to competitive selection.					
FY 2019 to FY 2020 Increase/Decrease Statement: Decrease due to change in program/project schedule.					
Title: 14) VAC WEVEE			16.661	-	-

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B. Accomplishments/Planned Programs (\$ in Millions)										FY 2018	FY 2019	FY 2020
Description: Nonclinical, Clinical, and Manufacturing												
Accomplishments/Planned Programs Subtotals										71.070	65.209	48.166
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
• MB5: MEDICAL BIOLOGICAL DEFENSE (EMD)	130.240	117.331	119.227	-	119.227	97.501	71.221	78.435	82.815	Continuing	Continuing	
• MB7: MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)	11.195	9.021	3.720	-	3.720	3.365	2.887	2.179	7.552	Continuing	Continuing	
• JM6677: ADVANCED ANTICONVULSANT SYSTEM (AAS)	0.000	0.360	5.352	-	5.352	2.696	2.694	3.991	0.000	0.000	15.093	
• JM8788: NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)	6.498	6.563	4.905	-	4.905	9.156	8.067	9.064	7.744	Continuing	Continuing	
• JX0005: DOD BIOLOGICAL VACCINE PROCUREMENT (VACCINES)	0.183	0.183	3.674	-	3.674	22.752	24.735	22.269	32.158	Continuing	Continuing	
• JX0210: DEFENSE BIOLOGICAL PRODUCTS ASSURANCE PROGRAM (DBPAP)	0.980	0.975	2.961	-	2.961	2.857	2.771	2.747	2.747	Continuing	Continuing	
• JX0300: BIOSURVEILLANCE (BSV)	18.188	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	18.188	
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. 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. A subset of these technologies will be adapted to deliver a rapid response capability to novel and												

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<p>emerging threats. Once established, future programs will be able to leverage these platforms for the development of future medical countermeasures. It is anticipated that these efforts will leverage the Other Transactions Authority (OTA) through the medical OTA consortium.</p> <p>ADVANCED DEVELOPMENT & MANUFACTURING (ADM)</p> <p>A contract was awarded to Ology Bioservices on 20 March 2013 (then Nanotherapeutics, Inc.) to establish a Department of Defense (DoD) ADM Facility to rapidly develop, approve (through FDA approval), and manufacture MCMs. The contract was structured to be executed in two (2) phases:</p> <p>Phase 1-Establish, commission and validate (facility(ies)/ equipment) for two (2) advanced development and manufacturing suites that use agile, flexible (single use, disposable), modular and multi-product technologies for MCM advanced development and manufacturing. Both suites must meet Biological Safety Level-3 (BSL-3) standards. Phase 1 was completed on 31 March 2017.</p> <p>Phase 2-Support and maintain that capability in a state of readiness to support MCM development (under the animal rule as applicable) and manufacturing and assist in training personnel in its use. This includes transition and integration of new technologies, from Pre-Investigational New Drug Application phase with readiness to support simultaneous operations, through FDA licensure. The first option is scheduled for completion in 2QFY19, proceeded by a second, 2-year option.</p> <p>BSL4 GOOD LABORATORY PRACTICES TEST & EVALUATION (BSL4 GLP T&E)</p> <p>The Medical Countermeasure Systems (MCM) BSL-4 T&E capability continues to utilize and maintain a testing capability at the existing and planned new USAMRIID facilities. MCM BSL-4 T&E costs support testing of MCMs against threats that require high-level containment using non-human primates. The period of FY18 and beyond will continue to support the BSL-4 T&E capability.</p> <p>COUNTERMEASURES FOR DRUG RESISTANT BACTERIA (CMDR-B)</p> <p>The CMDR-B program develops MCMs for Service members for protection against 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 candidate is a transitional product from S&T that showed efficacy against plague, anthrax, and other BW agents. The regulatory approach of the program is to pursue development of products to FDA approval under the Animal Rule. The program will conduct non-human primate studies to initial efficacy. The performer will submit Supplemental New Drug Application for the therapeutic during the EMD Phase. In FY18 PK study on non-human primates was completed for the plague indication. MS B for the program is planned for 4QFY20.</p> <p>NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)</p> <p>The NGDS Increment 1 program was a MS A to MS C - acquisition strategy, with MS C approval granted in Dec 2016 for limited production and fielding. NGDS 1 is replacing the legacy Joint Biological Agent Identification and Diagnostic System (JBAIDS) beginning in FY17. NGDS 1 Full Rate Production was approved in Aug 2018.</p>		

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<p>The NGDS 2 program addresses CBR agents and 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. NGDS 2 initiated prototyping of a chemical diagnostic capability in FY18. 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 using Other Transactions Authority (OTA) agreements to take advantage of nontraditional Defense contractor offerings.</p> <p>ANTI-VIRAL THERAPEUTICS (AV TX)</p> <p>The Anti-viral Therapeutics program acquisition strategy supports the development of multiple therapeutics through the Technology Maturation and Risk Reduction (TMRR) phase against the Ebola (Zaire), Marburg, Sudan and alpha virus bio warfare threats. The initial therapeutic candidate is for the Ebola Zaire that is scheduled for a Milestone B decision review in FY19. The overall regulatory approach of the program remains to pursue development of products to FDA approval under the Animal Rule. The program will conduct pilot and pivotal animal efficacy, and toxicology studies for FDA approval. The acquisition strategy for each indication will have the performers submitting New Drug applications for the therapeutics during the Engineering, Manufacturing and Development (EMD) phases.</p> <p>FILOVIRUS (VAC FILO)</p> <p>The Filovirus Vaccine Program acquisition strategy supports the development of multiple vaccines through the Technology Maturation and Risk Reduction (TMRR) phase that will offer protection against the threat of Ebola and Marburg viruses. During this phase a manufacturing process is developed. This process will be used to produce current Good Manufacturing Practices (cGMP) lots suitable for Phase 1 clinical trials. In addition, animal safety and efficacy studies will be conducted to support an Investigational New Drug (IND) submission to the FDA and conduct Phase 1 clinical trials. These efforts will support a MS B decision and entry into the Engineering, Manufacturing, and Development (EMD) phase. At Milestone B (MS B), the best Marburg vaccine prototype will be selected through a full and open competition to transition to the Engineering and Manufacturing Development (EMD) phase with the delivery of an FDA licensed Marburg vaccine. It is anticipated that the EMD phase contract will be a mix of Cost Plus and Fixed Price. In addition, the program office may leverage the Advanced Development and Manufacturing capability, and other DoD agencies and laboratories to include the United States Army Medical Research Institute of Infectious Diseases (USAMRIID). Following a successful MS B, the program will conduct manufacturing qualification/validation, expanded clinical and nonclinical testing, and assay qualification and validation efforts. These efforts will support the Biological Licensure Application (BLA) submission to the Food and Drug Administration (FDA) and licensure of a Marburg vaccine.</p> <p>RICIN VACCINE (VAC RIC)</p> <p>The Ricin Vaccine Program acquisition strategy supported the development of a single vaccine through the Technology Maturation and Risk Reduction (TMRR) phase that will offer protection against the threat of aerosolized ricin toxin. The Government will serve as the integrator during the TMRR phase by managing and coordinating the various vaccine development efforts. The JPDm MCS-JVAP's planned path for standing the program down involved completion of non-clinical studies and assay</p>		

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<p>work to bring these efforts to an equivalent TRL as the Ricin clinical studies. An Acquisition Decision Memorandum was signed by the MDA in May 2017, concurring with the stand down plan and also supported the establishment of GMP manufacturing at the ADMc facility.</p> <p>VENEZUELAN EQUINE ENCEPHALITIS VACCINE (VAC VEE)</p> <p>The VAC VEE acquisition strategy uses a parallel evaluation of Modified Vaccinia Ankara (MVA) and Virus Like Particle (VLP) vaccine prototypes through Phase I clinical trials to achieve competitive prototyping in the Technology Maturation & Risk Reduction phase. Several potential decision points will be used to assess the prototypes at competitive selection. The schedule is based on a competitive selection to one prototype. The Government will serve as the integrator during this phase by managing and coordinating the various vaccine development efforts. At MS B, the best prototype will be selected through a full and open competition to transition to the EMD phase, with delivery of a FDA-licensed WEVEE vaccine. The development efforts will be a Cost Plus and Firm Fixed Price CLINs. Additionally, the Program Office will partner with Health and Human Services/National Institute of Allergies and Infectious Diseases (HHS/NIAID), DoD agencies, and laboratories to include USAMRIID. This DoD program is the Public Health Emergency Medical Countermeasures lead for the advanced development of this vaccine and is leveraging expertise across the Federal and International sectors to ensure programmatic success.</p> <p>WESTERN EASTERN VENEZUELAN EQUINE ENCEPH VACCINE (VAC WEVEE)</p> <p>The VAC WEVEE Vaccine program initiated competitive prototypes in FY13 to reduce program risk, and is developing multiple prototypes through the Technology Maturation and Risk Reduction Phase. The VAC WEVEE Vaccine will protect the Warfighter against aerosolized exposure to three strains of alphaviruses; Western, Eastern and Venezuelan equine encephalitis viruses. Services have prioritized the development and delivery of a licensed Venezuelan Equine Encephalitis (VEEV) vaccine. In FY19 the VAC WEVEE program shifted to the VAC VEE program</p> <p>E. Performance Metrics N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MCMPT - HW S - Rapid Response	C/CPFF	Ology : Alachua, FL	0.000	0.420	Jun 2018	5.308	Dec 2018	4.161	Dec 2019	-		4.161	Continuing	Continuing	0.000
MCMPT - HW S - ADAMANT MCM Development	C/CPFF	Ology : Alachua, FL	0.000	0.000		10.038	Dec 2018	7.430	Dec 2019	-		7.430	Continuing	Continuing	0.000
MCMPT - HW S - Vaccine Platform Development Efforts	C/CPFF	Ology : Alachua, FL	0.000	0.000		2.505	Dec 2018	1.002	Dec 2019	-		1.002	Continuing	Continuing	0.000
ADM - Enabling Manufacturing Technologies	C/CPFF	Ology : Alachua, FL	0.000	0.000		0.000		6.706	Dec 2019	-		6.706	Continuing	Continuing	0.000
CMDR-B - Pharmacokinetic studies of pathogens of interest and animal efficacy studies	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	1.736	0.226	Jul 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
CMDR-B - Bacterial Therapeutics Core Program Evaluation of BAXDELA in the Treatment of Inhalational Disease	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	0.000	1.375	May 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGDS - HW C - NGDS 2 Develop and mature prototypes for Chemical Agent Diagnostics	C/CPFF	MRI Global : Palm Bay, FL	0.000	1.566	Mar 2018	1.678	Dec 2018	0.452	Dec 2019	-		0.452	Continuing	Continuing	0.000
NGDS - HW C - NGDS 2 Develop and mature prototypes for Chemical Agent Diagnostics #2	Various	TBD : TBD	0.000	0.000		0.775	Jan 2019	0.000		-		0.000	Continuing	Continuing	0.000
NGDS - HW C - NGDS 2 Develop and mature Assays for Chemical Agent Diagnostics	MIPR	US Army Medical Research Institute of Chemical Defense : Fort Detrick, MD	0.000	0.038	Sep 2018	0.087	Nov 2018	0.000		-		0.000	Continuing	Continuing	0.000

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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AV TX - Gilead Filo Candidate - Pilot Aerosol Animal Efficacy Studies	C/FP	Gilead Sciences : San Francisco, CA	15.044	3.152	Mar 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
AV TX - MCMPT	MIPR	Ology : Alachua, FL	0.000	3.078	Jul 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
AV TX - Enabling Technologies - Manufacturing Process Optimization and Scale Up	C/CPIF	University of Pittsburgh : Pittsburgh, PA	1.335	1.215	Dec 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
AV TX - Enabling Technologies - Non Human Primate Animal Model Enhancement	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	5.015	2.279	Mar 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
VAC FILO - Non Clinical Studies	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	19.538	1.857	Dec 2017	1.820	Dec 2018	2.826	Dec 2019	-		2.826	Continuing	Continuing	0.000
VAC FILO - HW S - Manufacturing	C/CPIF	Various : Various	12.894	2.614	Dec 2017	0.751	Dec 2018	0.500	Dec 2019	-		0.500	Continuing	Continuing	0.000
VAC RIC - SW GFPR - Manufacturing Tech Transfer, animal model & assay development	Various	Various : Various	1.956	0.228	Dec 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
VAC VEE - Prototypes Phase 1 Clinical Trials	C/CPIF	Various : Various	0.000	0.000		6.174	Dec 2018	1.624	Oct 2019	-		1.624	Continuing	Continuing	0.000
VAC VEE - Prototypes Non Clinical Comparability Studies	Allot	Various : Various	0.000	0.000		0.000		0.670	Oct 2019	-		0.670	Continuing	Continuing	0.000
VAC VEE - Manufacturing	Various	TBD : TBD	0.000	0.000		0.000		1.990	Dec 2019	-		1.990	Continuing	Continuing	0.000
Subtotal			57.518	18.048		29.136		27.361		-		27.361	Continuing	Continuing	N/A

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Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
NGDS - ES C - Studies and WIPT Support	MIPR	John Hopkins University : Laurel, MD	0.000	0.282	Mar 2018	0.168	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
VAC FILO - ES S - Regulatory Integration (Environmental and FDA Documentation) and Delivery System	Various	US Army Medical Materiel Development Activity (USAMMDA) : Fort Detrick, MD	3.378	0.030	Dec 2017	0.030	Dec 2018	0.040	Dec 2019	-		0.040	Continuing	Continuing	0.000
Subtotal			3.378	0.312		0.198		0.040		-		0.040	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
BSL4 GLP T&E - DTE SB - T&E Facility	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	23.193	7.027	Dec 2017	6.696	Dec 2018	4.863	Dec 2019	-		4.863	Continuing	Continuing	0.000
VAC FILO - OTH T SB - Testing, Evaluation, and Clinical Trials	MIPR	Walter Reed Institute of Research : Washington, DC	40.617	1.202	Dec 2017	1.260	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
VAC FILO - OTE C - Assay Development, Testing and Evaluation	C/CPFF	Various : Various	12.649	3.610	Dec 2017	2.200	Dec 2018	1.014	Dec 2019	-		1.014	Continuing	Continuing	0.000
VAC FILO - OTH T SB - Clinical Trials	C/CPIF	Various : Various	1.650	0.000	Dec 2017	0.326	Dec 2018	3.482	Dec 2019	-		3.482	Continuing	Continuing	0.000
VAC RIC - OTH T C - Stability Testing	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	1.901	0.255	Dec 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
VAC WEVEE - DTE C - Testing	Allot	ATI Solutions : Inc., Tysons Corner, VA	0.000	7.693	Oct 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000

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Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
VAC WEVEE - OTE C - Test and Evaluation Assay Development	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	14.072	0.451	Oct 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
VAC WEVEE - OTE C - Test and Evaluation Assay Development #2	MIPR	Battelle Memorial Institute : Columbus, OH	16.287	1.594	Dec 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
VAC WEVEE - OTE C - Clinical Trial (Prototype)	MIPR	Various : Various	3.070	1.663	Dec 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
Subtotal			113.439	23.495		10.482		9.359		-		9.359	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MCMPT - PM/MS C Program Management	Various	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	0.000		2.934	Dec 2018	2.056	Dec 2019	-		2.056	Continuing	Continuing	0.000
MCMPT - PM/MS C - ADMC Support	C/CPFF	Ology : Alachua, FL	0.000	0.000		4.169	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
MCMPT - PM/MS S - Management	Various	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.000	0.080	Jun 2018	3.624	Dec 2018	1.641	Dec 2019	-		1.641	Continuing	Continuing	0.000
ADM - PM/MS C - Program Management Support	Various	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.000	0.000		0.000		0.734	Dec 2019	-		0.734	Continuing	Continuing	0.000

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Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ADM - PM/MS C - Program Management Support #2	Various	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.560	Dec 2019	-		0.560	Continuing	Continuing	0.000
BSL4 GLP T&E - PM/MS C - Management Support	Various	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.000	0.000		0.000		0.493	Dec 2019	-		0.493	Continuing	Continuing	0.000
BSL4 GLP T&E - PM/MS C - Management Support #2	Various	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.378	Dec 2019	-		0.378	Continuing	Continuing	0.000
CMDR-B - PM/MS S - Program Management/ Program Manager Support	Various	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.215	0.760	Jan 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
CMDR-B - PM/MS SB - ADMc Sustainment	C/CPFF	Ology : Alachua, FL	0.000	7.619	Jun 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
CMDR-B - PM/MS SB - Management Support	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Belvoir, VA	0.592	0.000		1.455	Jan 2019	0.000		-		0.000	Continuing	Continuing	0.000
CMDR-B - PM/MS S - Program Manager Support	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.082	0.250	Jul 2018	0.030	Jan 2019	0.000		-		0.000	Continuing	Continuing	0.000
CMDR-B - PM/MS SB - Contractor Systems Engineering/ Program Management Support	C/FP	Various : Various	0.323	0.000	Jan 2018	0.550	Jan 2019	0.000		-		0.000	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) MB4 / MEDICAL BIOLOGICAL DEFENSE (ACD&P)					
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
NGDS - PM/MS SB - Product Management Systems Support	Various	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	2.650	0.997	Dec 2017	1.941	Dec 2018	0.041	Dec 2019	-		0.041	Continuing	Continuing	0.000
NGDS - PM/MS S - Product Management Support	Various	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	0.530	Dec 2017	1.639	Dec 2018	0.045	Dec 2019	-		0.045	Continuing	Continuing	0.000
NGDS - PM/MS S - Product Management Support #2	MIPR	Various : Various	1.000	1.059	Dec 2017	2.365	Dec 2018	0.081	Dec 2019	-		0.081	Continuing	Continuing	0.000
AV TX - AV TX - ADMc Sustainment	C/CPFF	Ology : Alachua, FL	0.000	5.868	Nov 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
AV TX - PM/MS - S - Program Management/ Program Manager Support	Various	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	3.482	1.028	Jan 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
AV TX - PM/MS - SB - Management Support	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	1.174	0.133	Jan 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
AV TX - PM/MS - S - Management Support	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Belvoir, VA	0.972	1.360	Jan 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
AV TX - PM/MS - SB Management Support	C/FP	Various : Various	1.382	0.635	Jan 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
VAC FILO - PM/MS - Joint Vaccine Acquisition Program Management	Allot	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	4.390	2.790	Dec 2017	3.526	Dec 2018	3.096	Dec 2019	-		3.096	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) MB4 / MEDICAL BIOLOGICAL DEFENSE (ACD&P)					
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
VAC FILO - PM/MS S - Program Management/ Program Manager Support	Various	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	8.423	0.846	Dec 2017	2.505	Dec 2018	1.845	Dec 2019	-		1.845	Continuing	Continuing	0.000
VAC VEE - VAC VEE - PM/MS S - Program Manager Support	Various	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.000	0.000		0.142	Dec 2018	0.094	Dec 2019	-		0.094	Continuing	Continuing	0.000
VAC VEE - PM/MS S - Program Manager Support	Various	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	0.000		0.513	Dec 2018	0.342	Dec 2019	-		0.342	Continuing	Continuing	0.000
VAC WEVEE - PM/MS C - Joint Vaccine Acquisition Program Program Management	Various	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.000	1.765	Dec 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
VAC WEVEE - PM/MS C - Contractor Systems Engineering Program Support	Various	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	3.955	3.495	Oct 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
Subtotal			28.640	29.215		25.393		11.406		-		11.406	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			202.975	71.070		65.209		48.166		-		48.166	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Chemical and Biological Defense Program			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)	Project (Number/Name) MB4 / MEDICAL BIOLOGICAL DEFENSE (ACD&P)	

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MCMPT - Rapid Response Design, Manufacturing, Testing																												
MCMPT - MCM Optimization Phase Design, Manufacturing, Testing																												
MCMPT - Vaccine Platform Design, Manufacturing, Testing																												
ADM - MCM Enabling Manufacturing Technologies																												
ADM - MCM Development and Manufacturing Support																												
BSL4 GLP T&E - T&E - Maintain Bio-Safety Level and Evaluation Capability																												
CMDR-B - Pharmacokinetic Studies																												
CMDR-B - Bacterial Therapeutics Core Program Evaluation of BAXDELA																												
NGDS Increment 2 - ChemDx TMRR																												
NGDS Increment 2 - ChemDx MS B																												
AV TX - Milestone B																												
AV TX - cGMP manufacture of EBOV mAbs																												
AV TX - Alphavirus and Filovirus Non-Human Primate Animal Model Enhancement																												
VAC FILO - Non Clinical Efficacy and Safety Studies																												
VAC FILO - Manufacturing - Stability Testing																												
VAC FILO - Phase II Clinical Trial																												
VAC FILO - Phase I Clinical Trial																												
VAC FILO - Milestone B																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Chemical and Biological Defense Program **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) MB4 / <i>MEDICAL BIOLOGICAL DEFENSE (ACD&P)</i>
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
VAC RIC - Stability Testing																												
VAC RIC - Manufacturing Technology Transfer to the ADM Capability																												
VAC VEE - Competitive Prototypes - Phase 1 Clinical Trials (Cont from VAC WEVEE)																												
VAC VEE - Competitive Prototypes - Manufacturing																												
VAC VEE - Stability Testing																												
VAC VEE - Competitive Prototypes - Non-Clinical Studies																												
VAC VEE - Milestone B																												
VAC VEE - Selected Prototypes - Manufacturing																												
VAC VEE - Selected Prototype - Non Clinical Studies																												
VAC WEVEE - Non-Clinical Studies																												
VAC WEVEE - Manufacturing and Assay Development and Pilot Lots																												
VAC WEVEE - Phase 1 Clinical Trials																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Chemical and Biological Defense Program			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) MB4 / <i>MEDICAL BIOLOGICAL DEFENSE (ACD&P)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MCMPT - Rapid Response Design, Manufacturing, Testing	1	2019	4	2024
MCMPT - MCM Optimization Phase Design, Manufacturing, Testing	1	2019	4	2023
MCMPT - Vaccine Platform Design, Manufacturing, Testing	2	2019	4	2024
ADM - MCM Enabling Manufacturing Technologies	1	2020	4	2024
ADM - MCM Development and Manufacturing Support	1	2020	2	2023
BSL4 GLP T&E - T&E - Maintain Bio-Safety Level and Evaluation Capability	1	2018	4	2024
CMDR-B - Pharmacokinetic Studies	4	2018	3	2019
CMDR-B - Bacterial Therapeutics Core Program Evaluation of BAXDELA	3	2018	3	2019
NGDS Increment 2 - ChemDx TMRR	1	2018	2	2020
NGDS Increment 2 - ChemDx MS B	3	2020	3	2020
AV TX - Milestone B	2	2019	2	2019
AV TX - cGMP manufacture of EBOV mAbs	4	2018	1	2019
AV TX - Alphavirus and Filovirus Non-Human Primate Animal Model Enhancement	3	2018	2	2020
VAC FILO - Non Clinical Efficacy and Safety Studies	1	2018	4	2023
VAC FILO - Manufacturing - Stability Testing	1	2018	4	2023
VAC FILO - Phase II Clinical Trial	1	2018	4	2019
VAC FILO - Phase I Clinical Trial	1	2020	1	2022
VAC FILO - Milestone B	1	2024	1	2024
VAC RIC - Stability Testing	1	2018	4	2018
VAC RIC - Manufacturing Technology Transfer to the ADM Capability	1	2018	4	2018
VAC VEE - Competitive Prototypes - Phase 1 Clinical Trials (Cont from VAC WEVEE)	1	2019	2	2021
VAC VEE - Competitive Prototypes - Manufacturing	1	2019	4	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Chemical and Biological Defense Program **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) MB4 / <i>MEDICAL BIOLOGICAL DEFENSE (ACD&P)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
VAC VEE - Stability Testing	1	2019	4	2024
VAC VEE - Competitive Prototypes - Non-Clinical Studies	1	2019	1	2021
VAC VEE - Milestone B	4	2021	4	2021
VAC VEE - Selected Prototypes - Manufacturing	1	2022	2	2023
VAC VEE - Selected Prototype - Non Clinical Studies	1	2022	4	2024
VAC WEVEE - Non-Clinical Studies	1	2018	4	2018
VAC WEVEE - Manufacturing and Assay Development and Pilot Lots	1	2018	4	2018
VAC WEVEE - Phase 1 Clinical Trials	1	2018	4	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) MC4 / MEDICAL CHEMICAL DEFENSE (ACD&P)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MC4: MEDICAL CHEMICAL DEFENSE (ACD&P)	-	4.666	2.388	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.054
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

The program currently includes:

- (1) Emerging Threats (EMRT)
- (2) Improved Nerve Agent Treatment System (INATS)

The EMRT program is now called the Rapid Opioid Countermeasure System (ROCS) in FY20 MC5. The ROCS program is conducting the development and fielding of FDA-approved therapeutic medical countermeasures (MCMs). The purpose of the MCM is to provide therapeutic benefits to the Joint Service warfighter against operational exposures to the opioid class of pharmaceutical-based agents (PBAs) as a high priority. The first increment of the ROCS program will develop a naloxone autoinjector as a rescue treatment that will counteract the adverse effects from exposure to opioids.

The INATS advanced development provides an enhanced capability treatment regimen offering greater protection over a broader spectrum of toxic nerve agent threats. Components of the development include (1) a new and improved oxime (replacing 2-pralidoxime chloride (2-PAM) to treat current and emerging threats and (2) insertion of a centrally-acting (CA) anticholinergic agent to the treatment regimen to increase survivability and decrease morbidity. Based on recent guidance from the FDA there is no longer a need to expand the pretreatment indications for pyridostigmine bromide (PB) beyond the nerve agent soman. Therefore, the Joint Project Manager for Chemical Defense Pharmaceuticals (JPdM CDP) will execute nonclinical studies to demonstrate the safety of PB when used as a pretreatment should agents other than soman be encountered. The INATS treatment regimen both improves the performance of, and eventually replaces the Antidote Treatment Nerve Agent Auto-injector (ATNAA). The INATS treatment regimen both improves the performance of, and eventually replaces the Antidote Treatment Nerve Agent Auto-injector (ATNAA).

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Title: 1) Emerging Threats	-	0.990	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program			Date: March 2019		
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>		Project (Number/Name) MC4 / <i>MEDICAL CHEMICAL DEFENSE (ACD&P)</i>	
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
Description: Regulatory					
FY 2019 Plans: Initiate prototype development of an autoinjector.					
FY 2019 to FY 2020 Increase/Decrease Statement: Program/project funding transferred to another funding line.					
Title: 2) INATS - Oxime			1.154	0.792	-
Description: Clinical					
FY 2019 Plans: Complete OXIME clinical studies.					
FY 2019 to FY 2020 Increase/Decrease Statement: Program/project transitioned to Engineering and Manufacturing Development Phase.					
Title: 3) INATS - Oxime			0.730	0.300	-
Description: Manufacturing					
FY 2019 Plans: Complete Chemistry, Manufacturing, and Controls (CMC) Manufacturing of trial material.					
FY 2019 to FY 2020 Increase/Decrease Statement: Program/project transitioned to Engineering and Manufacturing Development Phase.					
Title: 4) INATS - Oxime			2.782	0.306	-
Description: Nonclinical					
FY 2019 Plans: Complete rabbit, rat & NHP cause of death studies.					
FY 2019 to FY 2020 Increase/Decrease Statement: Program/project transitioned to Engineering and Manufacturing Development Phase.					
Accomplishments/Planned Programs Subtotals			4.666	2.388	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019	
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) MC4 / MEDICAL CHEMICAL DEFENSE (ACD&P)			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• MC5: MEDICAL CHEMICAL DEFENSE (EMD)	58.419	57.545	62.051	-	62.051	64.331	56.641	28.559	26.976	Continuing	Continuing
• JM6677: ADVANCED ANTICONVULSANT SYSTEM (AAS)	0.000	0.360	5.352	-	5.352	2.696	2.694	3.991	0.000	0.000	15.093
Remarks											
D. Acquisition Strategy											
EMERGING THREAT CHEMICAL THERAPEUTICS (EMRT)											
The ROCS program is an approved Middle Tier/Rapid Prototyping acquisition program to develop the naloxone autoinjector within 5 years. A market survey has been conducted that identified several advanced development candidates. Other Transactional Authority agreements and Task Orders will be utilized to bring on board a commercial partner. Once FDA approval has been granted the program will transition from Rapid Prototyping to Rapid Fielding or a traditional production and fielding pathway.											
IMPROVED NERVE AGENT TREATMENT SYSTEM (INATS)											
Oxime Component - The development of a new and improved oxime, MMB4, (replacing 2-PAM) to treat current and emerging nerve agent threats, is one component of the INATS Development Program. Both the oxime and the centrally acting components are required to address the current and emerging nerve agent threat and to mitigate their effects. MMB4 is a relatively new chemical entity transitioning from Science and Technology Development. MMB4 requires the conduct of studies to resume the Phase 1 Clinical Trial, preparation for the Phase 2 clinical trials, the manufacturing of the drug product for both these trials, the conduct of non-clinical studies to determine toxicity, and the conduct of premonitory studies to determine the impact of nerve transmissions.											
E. Performance Metrics											
N/A											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) MC4 / MEDICAL CHEMICAL DEFENSE (ACD&P)					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
EMRT - HW C - Emerging Threats	C/CPFF	TBD : TBD	0.000	0.000		0.680	Jun 2019	0.000		-		0.000	0.000	0.680	0.000
INATS - HW C - CMC Manufacturing of trial material	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.460	0.389	Dec 2017	0.100	Dec 2018	0.000		-		0.000	0.000	0.949	0.000
Subtotal			0.460	0.389		0.780		0.000		-		0.000	0.000	1.629	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
INATS - DTE S - Oxime Non-clinical Studies	C/CPFF	Battelle Memorial Institute : Columbus, OH	3.658	1.734	Nov 2017	0.000		0.000		-		0.000	0.000	5.392	0.000
INATS - DTE C - Cause of Death studies	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.646	1.395	Oct 2017	0.146	Nov 2018	0.000		-		0.000	0.000	2.187	0.000
INATS - DTE C - Oxime Phase 1 Clinical Trial	C/CPFF	Battelle Memorial Institute : Columbus, OH	4.140	0.631	Nov 2017	0.632	Nov 2018	0.000		-		0.000	0.000	5.403	0.000
Subtotal			8.444	3.760		0.778		0.000		-		0.000	0.000	12.982	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
EMRT - PM/MS C - Program Management (OPETS)	Various	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.000	0.000		0.185	Dec 2018	0.000		-		0.000	0.000	0.185	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity						R-1 Program Element (Number/Name)				Project (Number/Name)					
0400 / 4						PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				MC4 / MEDICAL CHEMICAL DEFENSE (ACD&P)					
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
EMRT - PM/MS C - PM/MS S - Chemical and Biological Medical Systems	C/CPFF	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	0.000		0.125	Nov 2018	0.000		-		0.000	0.000	0.125	0.000
INATS - PM/MS C - JPEO	Various	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	0.000		0.228	Dec 2018	0.000		-		0.000	0.000	0.228	0.000
INATS - PM/MS C - ADM Sustainment	C/CPFF	Ology : Alachua, FL	0.000	0.000		0.222	Dec 2018	0.000		-		0.000	0.000	0.222	0.000
INATS - PM/MS S - Chemical and Biological Medical Systems	Various	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	1.440	0.517	Jan 2018	0.070	Dec 2018	0.000		-		0.000	0.000	2.027	0.000
Subtotal			1.440	0.517		0.830		0.000		-		0.000	0.000	2.787	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			10.344	4.666		2.388		0.000		-		0.000	0.000	17.398	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Chemical and Biological Defense Program			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) MC4 / <i>MEDICAL CHEMICAL DEFENSE (ACD&P)</i>	

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
EMRT - Final CDD																												
INATS - Nonclinical Studies - Oxime																												
INATS - Phase 1 Clinical Trial - Oxime																												
INATS - Milestone B - Oxime																												
INATS - Clinical Trial Material Manufacturing - Oxime																												
INATS - Rat/Rabbit Cause of Death Studies - Oxime																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Chemical and Biological Defense Program			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) MC4 / <i>MEDICAL CHEMICAL DEFENSE (ACD&P)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
EMRT - Final CDD	3	2019	3	2019
INATS - Nonclinical Studies - Oxime	1	2018	3	2019
INATS - Phase 1 Clinical Trial - Oxime	1	2018	3	2019
INATS - Milestone B - Oxime	4	2019	4	2019
INATS - Clinical Trial Material Manufacturing - Oxime	1	2018	1	2019
INATS - Rat/Rabbit Cause of Death Studies - Oxime	1	2018	3	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)				Project (Number/Name) TE4 / TEST & EVALUATION (ACD&P)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
TE4: TEST & EVALUATION (ACD&P)	-	9.097	6.563	5.162	-	5.162	5.156	3.541	3.541	3.541	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Product Director, Test, Equipment, Strategy, and Support (PD TESS)/Chemical Biological Material Assessment Infrastructure (CBMAI) determines test infrastructure needs across the Chemical Biological Defense Portfolio (CBDP) and prioritizes RDT&E resources to support test planning and schedules/milestones for programs of record. Infrastructure improvements, modifications, or new development provide critical test capabilities for chemical, biological, and emerging threat products. CBMAI conducts studies and prototyping to enable rapid integration to support testing of detection, protection, and decontamination equipment.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: 1) PD TESS	6.296	-	-
Description: PD TESS conducts requirements analysis to ensure the availability of needed test infrastructure to meet Program of Record (POR) testing and milestone schedules. Conduct studies of the capabilities and limitations of existing infrastructure and methodologies to align with POR test requirements. Expansion of a web-based test facility and capability database serves to maximize use of existing infrastructure. Development of a data management system to allow the test community and users to easily change and configure equipment and securely share test data on outdoor test ranges.			
Title: 2) PD TESS	2.801	-	-
Description: Government Integrated Product Team program management and IPT Support to all JPEO programs and external partners.			
Title: 3) CBMAI	-	2.375	1.802
Description: Government Integrated Product Team program management and IPT Support to all JPEO programs and external partners.			
FY 2019 Plans: Initiate Program Management including Government system engineering, program/financial management, costing, personnel support, travel and overhead.			
FY 2020 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program							Date: March 2019				
Appropriation/Budget Activity 0400 / 4			R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)			Project (Number/Name) TE4 / TEST & EVALUATION (ACD&P)					
B. Accomplishments/Planned Programs (\$ in Millions)							FY 2018	FY 2019	FY 2020		
Continue Program Management including Government system engineering, program/financial management, costing, personnel support, travel and overhead.											
FY 2019 to FY 2020 Increase/Decrease Statement: Decrease due to change in program/project technical parameters.											
Title: 4) CBMAI							-	4.188	3.360		
Description: CBMAI conducts requirements analysis to ensure the availability of needed test infrastructure to meet POR testing and milestone schedules. Conduct studies of the capabilities and limitations of existing infrastructure and methodologies to align with POR test requirements. Expansion of a web-based test facility and capability database serves to maximize use of existing infrastructure. Development of a data management system to allow the test community and users to easily change and configure equipment and securely share test data on outdoor test ranges.											
FY 2019 Plans: Complete implementation of upgrades to NTA infrastructure to meet POR test requirements. Continue to study and prioritize future program requirements and test infrastructure needs. Develop and test evolving equipment to provide accurate protective ensemble performance data. Complete development and initiate implementation of a new detection technology to replace and significantly upgrade current chemical agent vapor monitoring capabilities.											
FY 2020 Plans: Continue to study and prioritize future program requirements and test infrastructure needs. Develop equipment and methodologies to provide improved detection and protective ensemble performance data. Develop equipment and technologies to modernize infrastructure to support emerging requirements for early warning/standoff detection systems.											
FY 2019 to FY 2020 Increase/Decrease Statement: Decrease due to change in program/project technical parameters.											
Accomplishments/Planned Programs Subtotals							9.097	6.563	5.162		
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• TE5: TEST & EVALUATION (EMD)	14.532	9.056	7.775	-	7.775	7.975	7.377	7.376	7.375	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)	Project (Number/Name) TE4 / TEST & EVALUATION (ACD&P)	

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• TE7: <i>TEST & EVALUATION</i> <i>(OP SYS DEV)</i>	6.475	6.318	5.403	-	5.403	5.720	5.716	5.716	5.716	Continuing	Continuing

Remarks

D. Acquisition Strategy

TEST EQUIPMENT, STRATEGY & SUPPORT (PD TESS)

PD 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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)					Project (Number/Name) TE4 / TEST & EVALUATION (ACD&P)				
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PD TESS - HW SB - Chemical Defense Training Facility (CDTF) Enhancements	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.112	May 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - HW S - PD TESS - Real Time Referee Sensor (MeS)	C/CPFF	MRIGlobal : Kansas City, MO	0.000	2.032	Jan 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - HW S - Government SE & Technical Management Team	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.961	Dec 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - HW S - PD TESS - Chemical Defense Training Facility (CDTF) Enhancements	C/CPFF	MRIGlobal : Kansas City, MO	0.000	0.827	Nov 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - HW S - TI Analysis & Requirements	C/CPFF	MRIGlobal : Kansas City, MO	2.241	0.735	Mar 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - HW S - Joint Ambient Breeze Tunnel Upgrades	C/CPFF	MRIGlobal : Kansas City, MO	0.665	1.537	Mar 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - HW S - Open Architecture Data Management System	C/CPFF	MRIGlobal : Kansas City, MO	0.405	0.347	Jul 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - Test Infrastructure - HW S - NTA Defense Test System Design/Fabrication/ Installation	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	21.345	0.225	Jun 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - Test Infrastructure - HW S - Analysis & Requirements Capability Analyses	C/CPFF	Battelle Memorial Institute : Columbus, OH	1.595	0.327	Nov 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
PD TESS - Test Infrastructure - HW S -	MIPR	Dugway Proving Ground (DPG) : Dugway, UT	0.000	0.154	Jul 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>						Project (Number/Name) TE4 / <i>TEST & EVALUATION (ACD&P)</i>			
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Open Architecture Data Management Systems															
CBMAI - HW C - Product Contractor Development Team	C/FFP	Patricio Enterprises : Inc., Woodbridge, VA	0.000	0.000		0.105	Feb 2019	0.000		-		0.000	Continuing	Continuing	0.000
CBMAI - HW S - NTADTS	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.300	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
CBMAI - HW S - Multi Commodity Agent Chamber (MCAC)	C/CPFF	MRIGlobal : Kansas City, MO	0.000	0.000		1.090	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
CBMAI - HW S - HD Sensor	C/CPFF	MRIGlobal : Kansas City, MO	0.000	0.000		1.212	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
CBMAI - HW S - TI Analysis and Requirements	C/CPFF	Various : Various	0.000	0.000		0.641	Dec 2018	3.360	Dec 2019	-		3.360	Continuing	Continuing	0.000
CBMAI - HW S - Real Time Man in Simulant Test (MIST) Sensor	C/CPFF	MRIGlobal : Kansas City, MO	0.000	0.000		0.564	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
CBMAI - HW S - Ballistic Gas Chromatograph (GC)	C/CPFF	MRIGlobal : Kansas City, MO	0.000	0.000		0.326	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
CBMAI - HW S - Government SE & Technical Management Team	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		1.300	Dec 2018	0.774	Nov 2019	-		0.774	Continuing	Continuing	0.000
Subtotal			26.251	7.257		5.538		4.134		-		4.134	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>						Project (Number/Name) TE4 / <i>TEST & EVALUATION (ACD&P)</i>			
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CBMAI - TD/D S - TECA	C/CPFF	MRIGlobal : Kansas City, MO	0.000	0.000		0.075	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
Subtotal			0.000	0.000		0.075		0.000		-		0.000	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PD TESS - PM/MS S - IPT Support/Program Management	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	13.224	1.840	Dec 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
CBMAI - PM/MS C - IPT Support/Program Management	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.000	0.000		0.950	Dec 2018	1.028	Dec 2019	-		1.028	Continuing	Continuing	0.000
Subtotal			13.224	1.840		0.950		1.028		-		1.028	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			39.475	9.097		6.563		5.162		-		5.162	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Chemical and Biological Defense Program			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) TE4 / <i>TEST & EVALUATION (ACD&P)</i>	

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
PD TESS - NTA Defense Test System (NTADTS) Facility Upgrades for Next Class of Agents																												
PD TESS - Joint Ambient Breeze Tunnel (JABT) - Design Component Upgrades/ Execute Upgrades																												
PD TESS - Open Architecture Data Management System Design and Development																												
PD TESS - Test Infrastructure Analysis & Requirements																												
PD TESS - Chemical Defense Training Facility (CDTF) Enhancements																												
PD TESS - Real Time Referee Sensor (MeS)																												
CBMAI - NTA Defense Test System(NTADTS) Facility Upgrades for Next Class of Agents																												
CBMAI - Joint Ambient Breeze Tunnel(JABT)- Initiate/Design/Execute Component Upgrades																												
CBMAI - Test Infrastructure Analysis & Requirements (TIA & R)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Chemical and Biological Defense Program			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)</i>	Project (Number/Name) TE4 / <i>TEST & EVALUATION (ACD&P)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
PD TESS - NTA Defense Test System (NTADTS) Facility Upgrades for Next Class of Agents	1	2018	4	2018
PD TESS - Joint Ambient Breeze Tunnel (JABT) - Design Component Upgrades/Execute Upgrades	1	2018	4	2018
PD TESS - Open Architecture Data Management System Design and Development	1	2018	4	2018
PD TESS - Test Infrastructure Analysis & Requirements	1	2018	4	2018
PD TESS - Chemical Defense Training Facility (CDTF) Enhancements	1	2018	3	2019
PD TESS - Real Time Referee Sensor (MeS)	2	2018	4	2018
CBMAI - NTA Defense Test System(NTADTS) Facility Upgrades for Next Class of Agents	1	2019	3	2019
CBMAI - Joint Ambient Breeze Tunnel(JABT)- Initiate/Design/Execute Component Upgrades	1	2019	2	2019
CBMAI - Test Infrastructure Analysis & Requirements (TIA & R)	1	2019	4	2024