

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2020 Chemical and Biological Defense Program	<b>Date:</b> March 2019
--	-------------------------

<b>Appropriation/Budget Activity</b> 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)
--	---

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	-	43.632	43.741	54.023	-	54.023	45.999	44.735	46.063	51.036	Continuing	Continuing
CA7: CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV (OP SYS DEV)	-	5.690	6.299	10.278	-	10.278	6.473	6.870	8.366	7.867	Continuing	Continuing
CM7: HOMELAND DEFENSE (OP SYS DEV)	-	1.623	1.455	2.786	-	2.786	4.280	4.277	6.113	6.113	Continuing	Continuing
C07: COLLECTIVE PROTECTION (OP SYS DEV)	-	4.592	3.456	5.755	-	5.755	2.900	0.951	1.599	1.699	Continuing	Continuing
DE7: DECONTAMINATION SYSTEMS (OSD)	-	0.000	0.085	1.942	-	1.942	0.636	0.636	0.636	0.636	Continuing	Continuing
IP7: INDIVIDUAL PROTECTION (OP SYS DEV)	-	2.134	2.056	6.080	-	6.080	6.492	8.482	8.461	8.460	Continuing	Continuing
IS7: INFORMATION SYSTEMS (OP SYS DEV)	-	11.923	15.051	16.811	-	16.811	16.133	14.916	12.993	12.993	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
MC7: MEDICAL CHEMICAL DEFENSE (OP SYS DEV)	-	0.000	0.000	1.248	-	1.248	0.000	0.000	0.000	0.000	0.000	1.248
TE7: TEST & EVALUATION (OP SYS DEV)	-	6.475	6.318	5.403	-	5.403	5.720	5.716	5.716	5.716	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

The projects in this PE support efforts to upgrade systems that have been fielded or have received approval for full rate production in order to maintain Joint Force readiness.

Individual projects include:

- Contamination Avoidance (CA7): technology upgrade and refresh of fielded dismounted reconnaissance and detection systems that minimize chemical, biological, and radiological (CBR) contamination and prevent further cross-contamination during operations.

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2020 Chemical and Biological Defense Program		<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>
<p>- Homeland Defense (CM7): technology refresh of fielded analytical laboratory system capabilities to conduct on-site analysis of any unknown sample and test potential life-threatening substances.</p> <p>- Collective Protection (CO7): technology upgrade and refresh of fielded collective protection systems that are smaller, lighter, less costly to produce and maintain, and more logistically supportable enabling mission accomplishment in spaces safe from the effects of CBR contamination.</p> <p>- Decontamination Systems (DE7): technology refresh of fielded Contamination Mitigation (ConMit) systems that will remove and/or detoxify contaminated material without damaging combat equipment, personnel, or the environment.</p> <p>- Individual Protection (IP7): technology refresh of fielded individual protective equipment which enable the Joint Force to operate in a contaminated CBR environment with little or no degradation to his/her performance.</p> <p>- Information Systems (IS7): technology refresh of fielded information systems that shape the battlespace against CBR threats.</p> <p>- Medical Biological Defense (MB7): technology refresh of fielded medical diagnostic systems and associated capabilities (e.g., assays) that contribute to the layered medical defenses against biological warfare agent threats facing U.S. Forces in the field.</p> <p>- Medical Chemical Defense (MC7): technology upgrade of fielded medical nerve agent treatment system that contribute to the layered medical defenses against chemical warfare agent threats facing U.S. Forces in the field.</p> <p>- Test and Evaluation (TE7): technology upgrades and revitalization of fielded test capabilities and infrastructure at Dugway Proving Ground necessary to evaluate CBRN Defense systems in realistic operating environments.</p> <p>The projects in this PE support operational systems development necessary to maintain operational effectiveness and are therefore correctly placed in Budget Activity 7.</p>		

**UNCLASSIFIED**

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Chemical and Biological Defense Program				Date: March 2019	
Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0607384BP I CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)			
B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	45.677	48.741	43.159	-	43.159
Current President's Budget	43.632	43.741	54.023	-	54.023
Total Adjustments	-2.045	-5.000	10.864	-	10.864
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	0.000	-5.000			
• Congressional Rescissions	-	-			
• Congressional Adds	0.000	-			
• Congressional Directed Transfers	0.000	-			
• Reprogrammings	-1.192	-			
• SBIR/STTR Transfer	-0.853	-			
• Other Adjustments	0.000	-	10.864	-	10.864
Change Summary Explanation					
Funding: FY18: (-\$.853M) Transfer of funding to support Small Business Innovative Research/Small Business Technology Transfer efforts and (-\$1.192M) Program Reprogrammings.					
FY19 (-\$5.000M): Congressional Directed Reductions.					
FY20 - Provides for critical new starts JCAD SLA (+\$3.892M); ALS MOD (+\$1.347M); SPU RCDD IFS (+\$2.994M); INATS SNAPP (+\$1.248M); completion of JECP FLTC (+\$1.997M); and other adjustments (-\$.609M).					
Schedule: N/A					
Technical: N/A					

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) CA7 / CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV (OP SYS DEV)			
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
CA7: CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV (OP SYS DEV)	-	5.690	6.299	10.278	-	10.278	6.473	6.870	8.366	7.867	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The project supports technology upgrade and refresh of fielded dismounted reconnaissance and detection systems that minimize chemical, biological, and radiological (CBR) contamination and prevent further cross-contamination during operations.

Efforts included in this project are:

- (1) Joint Chemical Agent Detector (JCAD) Solid Liquid Adapter (SLA)
- (2) CBRN Dismounted Reconnaissance Systems (CBRN DRS)

The JCAD SLA kit effort continues the development of the JCAD Chemical Explosive Detector (CED), which was an NGCD acceleration effort for USSOCOM. The SLA interfaces with the fielded M4A1 JCAD to allow for solid liquid sampling of surfaces. The SLA kit provides an interim point solution to detect Non-Traditional Agents (NTAs) and Pharmaceutical Based Agents (PBAs) off surfaces as the since the Proximate Chemical Agent Detector (PCAD) program is delayed due to immature non-contact technology. In FY20, JCAD will continue the JCAD SLA Contract to verify production readiness for testing.

The CBRN DRS consists of portable, commercial and Government off-the-shelf equipment which provides personnel protection from current and emerging CBRN hazards through detection, identification, sample collection, decontamination, marking, and hazard reporting for CBRN and emerging threats. This project provides the technology upgrade and refresh effort for the Chemical Biological Radiological Nuclear Dismounted Reconnaissance Systems (CBRN DRS) to address and mitigate technology/equipment obsolescence. Experimentation and demonstration will be used in this phase to reduce risk and inform supporting materiel solutions, CONOPS and TTPs. This project provides the technology upgrade and refresh effort for 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. In FY20 funding will be used to assess, test, and integrate updated capabilities identified in prior efforts focusing on protective ensembles.

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

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> 1) CBRN DRS	5.690	6.299	6.386
<b>Description:</b> Provide analysis of the existing components of CBRN Dismounted Reconnaissance Sets, Kits, and Outfits Increment 1 to ensure current requirements baseline can be met. Identify potential obsolescence in current components, identify concerns with current components (technical, human factors, sustainment), assess the current market, procurement and testing of			

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program			Date: March 2019		
Appropriation/Budget Activity 0400 / 7		R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	Project (Number/Name) CA7 / CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV (OP SYS DEV)		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
candidates that could correct concerns, and integrate the new items into the product baseline. Identifies and tests technology that can meet emerging requirements.  <b>FY 2019 Plans:</b> Continue market analyses on emerging technologies for potential upgrades to the system. Continue obsolescence management activities for existing field components. Continue purchasing components for testing. Continue testing of potential candidates. Initiate changes to product baseline.  <b>FY 2020 Plans:</b> Continue and complete market analyses on emerging technologies for potential upgrades to the system. Continue obsolescence management activities for existing field components. Continue purchasing components for testing. Continue testing of potential candidates. Initiate and complete changes to product baseline.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.					
<b>Title:</b> 2) JCAD  <b>Description:</b> Product Development, Testing and Program Management  <b>FY 2020 Plans:</b> Initiate JCAD SLA Contract to verify production readiness with First Article Testing, complete production verification testing and program management support.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Program/project transitioned to Production and Deployment Phase. Engineering Change Proposal transitioning to JCAD procurement line			-	-	3.892
Accomplishments/Planned Programs Subtotals			5.690	6.299	10.278
C. Other Program Funding Summary (\$ in Millions) N/A					
Remarks					
D. Acquisition Strategy CBRN DISMOUNTED RECONNAISSANCE SYSTEMS					

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program		<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> CA7 / <i>CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV (OP SYS DEV)</i>
<p>The Chemical Biological Radiological Dismounted Reconnaissance Systems (CBRN DRS) program uses a GOTS/COTS non-developmental item (NDI) single step acquisition approach to a full capability. This strategy employs an NDI acquisition concept to establish a simplified management framework to translate mission needs and emerging technology capabilities into a stable, affordable, well-managed acquisition program. Capability sets will be identified as engineering change proposals to the base kit, produced and fielded in accordance with priorities and needs of the Services. Multiple kits will be identified based on readiness for integration throughout the life of the program. CBRN DRS systems will be produced using a workshare approach between Organic assets and Contractor production facilities.</p> <p>JOINT CHEMICAL AGENT DETECTOR (JCAD)</p> <p>The JCAD SLA is a developmental effort to expand existing JCAD capabilities to include NTA, explosive and opioid capability. Upon successful evaluation and product integration efforts, the JCAD SLA will be integrated with one of the planned CBRN DRS Advanced Capabilities Sets via engineering change proposal. The JCAD SLA kit will be an Additional Authorized List (AAL) item to the M4A1 JCAD.</p> <p><b><u>E. Performance Metrics</u></b> N/A</p>		

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) CA7 / CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV (OP SYS DEV)					
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
CBRN DRS - HW C - HW - Product Development	MIPR	Defense Logistics Agency : Philadelphia, PA	0.925	1.352	Mar 2018	0.608	Jan 2019	0.974	Nov 2019	-		0.974	Continuing	Continuing	0.000
CBRN DRS - HW C - ECBC - Matrix	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.475	Nov 2017	0.393	Nov 2018	0.000		-		0.000	Continuing	Continuing	0.000
CBRN DRS - HW - Product Development	MIPR	Various : Various	1.146	0.320	Nov 2017	1.000	Nov 2018	0.750	Nov 2019	-		0.750	Continuing	Continuing	0.000
JCAD - HW C - Contract	SS/FFP	Smiths Detection : Edgewood, MD	0.000	0.000		0.000		1.350	Nov 2019	-		1.350	Continuing	Continuing	0.000
Subtotal			2.071	2.147		2.001		3.074		-		3.074	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
CBRN DRS - ES - Market Analysis	MIPR	Various : Various	1.561	0.317	Dec 2017	0.510	Jan 2019	0.500	Nov 2019	-		0.500	Continuing	Continuing	0.000
CBRN DRS - ES - Obsolescence Management	MIPR	Various : Various	1.040	1.036	Dec 2017	1.000	Dec 2018	1.000	Nov 2019	-		1.000	Continuing	Continuing	0.000
Subtotal			2.601	1.353		1.510		1.500		-		1.500	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
CBRN DRS - OTE - Candidate Testing	Various	Various : Various	3.026	1.780	Nov 2017	1.765	Jan 2019	1.780	Mar 2020	-		1.780	Continuing	Continuing	0.000
JCAD - DTE C - Test and Evaluation	MIPR	Various : Various	0.000	0.000		0.000		2.100	Mar 2020	-		2.100	Continuing	Continuing	0.000

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) CA7 / CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV (OP SYS DEV)					
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
Subtotal			3.026	1.780		1.765		3.880		-		3.880	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
CBRN DRS - PM - Program Management and Systems Engineering Support	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	1.482	0.410	Nov 2017	1.023	Dec 2018	1.382	Nov 2019	-		1.382	Continuing	Continuing	0.000
JCAD - PM/MS C - Management Services	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.442	Oct 2019	-		0.442	Continuing	Continuing	0.000
Subtotal			1.482	0.410		1.023		1.824		-		1.824	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			9.180	5.690		6.299		10.278		-		10.278	Continuing	Continuing	N/A
Remarks															



**UNCLASSIFIED**

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Chemical and Biological Defense Program										Date: March 2019	
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)					Project (Number/Name) CA7 / CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV (OP SYS DEV)	

	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
CBRN DRS - Test components to replace obsolete items and insert new technologies																												
JCAD - JCAD ECP- SLA kit Development																												
JCAD - JCAD ECP- SLA ECP Approved (Milestone Event)																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Chemical and Biological Defense Program			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> CA7 / <i>CONTAMINATION AVOIDANCE OPERATIONAL SYS DEV (OP SYS DEV)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CBRN DRS - Test components to replace obsolete items and insert new technologies	1	2018	4	2024
JCAD - JCAD ECP- SLA kit Development	1	2019	4	2020
JCAD - JCAD ECP- SLA ECP Approved (Milestone Event)	1	2021	1	2021

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) CM7 / HOMELAND DEFENSE (OP SYS DEV)			
COST (\$ in Millions)	Prior Years	FY 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
CM7: HOMELAND DEFENSE (OP SYS DEV)	-	1.623	1.455	2.786	-	2.786	4.280	4.277	6.113	6.113	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

This project supports technology refresh of fielded analytical laboratory system capabilities to conduct on-site analysis of any unknown sample and test potential life-threatening substances.

Efforts included in this Project are:

- (1) Common Analytical Laboratory System (CALS) and Analytical Laboratory System Modification (ALS MOD)
- (2) Weapons of Mass Destruction Civil Support Team (WMD CST)

The CALS / ALS MOD effort supports the evaluation of analytical components for technical refreshment and upgrades of key components of the CALS and ALS MOD systems that have become obsolete, or are no longer being supported by the manufacturer. This allows the CALS and ALS MOD users to maintain their operational capability and operational effectiveness.

WMD-CST supports the fielded system upgrade and ongoing assessment and acquisition of commercial off-the-shelf (COTS) and Government off-the-shelf (GOTS) analytical detection, protection, decontamination and sampling equipment for survey in order to expand/enhance the operational capabilities of the (57) WMD CST Teams. Efforts in the program element support upgrades of key components of the WMD CST Program that have become obsolete, or are no longer being supported by the manufacturer.

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

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> 1) ALS MOD	-	-	1.347
<b>Description:</b> This program element supports the evaluation of analytical components for technical refreshment of the CALS and ALS MOD. Efforts in the program element support upgrades of key components of the CALS and ALS MOD systems that have become obsolete, or are no longer being supported by the manufacturer. This allows the CALS and ALS MOD users to maintain their operational capability and operational effectiveness.			
<b>FY 2020 Plans:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program		<b>Date:</b> March 2019	
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> CM7 / HOMELAND DEFENSE (OP SYS DEV)	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2018</b>	<b>FY 2019</b>
<p>Conduct component and system level logistics evaluations to assess viability of candidate analytical upgrade components. Conduct system related test activities including costs of test candidate selection, testing hardware, engineering data to assess the performance of the system, test planning, execution of testing, data interpretation and reporting.</p> <p><b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.</p>			
<p><b>Title:</b> 2) WMD CST</p> <p><b>Description:</b> The WMD CST Program supports the fielded system upgrade and ongoing assessment and acquisition of COTS and GOTS analytical detection, protection, decontamination and sampling equipment for survey in order to expand/enhance the operational capabilities of the (57) WMD CST Teams. Efforts in the program element support upgrades of key components of the WMD CST Program that have become obsolete, or are no longer being supported by the manufacturer.</p> <p><b>FY 2019 Plans:</b> Provides system-related test activities, including costs of specially fabricated hardware to obtain or validate engineering data on the performance of the system. This element also includes costs of the detailed planning, conduct, support, data reduction, and reports from such testing, as well as hardware items that are consumed or planned to be consumed in the conduct of such operations. Provides functions of logistics engineering and integrated logistics support (ILS) management (e.g., maintenance support, facilities, personnel, training, testing, and activation of the system).</p> <p><b>FY 2020 Plans:</b> Provides system-related test activities, including costs of specially fabricated hardware to obtain or validate engineering data on the performance of the system. This element also includes costs of the detailed planning, conduct, support, data reduction, and reports from such testing, as well as hardware items that are consumed or planned to be consumed in the conduct of such operations. Provides functions of logistics engineering and ILS management (e.g., maintenance support, facilities, personnel, training, testing, and activation of the system).</p> <p><b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.</p>		1.623	1.455
<b>Accomplishments/Planned Programs Subtotals</b>		1.623	1.455
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A			
<b>Remarks</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program		<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> CM7 / <i>HOMELAND DEFENSE (OP SYS DEV)</i>

**D. Acquisition Strategy**

**ANALYTICAL LABORATORY SYSTEM MODIFICATION (ALS MOD)**

The Common Analytical Laboratory System (CALS) and the Analytical Laboratory System (ALS) Modification (MOD) program's objective is to address critical analytical equipment obsolescence (Analytical Suite) and system functionality issues for the National Guard Bureau's (NGB) Civil Support Teams. As such, this program will follow the requirements defined by the CALS and ALS Capability Production Document. The CALS and ALS MOD capability will be modular, scalable and adaptable to various environmental conditions. Additionally, the CALS and ALS MOD will support the specific mission and CONOPS of the gaining unit and will be able to detect and/or identify Chemical Warfare Agents (CWAs), Toxic Industrial Chemicals (TICs), Toxic Industrial Materials (TIMs), Biological Warfare Agents (BWAs), and radiological material in environmental samples.

**WMD - CIVIL SUPPORT TEAMS (WMD CST)**

The Weapons of Mass Destruction Civil Support Team Program (WMD-CST) is a COTS based program that supports the evaluation of advancements in CBRN commercial off the shelf (COTS)/government-off-the-shelf (GOTS) equipment against the current technology baseline of equipment fielded to the (57) WMD CST Teams, this is to address analytical equipment obsolescence. As such, the program establishes a time phased modernization plan to integrate and incorporate proven advancements in commercially available technology into the CST operating mission set based on highest priority capability requirements and availability of resources.

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program</b>												<b>Date: March 2019</b>			
<b>Appropriation/Budget Activity</b> 0400 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)						<b>Project (Number/Name)</b> CM7 / HOMELAND DEFENSE (OP SYS DEV)			
<b>Support (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
ALS MOD - ILS S - ALS MOD	Various	TBD : TBD	0.000	0.000		0.000		0.500	Dec 2019	-		0.500	Continuing	Continuing	0.000
WMD CST - ES C - Science & Engineering Program Management Support	Various	Battelle Memorial Institute : Aberdeen, MD	1.077	0.481	Jan 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
<b>Subtotal</b>			1.077	0.481		0.000		0.500		-		0.500	Continuing	Continuing	N/A
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
ALS MOD - OTE C	Various	TBD : TBD	0.000	0.000		0.000		0.325	Mar 2020	-		0.325	Continuing	Continuing	0.000
WMD CST - OTHT C - CBRN COTS Component	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	3.967	0.937	Mar 2018	0.940	Mar 2019	0.889	Feb 2020	-		0.889	Continuing	Continuing	0.000
<b>Subtotal</b>			3.967	0.937		0.940		1.214		-		1.214	Continuing	Continuing	N/A
<b>Management Services (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
ALS MOD - PM/MS SB - ALS MOD	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.522	Nov 2019	-		0.522	Continuing	Continuing	0.000
WMD CST - PM/MS SB - CBRN COTS	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	1.556	0.205	Jan 2018	0.515	Jan 2019	0.550	Jan 2020	-		0.550	Continuing	Continuing	0.000
<b>Subtotal</b>			1.556	0.205		0.515		1.072		-		1.072	Continuing	Continuing	N/A

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program											Date: March 2019				
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)					Project (Number/Name) CM7 / HOMELAND DEFENSE (OP SYS DEV)					
			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			6.600	1.623		1.455		2.786		-		2.786	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

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 / 7	PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	CM7 / HOMELAND DEFENSE (OP SYS DEV)	

	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
ALS MOD - Technology Refresh																												
WMD CST - Upgrade Fielded Systems																												



UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Chemical and Biological Defense Program			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	Project (Number/Name) CM7 / HOMELAND DEFENSE (OP SYS DEV)	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ALS MOD - Technology Refresh	1	2020	4	2024
WMD CST - Upgrade Fielded Systems	1	2018	4	2024

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) C07 / COLLECTIVE PROTECTION (OP SYS DEV)			
COST (\$ in Millions)	Prior Years	FY 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
C07: COLLECTIVE PROTECTION (OP SYS DEV)	-	4.592	3.456	5.755	-	5.755	2.900	0.951	1.599	1.699	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

This project provides for technology upgrade and refresh of fielded Collective Protection (CP) equipment and systems that are smaller, lighter, less costly to produce and maintain, and more logistically supportable enabling mission accomplishment in spaces safe from the effects of chemical, biological, and radiological (CBR) contamination.

Efforts included in this project are:

- (1) Modernization Protection (MODPROT)
- (2) Joint Expeditionary Collective Protection (JECPP)

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

JECPP provides the Joint Expeditionary Forces a CP capability which is lightweight, compact, modular, and affordable. A family of systems, developed in two phases, that will allow the application of CP to transportable soft-side shelters, enclosed spaces of opportunity, and in remote austere locations as a standalone resource. Phase 1 includes standalone CP systems and kits to provide existing host platforms and structures with CBRN protection. Phase 2 includes kits to provide other host platforms and structures that were not explicitly designed in Phase 1. JECPP will be capable of protecting personnel groups of varying size, unencumbered by Individual Protective Equipment (IPE), from the effects of CB agents, Toxic Industrial Materials (TIMs), radiological particles, heat, dust, and sand. The employment of JECPP is a strategic deterrence against enemy use of CBR agents or TIMs, and will reduce the need for personnel and equipment decontamination. Funding will develop a field leakage test capability that allows Warfighters to validate the integrity of JECPP and other fielded collective protection systems, integrate newly developed filtration material into existing M98 Gas Particulate Filter Sets to provide the Warfighter with improved protection against toxic industrial chemicals and toxic industrial materials while maintaining current performance characteristics against Chemical Warfare Agents and meeting military standards, develop a CP kit for non-CP environmental control units and improve on the current tent liner restraint systems.

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

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> 1) Modernization of Collective Protection (MODPROT CP) Equipment	0.964	0.632	3.758

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program			<b>Date:</b> March 2019		
<b>Appropriation/Budget Activity</b> 0400 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)		<b>Project (Number/Name)</b> C07 / COLLECTIVE PROTECTION (OP SYS DEV)	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<p><b>Description:</b> Modernization Collective Protection provides upgrades, improvements, and modernizations to fielded collective protection systems.</p> <p><b>FY 2019 Plans:</b> Continue EMI testing M93 GPFU, continue evaluating CPDEPMEDS ColPro equipment and complete environmental guard bed testing. Begin market survey for M18A1 gas filter leak test detectors and tracer gas replacement and also for sealants, coatings, and materials to mitigate M98 filter housing corrosion.</p> <p><b>FY 2020 Plans:</b> Continue Electromagnetic Interference (EMI) testing M93 GPFU, continue evaluating CPDEPMEDS ColPro equipment, and complete environmental M98 guard bed testing. Conduct Non-Destructive Production Acceptance Leak Test with candidate tracer gases on Collective Protection Gas Filters. Conduct market research/material replacement for Ventilated Face Piece Hose refresh and market research of coatings and sealants for corrosion mitigation for CP components. Conduct characterization on the raw material substrates of ASZM-TEDA (Copper-Silver-Zinc-Molybdenum-Triethylenediamine) carbon detail specification First Article Test (FAT) requirement. Conduct design analysis for the seals of the M48A1 Filter Redesign.</p> <p><b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Increase due to change in program/project technical parameters.</p>					
<p><b>Title:</b> 2) Joint Expeditionary Collective Protection (JECF)</p> <p><b>Description:</b> JECF will develop a field leakage test capability (FLTC), integrate newly developed filtration material into existing M98 gas particulate filter sets, develop a CP kit for non-CP environmental control units, and improve on the current tent liner restraint systems.</p> <p><b>FY 2019 Plans:</b> - FLTC: Award Countering Weapons of Mass Destruction (CWMD) Other Transaction Authority (OTA) contract for the development of prototypes kits (2 prototypes at \$36,345 each). Test and evaluate prototypes, develop technical data package, and logistics products including training materials and technical manual updates for incorporation into JECF systems. - M98: Finalize prototype design and development. Award two contracts to develop prototypes under CWMD OTA (15 prototypes of 1 configuration at \$1,000 each and 3 prototypes at \$18,948 each). Perform developmental testing of prototypes. Begin development of drawing packages and logistics products. Down-select to one material solution. - Non-CP ECU: Finalize logistic products and tech data package in preparation for production decision.</p> <p><b>FY 2020 Plans:</b> - FLTC: Finalize logistic products and tech data package in preparation for production decision and fielding.</p>			3.628	2.824	1.997

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program		<b>Date:</b> March 2019	
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> C07 / <i>COLLECTIVE PROTECTION (OP SYS DEV)</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2018</b>	<b>FY 2019</b>
<p>- M98: Optimize selected solution and conduct final developmental and operational testing and finalize logistic products and tech data package in preparation for production decision and fielding.</p> <p>- TENT LINER: Design and develop improvements to the JECP liner to address the restraint system, hanging mechanisms and floor saver. Identify impacts to tech data and logistics products.</p> <p><b><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i></b> Decrease due to change in program/project technical parameters.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		4.592	3.456
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
MODERNIZATION PROTECTION (MODPROT)			
<p>Modernization Collective Protection (MODPROT CP) leverages mature technology from contractor developed components to address and replace obsolete components of various fielded collective protection systems. Modernization efforts will also use items developed by the government that have transitioned from lower to higher technology readiness levels that can be inserted into fielded systems. A combination of competitive and sole source contracts to various industry vendors and project orders to various government activities will be used to adapt previously developed components to modernize systems. Robust component and system level testing will validate both government and contractor furnished improvements. The improvements will be added into the specific system's updated technical data packages to be used in engineering change proposals and provided to the item managers.</p>			
JOINT EXPEDITIONARY COLLECTIVE PROTECTION (JECP)			
<p>JECP Family of Systems (FoS) (Phase 1 and Phase 2) involves multiple contract types throughout the Engineering and Manufacturing Development and Production and Deployment Phases of the program. Having achieved a Full Rate Production (FRP) decision for Phase 1 Systems in December 2016, the program exercised Fixed Price Incentive production options in FY17 &amp; FY18 through the now expired contract with Leidos in support of Initial Operational Capability (IOC). A competitive build-to-print follow-on production delivery order under the Joint Enterprise Research, Development, Acquisition, and Production (JE-RDAP) Contract will be awarded to support the remaining production of Phase 1 Systems to meet Full Operational Capability (FOC). Phase 2 systems will be developed as engineering changes to the Phase 1 systems under a separate JE-RDAP competitive delivery order and undergo limited developmental and operational testing in pursuit of a FRP decision. Production options are included in the delivery order to meet FOC for Phase 2 systems. Additionally, BA7 funding will develop incremental improvements to fielded JECP FoS.</p>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program		<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> C07 / <i>COLLECTIVE PROTECTION (OP SYS DEV)</i>
<p>BA7 efforts include a range of improvements intended to enhance filtration protection, provide a field leakage test capability and update various fielded environmental control unit interface types for use with collective protection. These efforts involve a simplified acquisition procurement contract and exploitation of commercial off-the-shelf items.</p> <p><b><u>E. Performance Metrics</u></b> N/A</p>		

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) C07 / COLLECTIVE PROTECTION (OP SYS DEV)					
Product Development (\$ in Millions)				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
MODPROT - HW C - Compatibility Engineering M93 GPFU	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.378	Jul 2018	0.125	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
MODPROT - HW C - Compatibility Engineering Non Destructive Test	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000	Dec 2018	0.199	Nov 2019	-		0.199	Continuing	Continuing	0.000
MODPROT - HW C - ASZM-TEDA Carbon Dtl Spec FAT Reqmt	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.717	Nov 2019	-		0.717	Continuing	Continuing	0.000
MODPROT - HW C - Corrosion Mitigation for CP Components	MIPR	Naval Surface Warfare Center (NSWC) - Dahlgren Center : Dahlgren, VA	0.000	0.000		0.000		0.255	Nov 2019	-		0.255	Continuing	Continuing	0.000
MODPROT - HW C - M48A1 Filter Redesign	MIPR	Naval Surface Warfare Center (NSWC) - Dahlgren Center : Dahlgren, VA	0.000	0.000		0.000		0.338	Nov 2019	-		0.338	Continuing	Continuing	0.000
MODPROT - HW C - M98 CBR Filters	MIPR	TACOM : Warren, MI	0.000	0.234	May 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
MODPROT - HW C - Guard bed blank filters	C/FFP	Naval Surface Warfare Center (NSWC) - Dahlgren Center : Dahlgren, VA	0.000	0.027	May 2018	0.020	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
JECP - HW C - Liner Restrain System Improvements	MIPR	US Army Natick Soldier RD&E Center : Natick, MA	0.000	0.000		0.000		0.310	Nov 2019	-		0.310	Continuing	Continuing	0.000
JECP - HW C - Environmental Control Unit Improvements	MIPR	28th Test and Evaluation	0.090	0.361	Feb 2018	0.203	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) C07 / COLLECTIVE PROTECTION (OP SYS DEV)					
Product Development (\$ in Millions)				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
		Squadron : Eglin AFB, FL													
JECP - HW C - Improved M98 Filter Set Design Improvements	SS/CPFF	Army Contracting Command : Picatinny, NJ	0.000	0.746	Nov 2018	0.746	Dec 2018	0.513	Nov 2019	-		0.513	Continuing	Continuing	0.000
JECP - HW S - Field Leakage Test Capability Development	MIPR	US Army Natick Soldier RD&E Center : Natick, MA	0.070	0.258	Feb 2018	0.441	Dec 2018	0.225	Nov 2019	-		0.225	Continuing	Continuing	0.000
JECP - HW S - Field Leakage Test Capability Development #2	SS/CPFF	Army Contracting Command : Picatinny, NJ	0.270	0.206	Nov 2018	0.398	Jan 2019	0.000		-		0.000	Continuing	Continuing	0.000
JECP - HW C - Improved M98 Filter Set Development	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.596	0.142	Feb 2018	0.202	Dec 2018	0.122	Nov 2019	-		0.122	Continuing	Continuing	0.000
JECP - HW C - Improved M98 Filter Set Design Improvements #2	MIPR	Naval Surface Warfare Center (NSWC) - Dahlgren Center : Dahlgren, VA	1.192	0.535	Feb 2018	0.120	Dec 2018	0.146	Nov 2019	-		0.146	Continuing	Continuing	0.000
Subtotal			2.218	2.887		2.255		2.825		-		2.825	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
MODPROT - ES C - Engineering Support	MIPR	Naval Surface Warfare Center (NSWC) - Dahlgren Center : Dahlgren, VA	0.000	0.100	May 2018	0.085	Dec 2018	0.329	Nov 2019	-		0.329	Continuing	Continuing	0.000
MODPROT - ES C - Engineering Support #2	MIPR	Edgewood Chemical Biological Center	0.000	0.164	May 2018	0.137	Dec 2018	0.463	Nov 2019	-		0.463	Continuing	Continuing	0.000

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program</b>												<b>Date:</b> March 2019			
<b>Appropriation/Budget Activity</b> 0400 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)						<b>Project (Number/Name)</b> C07 / COLLECTIVE PROTECTION (OP SYS DEV)			
<b>Support (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
		(ECBC) : Aberdeen Proving Ground, MD													
MODPROT - ES C - Engineering support #3	MIPR	Edgewood Chemical Biological Center (ECBC) : Rock Island, IL	0.000	0.000		0.000		0.082	Nov 2019	-		0.082	Continuing	Continuing	0.000
MODPROT - ES C - Engineering Support #4	MIPR	US Army Natick Soldier RD&E Center : Natick, MA	0.000	0.061	May 2018	0.108	Dec 2018	0.191	Nov 2019	-		0.191	Continuing	Continuing	0.000
<b>Subtotal</b>			0.000	0.325		0.330		1.065		-		1.065	Continuing	Continuing	N/A
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
MODPROT - DTE C - M93 GPFU Environmental & EMI Testing	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.008	Dec 2018	0.205	Nov 2019	-		0.205	Continuing	Continuing	0.000
MODPROT - DTE C - M98 Guard Bed	MIPR	Naval Surface Warfare Center (NSWC) - Dahlgren Center : Dahlgren, VA	0.000	0.000		0.069	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
MODPROT - OTE C - VFP Hose Refresh	MIPR	Edgewood Chemical Biological Center (ECBC) : Rock Island, IL	0.000	0.000		0.000		0.040	Nov 2019	-		0.040	Continuing	Continuing	0.000
MODPROT - DTE C - M98 guard bed testing	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.135	Nov 2019	-		0.135	Continuing	Continuing	0.000



**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) C07 / COLLECTIVE PROTECTION (OP SYS DEV)					
Test and Evaluation (\$ in Millions)				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
JECP - DTE C - Improved M98 Filter Set Developmental Testing	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.460	Feb 2018	0.162	Dec 2018	0.350	Nov 2019	-		0.350	Continuing	Continuing	0.000
Subtotal			0.000	0.460		0.239		0.730		-		0.730	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
MODPROT - SBIR/STTR Reduction	Various	TBD : TBD	0.000	0.000		0.024	Oct 2018	0.000		-		0.000	Continuing	Continuing	0.000
MODPROT - PM/MS S - Program Management Support	Various	Various : Various	0.000	0.000	Jul 2018	0.056	Dec 2018	0.804	Nov 2019	-		0.804	Continuing	Continuing	0.000
JECP - SBIR/STTR - Reduction	Various	TBD : TBD	0.000	0.000		0.106	Oct 2018	0.000		-		0.000	Continuing	Continuing	0.000
JECP - PM/MS S - Program Management Support	MIPR	Various : Various	0.613	0.920	Jan 2018	0.446	Dec 2018	0.331	Nov 2019	-		0.331	Continuing	Continuing	0.000
Subtotal			0.613	0.920		0.632		1.135		-		1.135	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			2.831	4.592		3.456		5.755		-		5.755	Continuing	Continuing	N/A
Remarks															

**UNCLASSIFIED**

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

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> C07 / COLLECTIVE PROTECTION (OP SYS DEV)
--	--	---

	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
MODPROT - M93 GPFU Electro Magnetic Interference																												
MODPROT - Environmental M98 Guard Bed Testing																												
MODPROT - CP Depmeds Redesign																												
MODPROT - VFP Hose Refresh																												
MODPROT - Non Destructive (ND) Acceptance Leak Test CP Filters																												
MODPROT - Corrosion Mitigation for CP Components																												
MODPROT - ASZM-TEDA Carbon Dtl Spec FAT Reqmt																												
MODPROT - M48A1 Filter Redesign																												
MODPROT - Reduced Airflow Effects on Colpro Filters																												
JECP - Environment Control Unit Fabricate prototypes and complete testing																												
JECP - Improved M98 Filter Set Development and lab-scale testing																												
JECP - Field Leakage Tester Development																												
JECP - Field Leakage Tester Development and Prototype Testing																												
JECP - Field Leakage Tester Limited User Test																												
JECP - Improved M98 Filter Set - Build and test multiple prototypes																												
JECP - Finalize Tech Data & Log Products - ECU																												

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2020 Chemical and Biological Defense Program	<b>Date:</b> March 2019
---	-------------------------

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> C07 / <i>COLLECTIVE PROTECTION (OP SYS DEV)</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
JECP - Build and test final selected prototype - Improved M98 Filter Set																												
JECP - Liner Restraint Development																												
JECP - Finalize Tech Data & Log Products - Liner Restraint																												
JECP - Finalize Tech Data & Log Products - Improved M98 Filter Set																												
JECP - Finalize Tech Data & Log Products - Field Leakage Tester																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Chemical and Biological Defense Program			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> C07 / <i>COLLECTIVE PROTECTION (OP SYS DEV)</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
MODPROT - M93 GPFU Electro Magnetic Interference	3	2018	4	2021
MODPROT - Environmental M98 Guard Bed Testing	3	2018	4	2021
MODPROT - CP Depmeds Redesign	3	2018	4	2023
MODPROT - VFP Hose Refresh	1	2019	4	2020
MODPROT - Non Destructive (ND) Acceptance Leak Test CP Filters	1	2019	4	2021
MODPROT - Corrosion Mitigation for CP Components	1	2020	4	2021
MODPROT - ASZM-TEDA Carbon Dtl Spec FAT Reqmt	1	2020	4	2023
MODPROT - M48A1 Filter Redesign	1	2020	4	2023
MODPROT - Reduced Airflow Effects on Colpro Filters	1	2021	4	2023
JECP - Environment Control Unit Fabricate prototypes and complete testing	1	2018	4	2018
JECP - Improved M98 Filter Set Development and lab-scale testing	1	2018	1	2019
JECP - Field Leakage Tester Development	1	2018	2	2019
JECP - Field Leakage Tester Development and Prototype Testing	1	2018	4	2019
JECP - Field Leakage Tester Limited User Test	2	2018	2	2018
JECP - Improved M98 Filter Set - Build and test multiple prototypes	1	2019	3	2019
JECP - Finalize Tech Data & Log Products - ECU	1	2019	4	2019
JECP - Build and test final selected prototype - Improved M98 Filter Set	2	2019	1	2020
JECP - Liner Restraint Development	1	2020	4	2020
JECP - Finalize Tech Data & Log Products - Liner Restraint	1	2020	4	2020
JECP - Finalize Tech Data & Log Products - Improved M98 Filter Set	1	2020	4	2020
JECP - Finalize Tech Data & Log Products - Field Leakage Tester	1	2020	4	2020

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) DE7 / DECONTAMINATION SYSTEMS (OSD)			
COST (\$ in Millions)	Prior Years	FY 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
DE7: DECONTAMINATION SYSTEMS (OSD)	-	0.000	0.085	1.942	-	1.942	0.636	0.636	0.636	0.636	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

This project addresses obsolescence issues with decontamination equipment and the need to modernize the Joint Services fielded chemical and biological with capabilities meeting or exceeding the Services requirements.

The effort included in this project is:

(1) Modernization (MODPROT) Decontamination (Decon)

Efforts in the MODPROT Decon will address obsolescence and technical data concerns, beginning with the 1) Joint Services Transportable Decontamination System-Small Scale (M26 JSTDS-SS) through validation and verification of technical manual changes as well as technical data for spare and repair parts; 2) the Power Driven Decontamination Apparatus (M12A1 PDDA) by updating technical references and performing the necessary validation and verification before publishing an updated technical manual; and 3) Conduct biological efficacy at relevant environment (i.e. ambient, desert, cold) for Joint Service Equipment Wipe (JSEW) to expand wipe capabilities to include performance against biological agents.

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

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> 1) Modernization Decontamination	-	0.085	1.942
<b>Description:</b> Supports developmental efforts to upgrade systems in the Department of Defense (DoD) Chemical Biological Defense Program that have been fielded or have received approval for full rate production.			
<b>FY 2019 Plans:</b> Conduct market research and parts modeling for the modernization and upgrade of contamination mitigation systems and Transportable Decontamination defense systems. Complete technical manual and technical data package updates incorporating the system changes.			
<b>FY 2020 Plans:</b> Conduct biological efficacy at relevant environment (i.e. ambient, desert, cold) for Joint Service Equipment Wipe (JSEW) to expand wipe capabilities to include performance against biological agents. Update inaccuracies and conduct validation/ verification for Joint Services Transportable Decontamination System-Small Scale (M26 JSTDS-SS) Technical Manual. Provide			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program		<b>Date:</b> March 2019	
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> DE7 / <i>DECONTAMINATION SYSTEMS (OSD)</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2018</b>	<b>FY 2019</b>
technical data for spares and repair parts for M26 JSTDS-SS Technical Data Package. Clarify procedures; update technical references and conduct validation/verification for Power Driven Decontamination Apparatus (M12A1 PDDA) Technical Manual.			
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Increase due to change in program/project technical parameters.			
<b>Accomplishments/Planned Programs Subtotals</b>		-	0.085
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b> MODERNIZATION PROTECTION (MODPROT)			
Modernization Decontamination (MODPROT DE) leverages mature technology from contractor developed components to address and replace obsolete components of various fielded decontamination systems. Modernization efforts will also use items developed by the government that have transitioned from lower to higher technology readiness levels that can be inserted into fielded systems. A combination of competitive and sole source contracts to various industry vendors and project orders to various government activities will be used to adapt previously developed components to modernize systems. Robust component and system level testing will validate both government and contractor furnished improvements. The improvements will be added into the specific system's updated technical data packages to be used in engineering change proposals and provided to the item managers.			
<b>E. Performance Metrics</b> N/A			

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) DE7 / DECONTAMINATION SYSTEMS (OSD)					
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
MODPROT - TD/D S - Tech Data Package Update	MIPR	Edgewood Chemical Biological Center (ECBC) : Rock Island, IL	0.000	0.000		0.074	Dec 2018	0.412	Nov 2019	-		0.412	Continuing	Continuing	0.000
MODPROT - TD/D C - Tech Manual Updates	MIPR	Edgewood Chemical Biological Center (ECBC) : Rock Island, IL	0.000	0.000		0.000	Dec 2018	0.445	Nov 2019	-		0.445	Continuing	Continuing	0.000
Subtotal			0.000	0.000		0.074		0.857		-		0.857	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
MODPROT - OTE S - Bio Capability Testing	Various	Various : Various	0.000	0.000		0.000		0.670	Nov 2019	-		0.670	Continuing	Continuing	0.000
Subtotal			0.000	0.000		0.000		0.670		-		0.670	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
MODPROT - PM/MS C - Management Support	Various	TBD : TBD	0.000	0.000		0.008	Dec 2018	0.415	Nov 2019	-		0.415	Continuing	Continuing	0.000
MODPROT - SBIR/STTR Reduction	Various	TBD : TBD	0.000	0.000		0.003	Oct 2018	0.000		-		0.000	Continuing	Continuing	0.000
Subtotal			0.000	0.000		0.011		0.415		-		0.415	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			0.000	0.000		0.085		1.942		-		1.942	Continuing	Continuing	N/A

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2020 Chemical and Biological Defense Program							<b>Date:</b> March 2019		
<b>Appropriation/Budget Activity</b> 0400 / 7			<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>			<b>Project (Number/Name)</b> DE7 / <i>DECONTAMINATION SYSTEMS (OSD)</i>			
	<b>Prior Years</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Remarks</b>									



**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2020 Chemical and Biological Defense Program																<b>Date:</b> March 2019			
<b>Appropriation/Budget Activity</b> 0400 / 7								<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>								<b>Project (Number/Name)</b> DE7 / <i>DECONTAMINATION SYSTEMS (OSD)</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
MODPROT - Decontamination Market Research and Parts Modeling																												
MODPROT - Decontamination TM Drawing Development and Special Packaging																												
MODPROT - M26 JSTDS-SS Tech Manual Update																												
MODPROT - M26 JSTDS-SS Tech Data Package																												
MODPROT - M12A1 Tech Manual Update																												
MODPROT - JSEW Bio Capability Testing																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Chemical and Biological Defense Program			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> DE7 / <i>DECONTAMINATION SYSTEMS (OSD)</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
MODPROT - Decontamination Market Research and Parts Modeling	1	2019	4	2019
MODPROT - Decontamination TM Drawing Development and Special Packaging	1	2019	4	2019
MODPROT - M26 JSTDS-SS Tech Manual Update	1	2020	4	2020
MODPROT - M26 JSTDS-SS Tech Data Package	1	2020	4	2020
MODPROT - M12A1 Tech Manual Update	1	2020	4	2020
MODPROT - JSEW Bio Capability Testing	1	2020	4	2020

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) IP7 / INDIVIDUAL PROTECTION (OP SYS DEV)			
COST (\$ in Millions)	Prior Years	FY 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
IP7: INDIVIDUAL PROTECTION (OP SYS DEV)	-	2.134	2.056	6.080	-	6.080	6.492	8.482	8.461	8.460	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

The project supports technology refresh of fielded individual protective equipment which enable the warfighter to operate in a contaminated CBR environment with little or no degradation to his/her performance.

Efforts included in this project are:

- (1) Modernization Individual Protection (MODPROT IP)
- (2) Special Purpose Unit Rapid Capability Development and Deployment (SPU RCDD)
- (3) Joint Service General Purpose Mask (JSGPM)

MODPROT IP addresses obsolescence issues with Individual Protective equipment and the need to modernize the Joint Services fielded chemical and biological protection with capabilities meeting or exceeding the Services requirements. MODPROT IP will modernize current chemical protective footwear by conducting Limited User Evaluation (LUE) in support of the Alternative Source Qualification test and evaluation approach for a suitable replacement to the Alternative Footwear Solutions (AFS). MODPROT IP will also conduct modernization efforts and reverse engineering of maintenance and repair procedures for the Joint Services Mask Leakage Tester (JSMLT).

The SPU RCDD will facilitate rapid response to near-term and emergent chemical-biological (CB) defensive capability requirements from elements of the Joint Special Operations Command (JSOC), select elements from across the Special Operations Force (SOF) Enterprise and other Joint Force enabling units. SPU RCDD mitigates risk across the CBDP by creating a portfolio of operationally-relevant CB capabilities that can quickly transition to needed elements and formations of the joint force, in part or in whole, in response to the emergent capability needs of the geographic combatant commanders. These objectives are met by the early transitioning of promising science and technologies (S&T): the focused conduct of combat evaluations and mission-oriented operational assessments to assess technological and mission suitability; and the active leveraging of existing Commercial-Off-The-Shelf (COTS) products along with novel redesign approaches to modernize and optimize existing solutions to new challenges supported by "buy-try-decide-acquire" acquisition strategies. SPU RCDD will provide enhanced CBRN detect and protect capabilities against new and emerging CBRN threats through modernized and technologically-mature component and system enhancements to currently fielded host platforms and legacy systems, thereby extending service life, off-setting costs to initiate a new acquisition program, and putting critical CBRN capabilities in the hands of warfighters by faster acceleration through the acquisition process.

JSGPM provides for respiratory and ocular protection modernization and enhancements for Toxic Industrial Chemicals (TICs) and Toxic Industrial Materials (TIMs) protection and operational performance in air purifying, powered air purifying, and supplied air functional modes of the Joint Service General Purpose Mask (JSGPM) family of systems. Mask and filter system upgrades will be provided for fielded Protection systems to enhance respiratory and ocular protection.

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program			Date: March 2019		
Appropriation/Budget Activity 0400 / 7		R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	Project (Number/Name) IP7 / INDIVIDUAL PROTECTION (OP SYS DEV)		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
<b>Title:</b> 1) MODPROT Individual Protection (IP) <b>Description:</b> AFS and MALO LUE and improvements to JSMLT <b>FY 2019 Plans:</b> Continue modernization of the Joint Service Mask Leakage Tester (JSMLT). <b>FY 2020 Plans:</b> Continue modernization of the Joint Service Mask Leakage Tester (JSMLT). <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Increase due to change in program/project technical parameters.			1.188	0.129	1.490
<b>Title:</b> 2) SPU RCDD <b>Description:</b> Modernization of IFS & CB Protective Glove. The Integrated Footwear System (IFS) is a Chemical Biological (CB) protective sock/liner system that is worn over the combat sock and inside combat footwear. The IFS is made from selectively permeable membrane materials and incorporates an Aramid cuff. The CB protective gloves will provide hand protection from CB agents as well as POL and flame protection. <b>FY 2020 Plans:</b> Solicit industry for the most updated material solution to meet the current requirements for below-the-wrist and below-the-ankle enhanced protection. Perform design and functionality analysis to determine capability gap, and procure initial test articles to conduct baseline testing. <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Program/project is new start effort in FY 2020.			-	-	2.994
<b>Title:</b> 3) JSGPM <b>Description:</b> Product Qualification and Integration testing <b>FY 2019 Plans:</b> Continue Product Qualification Testing (PQT) of the Cobalt-Zinc, zirconium hydroxide, Argentum (Silver), TEDA (triethylene diamine) (CoZZAT) technology and begin the Metal Organic Framework (MOF) integration into the M61 filter. Initiate Next Generation Filter Developmental Testing (DT). <b>FY 2020 Plans:</b>			0.946	1.927	1.596

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> IP7 / <i>INDIVIDUAL PROTECTION (OP SYS DEV)</i>	

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

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
Complete Product Qualification Testing (PQT) of the Cobalt-Zinc, zirconium hydroxide, Argentum (Silver), TEDA (triethylene diamine)(CoZZAT) technology and Metal Organic Framework (MOF) into the M61 filter. Continue Next Generation Filter Developmental Testing (DT). Evaluate JSGPM suit interface and communication improvements.			
<b><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i></b> Minor change due to routine program adjustments.			
<b>Accomplishments/Planned Programs Subtotals</b>	2.134	2.056	6.080

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

<b>Line Item</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• JI0003: <i>JOINT SERVICE GENERAL PURPOSE MASK (JSGPM)</i>	53.154	16.927	13.209	-	13.209	12.499	25.193	3.891	0.000	0.000	124.873

**Remarks**

**D. Acquisition Strategy**

MODERNIZATION PROTECTION (MODPROT)

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

SPU RAPID CAPABILITY DEVELOPMENT AND DEPLOYMENT (SPU RCDD)

SOF RCDD plans to execute non-traditional programs for capabilities identified by Joint Special Operations Command (JSOC), select elements from across the Special Operations Force (SOF) Enterprise, and other Joint Force enabling units. The SPU RCDD BA5 acquisition strategy for developmental efforts will allow rapid prototyping and testing of mission critical capabilities needed to enhance mission success. The SPU RCDD BA7 modernization effort will use technical and functional evaluations of currently-fielded items to introduce and incorporate operationally-relevant system developments. Both efforts will be accomplished by awarding an agreement through

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program		<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> IP7 / <i>INDIVIDUAL PROTECTION (OP SYS DEV)</i>
<p>the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) for the procurement of test assets. An OTA contracting approach will be used to procure test 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 OTAs, a Small Business Innovative Research contract, or a more traditional contracting vehicle.</p> <p>JS GENERAL PURPOSE MASK (JSGPM)</p> <p>The JSGPM Advanced Respiratory Protection Initiative (ARPI) effort is using the two M61 filter contracts awarded to 3M and Avon to develop improved filters for the JSGPM. There is a continual technology refreshment CLIN on both contracts that allow for filter development tasks to be awarded. The tasks can be competed between the two awardees or awarded to both to ensure competition on future spares and delivery orders. In addition, the new M53A1 mask system contract includes a continual technology refreshment CLIN to develop improvements of mask system performance in air purifying, powered air purifying, and supplied air operational modes for both military and domestic response mission requirements. As technologies transition from the Defense Threat Reduction Agency (DTRA) and Joint Science and Technology Office (JSTO), the technologies will be matured from system/subsystem prototyping demonstration technologies at Technology Readiness Level (TRL) 6 to actual system "mission proven" through successful mission operations in a mission environment at TRL 9. In addition to the maturing of the technology, the Manufacturing Readiness Level (MRL) of the technology requires maturing to MRL. The complexity of maturing all these different items requires an evolutionary approach with one prototype iteration governing the approach on the next iteration. With the criticality of the mask and filter systems, the production transition to the new improved systems has to be done with a high degree of confidence with risks mitigated to a low level.</p> <p><b><u>E. Performance Metrics</u></b></p> <p>N/A</p>		

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) IP7 / INDIVIDUAL PROTECTION (OP SYS DEV)					
Product Development (\$ in Millions)				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
SPU RCDD - HW C - Product Development	Various	Various : Various	0.000	0.000		0.000		1.713	Dec 2019	-		1.713	Continuing	Continuing	0.000
JSGPM - HW C - Filter Prototypes #2 (C2A1)	C/CPFF	3M Canada : Brockville Ontario, CN	0.062	0.000		0.150	Jan 2019	0.080	Nov 2019	-		0.080	Continuing	Continuing	0.000
JSGPM - HW C - Filter Prototypes #2 (C2A1) #2	C/CPFF	AVON Protection Systems Inc. : Cadillac, MI	0.075	0.000		0.150	Jan 2019	0.080	Nov 2019	-		0.080	Continuing	Continuing	0.000
JSGPM - HW C - Filter Prototypes #1 (CoZZAT/ MOF)	C/CPFF	AVON Protection Systems Inc. : Cadillac, MI	1.471	0.090	Sep 2018	0.426	Dec 2018	0.300	Nov 2019	-		0.300	Continuing	Continuing	0.000
JSGPM - HW C - Filter Prototypes #1 (CoZZAT/ MOF) #2	C/CPFF	3M Canada : Brockville Ontario, CN	0.662	0.060	Sep 2018	0.244	Dec 2018	0.300	Nov 2019	-		0.300	Continuing	Continuing	0.000
Subtotal			2.270	0.150		0.970		2.473		-		2.473	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
SPU RCDD - ES C - Technical Support	Various	Various : Various	0.000	0.000		0.000		0.299	Nov 2019	-		0.299	Continuing	Continuing	0.000
JSGPM - ES C - IPT, Program, Engineering, and Technical Support	MIPR	Various : Various	0.226	0.076	Apr 2018	0.053	Dec 2018	0.072	Nov 2019	-		0.072	Continuing	Continuing	0.000
Subtotal			0.226	0.076		0.053		0.371		-		0.371	Continuing	Continuing	N/A

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) IP7 / INDIVIDUAL PROTECTION (OP SYS DEV)					
Test and Evaluation (\$ in Millions)				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
MODPROT - OTE S - MALO Shelf Life Testing	C/FFP	Defense Technical Information Center (DTIC) : Fort Belvoir, VA	0.000	0.026	May 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
MODPROT - OTE S - JSMLT Transportation Testing	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.021	May 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
MODPROT - OTE S - JSMLT Modernization	C/FFP	HAMILTON ASSOCIATES : INC. DBA AIR TECHN, OWINGS MILLS, MD	0.000	1.141	Jun 2018	0.113	Dec 2018	1.172	Nov 2019	-		1.172	Continuing	Continuing	0.000
SPU RCDD - DTE C - Test and Evaluation	MIPR	Various : Various	0.000	0.000		0.000		0.500	Dec 2019	-		0.500	Continuing	Continuing	0.000
JSGPM - DTE C - System Filters (CoZZAT)	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	1.650	0.128	Nov 2017	0.515	Jan 2019	0.423	Nov 2019	-		0.423	Continuing	Continuing	0.000
JSGPM - DTE C - USFK Dependent Escape Mask Prototype Testing	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.165	Mar 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JSGPM - DTE C - SPARK project to improve Q261 canister test equipment	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.065	Jul 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
Subtotal			1.650	1.546		0.628		2.095		-		2.095	Continuing	Continuing	N/A



**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) IP7 / INDIVIDUAL PROTECTION (OP SYS DEV)					
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
MODPROT - PM/MS S - Program Management Support	MIPR	Various : Various	0.000	0.000		0.011	Dec 2018	0.318	Nov 2019	-		0.318	Continuing	Continuing	0.000
MODPROT - SBIR/STTR Reduction	Various	TBD : TBD	0.000	0.000		0.005	Oct 2018	0.000		-		0.000	Continuing	Continuing	0.000
SPU RCDD - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.000		0.000		0.482	Nov 2019	-		0.482	Continuing	Continuing	0.000
JSGPM - PM/MS C - Program Management and Technical Support	MIPR	Various : Various	1.597	0.362	Nov 2017	0.317	Dec 2018	0.341	Nov 2019	-		0.341	Continuing	Continuing	0.000
JSGPM - SBIR/STTR Reduction	Various	TBD : TBD	0.000	0.000		0.072	Oct 2018	0.000		-		0.000	Continuing	Continuing	0.000
Subtotal			1.597	0.362		0.405		1.141		-		1.141	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			5.743	2.134		2.056		6.080		-		6.080	Continuing	Continuing	N/A
Remarks															

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2020 Chemical and Biological Defense Program			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> IP7 / <i>INDIVIDUAL PROTECTION (OP SYS DEV)</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
MODPROT - Limited User Evaluation (LUE) MALO & AFS																												
MODPROT - Accelerated Aging Study MALO Replacement																												
MODPROT - JSMLT Modernization																												
SPU RCDD - Modernization Efforts																												
SPU RCDD - IFS Modernization																												
SPU RCDD - CB Protective Glove Modernization																												
JSGPM - Product Qualification Testing (CoZZAT)																												
JSGPM - Prototype Development (MOF)																												
JSGPM - Prototype Testing (MOF)																												
JSGPM - ECP Production (CoZZAT)																												
JSGPM - Next Generation Filter DT																												
JSGPM - Seal Interface Prototype Analysis																												
JSGPM - Seal Interface Product Qualification Testing																												
JSGPM - Next Generation Filter ECP																												
JSGPM - Third Generation Filter Prototype DT																												
JSGPM - Third Generation Filter Technology DT																												
JSGPM - Fourth Generation Filter Technology ECP																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Chemical and Biological Defense Program			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> IP7 / <i>INDIVIDUAL PROTECTION (OP SYS DEV)</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
MODPROT - Limited User Evaluation (LUE) MALO & AFS	3	2018	4	2018
MODPROT - Accelerated Aging Study MALO Replacement	3	2018	4	2018
MODPROT - JSMLT Modernization	3	2018	4	2022
SPU RCDD - Modernization Efforts	1	2020	4	2024
SPU RCDD - IFS Modernization	1	2020	4	2020
SPU RCDD - CB Protective Glove Modernization	1	2020	4	2020
JSGPM - Product Qualification Testing (CoZZAT)	1	2018	2	2020
JSGPM - Prototype Development (MOF)	4	2018	1	2020
JSGPM - Prototype Testing (MOF)	2	2019	1	2021
JSGPM - ECP Production (CoZZAT)	1	2020	4	2020
JSGPM - Next Generation Filter DT	1	2020	2	2021
JSGPM - Seal Interface Prototype Analysis	1	2020	4	2020
JSGPM - Seal Interface Product Qualification Testing	1	2021	4	2021
JSGPM - Next Generation Filter ECP	1	2021	2	2021
JSGPM - Third Generation Filter Prototype DT	2	2021	2	2022
JSGPM - Third Generation Filter Technology DT	3	2022	4	2023
JSGPM - Fourth Generation Filter Technology ECP	1	2024	2	2024

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) IS7 / INFORMATION SYSTEMS (OP SYS DEV)			
COST (\$ in Millions)	Prior Years	FY 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
IS7: INFORMATION SYSTEMS (OP SYS DEV)	-	11.923	15.051	16.811	-	16.811	16.133	14.916	12.993	12.993	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

This Project provides for the upgrade and modernization of fielded Information Systems. During this phase efforts will execute modernization, bug fixes, and provide support at fielded locations and maintain training and logistics support.

Efforts included in this project are:

- (1) Chemical Biological Radiological and Nuclear Information Systems (CBRN IS)
- (2) Joint Effects Model 1 and 2 (JEM 1 and 2)
- (3) Joint Warning and Reporting Network 1 and 2 (JWARN 1 and 2)
- (4) Global Biosurveillance Portal (G-BSP)
- (5) Software Support Activity (SSA).

CBRN IS will continue to modernize fielded capabilities throughout the lifecycle of the program to ensure compatibility with Service architectures, cloud-hosted environments, and system requirements, to include technical refresh of system hardware and software to maintain compatibility with new technologies and standards as well as cyber security and net centric policies. This will be integrated into a collaborative environment that allows users to collect and disseminate Chemical, Biological, Radiological, and Nuclear (CBRN) warning and reporting data, provide detailed CBRN hazard predictions, aid in decision support, and make relevant CBRN defense information available in near-real time.

G-BSP will continue to train warfighters in the use of G-BSP, modernize critical hardware, and ensure compatibility of fielded capabilities. 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 1 and 2 will continue to update fielded JEM 1 and JEM 2 software due to changing Army, Navy, Air Force, Marine Corps, Special Operations Command (SOCOM), and National Guard Command and Control (C2) host architectures, systems, and standards in order to maintain interoperability and avert cyber threats and vulnerabilities to host C2 systems and perform test and evaluation of updated JEM 1 and JEM 2 baselines. 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).

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	Project (Number/Name) IST / INFORMATION SYSTEMS (OP SYS DEV)
<p>JWARN 1 and 2 will continue engineering, development, and modernization efforts to upgrade existing, operational JWARN systems in order to maintain interoperability, efficiency and functionality within the targeted C2 systems and Defense Information Systems Agency (DISA) milCloud CBRN IS enterprise site and conduct operational testing under utilizing the IT BOX construct and Agile Software development processes. Additionally, JWARN 1 and 2 will provide helpdesk and training support for fielded versions of JWARN 1 and 2 in all host environments. 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) systems resident at all 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.</p> <p>As software-intensive systems, JEM 2, JWARN 2, and G-BSP have no separately identifiable unit production components; unit cost calculations including Program Acquisition Unit Cost/Average Procurement Unit Cost (PAUC/APUC) and Operations and Sustainment (O&amp;S) average annual per unit costs are not applicable.</p> <p>The SSA will continue to support programs in the Interoperability and Supportability (I&amp;S) certification, Information Support Plan (ISP), and Data and Service Exposure Verification and Registration, provide and update program of record integrated architectures and provide Net-Centric Policy implementation Assistance; and continue to maintain proper Cybersecurity/Information Assurance (CS/IA) accreditation of any system within the CBDP portfolio. 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.</p>		
B. Accomplishments/Planned Programs (\$ in Millions)		
<b>Title:</b> 1) Global-BSP		FY 2018
<b>Description:</b> Modernization Efforts		FY 2019
<b>FY 2019 Plans:</b> Continue to modernize/upgrade program cloud host provider hardware and maintain compatibility of previously delivered/fielded capabilities to ensure continuity of effort to the User. Perform refresher training and ongoing support at fielded locations.		FY 2020
<b>FY 2020 Plans:</b> Continue to modernize program cloud host provider hardware and maintain compatibility of delivered and fielded capabilities to ensure continued usefulness to the Warfighter. Perform refresher training and ongoing support at Theater Special Operations Commands (TSOCs) co-located with the Geographic Combatant Commands (GCCs).		
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.		
<b>Title:</b> 2) Global-BSP		-
<b>Description:</b> Training and Logistics Support		-
		1.162

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program			<b>Date:</b> March 2019		
<b>Appropriation/Budget Activity</b> 0400 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)		<b>Project (Number/Name)</b> IS7 / INFORMATION SYSTEMS (OP SYS DEV)	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>FY 2020 Plans:</b> Continue to perform Training Development, Integrated Logistic Support, and Configuration Management.					
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.					
<b>Title:</b> 3) Global-BSP <b>Description:</b> Management Support  <b>FY 2020 Plans:</b> Provide program/financial management, costing, contracting, scheduling, and acquisition oversight support. <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.			-	-	0.402
<b>Title:</b> 4) CBRN IS <b>Description:</b> Modernization Efforts  <b>FY 2019 Plans:</b> Continue to modernize fielded capabilities throughout the lifecycle of the program to ensure compatibility with Service architectures, cloud-hosted environments, and system requirements, to include tech refresh of system hardware and software to maintain compatibility with new technologies and standards. <b>FY 2020 Plans:</b> Continue to modernize fielded capabilities throughout the lifecycle of the program to ensure compatibility with Service architectures, cloud-hosted environments, and system security requirements. Continue to update system with new technology and capability sets ensuring compliance with cyber security and net centric policies. <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Decrease due to change in program/project technical parameters.			0.284	2.352	1.841
<b>Title:</b> 5) JEM 1 and 2 <b>Description:</b> Command and Control (C2) Modernization Efforts  <b>FY 2019 Plans:</b>			2.095	1.795	0.895

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program			Date: March 2019		
Appropriation/Budget Activity 0400 / 7		R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	Project (Number/Name) IS7 / INFORMATION SYSTEMS (OP SYS DEV)		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
Continue to update fielded JEM 1 and JEM 2 software due to changing Army, Navy, Air Force, Marine Corps, SOCOM, and National Guard C2 host architectures, systems, and standards in order to maintain interoperability and avert cyber threats and vulnerabilities to host C2 systems. Perform test and evaluation of updated JEM 1 and JEM 2 baselines. <b>FY 2020 Plans:</b> Continue to update fielded JEM 1 and 2 software due to changing Army, Navy, Air Force, SOCOM, and National Guard C2 host architectures, systems, and standards in order to maintain interoperability and avert cyber threats and vulnerabilities to host C2 systems. Perform test and evaluation of updated JEM 1 and JEM 2 baselines. Increased funding planned for the emerging cyber security threats. <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Decrease due to change in program/project technical parameters.					
<b>Title:</b> 6) JEM 1 and 2 <b>Description:</b> Pre-Planned Product Improvement (P3I)  <b>FY 2019 Plans:</b> Continue to test and integrate fielded JEM 1 and 2 software with science and technology upgrades and model enhancements to improve JEM accuracy and precision. Improve architecture and overall performance of all JEM increments through software updates and deficiency resolution. Both increments of JEM software will be supported until all service C2 systems with JEM 1 software are fielded with JEM 2 software. <b>FY 2020 Plans:</b> Continue to test and integrate fielded JEM software with science and technology upgrades and model enhancements to improve JEM 1 and 2 accuracy and precision. Improve architecture and overall performance of all JEM 1 and 2 versions through software updates and deficiency resolution. <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Decrease due to change in program/project technical parameters.			2.402	3.597	1.737
<b>Title:</b> 7) JEM 1 and 2 <b>Description:</b> Training and Logistics Support  <b>FY 2020 Plans:</b> Perform Training Development, Integrated Logistics Support and Configuration Management for upgraded fielded capabilities. <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b>			-	-	1.675

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program			Date: March 2019		
Appropriation/Budget Activity 0400 / 7		R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	Project (Number/Name) IS7 / INFORMATION SYSTEMS (OP SYS DEV)		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
Increase due to change in program/project technical parameters.					
<b>Title:</b> 8) JEM 1 and 2 <b>Description:</b> Management Support  <b>FY 2020 Plans:</b> Provide program/financial management, costing, contracting, scheduling, and acquisition oversight support to the fielded product baseline.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Increase due to change in program/project technical parameters.			-	-	0.479
<b>Title:</b> 9) JWARN 1 and 2 <b>Description:</b> System Modernization/Update Development  <b>FY 2019 Plans:</b> Continue engineering and development efforts to upgrade existing, operational JWARN Systems in order to maintain interoperability, efficiency and functionality within the targeted C2 systems while utilizing the IT BOX construct and Agile Software development processes.  <b>FY 2020 Plans:</b> Continue engineering and development efforts to upgrade existing operational JWARN capabilities hosted on DISA milCloud CBRN IS enterprise site, Army Battle Command Common Services (BCCS) servers, Marine Corps Joint Tactical Common Operational Picture (COP) Workstation (JTCW) systems, Navy Consolidated Afloat Networks and Enterprise Services (CANES) Afloat and MOCs, in order to maintain interoperability, efficiency, and functionality within the targeted C2 systems while utilizing the IT Box construct and Agile software development practices. Provide any required patches or fixes to address potential issues discovered in the course of recurring system interoperability testing with service-specific C2 environments.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.			2.982	2.801	3.287
<b>Title:</b> 10) JWARN 1 and 2 <b>Description:</b> Program Management Support  <b>FY 2019 Plans:</b>			0.473	0.387	0.470



**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program			Date: March 2019		
Appropriation/Budget Activity 0400 / 7		R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	Project (Number/Name) IST / INFORMATION SYSTEMS (OP SYS DEV)		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
Continue JWARN program financial management, scheduling, planning and reporting support to modernization effort under the IT BOX construct and Agile Software development processes.  <b>FY 2020 Plans:</b> Continue JWARN 1 and 2 program financial management, scheduling, planning and reporting support to existing operational JWARN System Requirements Definition Package (RDP)-1 CDs hosted on RDP-2 CD 2.1 DISA milCloud CBRN IS enterprise site, CD 2.2 Army, CD 2.3 Marine Corps and CD 2.5 Navy C2 systems under the IT BOX construct and Agile Software development processes.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.					
<b>Title:</b> 11) JWARN 1 and 2  <b>Description:</b> IT BOX Test & Evaluation (T&E)  <b>FY 2019 Plans:</b> Continue required Governmental developmental and operational testing on JWARN software updates and modernization efforts under the IT BOX construct and Agile Software testing processes. Conduct developmental and operational testing on JWARN software updates and modernization efforts to support Army's Common Operational Environment version 3 (COE v3). Develop training guides and courseware to reflect major upgrades to JWARN 2 in support of COE v3.  <b>FY 2020 Plans:</b> Continue Government development test and evaluation of deployed JWARN 1 and 2 capabilities on service C2 systems. Conduct DT on developer delivery of JWARN 1 and 2 software intended for fielding with National Guard C2 systems, in preparation for IOT&E on those systems.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.			0.798	0.313	0.235
<b>Title:</b> 12) JWARN 1 and 2  <b>Description:</b> Training and Logistics Support  <b>FY 2020 Plans:</b> Provide helpdesk and training support for fielded versions of JWARN 1 and 2 in all host environments, including DISA milCloud, Army BCCS command post servers, Navy CANES and MOCs, and Marine Corps JTCW systems.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b>			-	-	0.704

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program		Date: March 2019		
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	Project (Number/Name) IS7 / INFORMATION SYSTEMS (OP SYS DEV)		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Minor change due to routine program adjustments.				
Title: 13) SSA Policies, Standards and Guidelines  FY 2019 Plans: Continue to support programs in the Interoperability and Supportability (I&S) certification, Information Support Plan (ISP), and Data and Service Exposure Verification and Registration. Update existing programs and register new programs in the Army Portfolio Management Solution/Army Information Technology Registry (APMS/AITR).  FY 2020 Plans: Continue to support programs in the Interoperability and Supportability (I&S) certification, Information Support Plan (ISP), and Data and Service Exposure Verification and Registration. Update existing programs and register new programs in the Army Portfolio Management Solution/Army Information Technology Registry (APMS/AITR).  FY 2019 to FY 2020 Increase/Decrease Statement: Minor change due to routine program adjustments.		0.222	0.246	0.244
Title: 14) SSA Integrated Architecture  FY 2019 Plans: Continue to provide and update program of record integrated architectures and provide Net-Centric Policy implementation assistance. Continue to support CCSI updates. Continue to provide CCSI reference implementation. Support the enterprise tools and common capabilities to ensure relevance across CBRN programs.  FY 2020 Plans: Continue to provide and update program of record integrated architectures and provide Net-Centric Policy implementation assistance. Continue to support CCSI updates. Continue to provide CCSI reference implementation. Support the enterprise tools and common capabilities to ensure relevance across CBRN programs.  FY 2019 to FY 2020 Increase/Decrease Statement: Minor change due to routine program adjustments.		0.254	0.253	0.317
Title: 15) SSA Chemical, Biological, Radiological, Nuclear (CBRN) Data Model  FY 2019 Plans: Continue updating a mandated net-centric environment by providing enabling tools which include the CBRN Data Model and Data Dictionary, which define Common CBRN semantics and syntax and the CBRN Extensible Markup Language (XML) schemas that define reusable XML types for information exchange throughout the enterprise.  FY 2020 Plans:		0.237	0.236	0.459

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program			Date: March 2019		
Appropriation/Budget Activity 0400 / 7		R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	Project (Number/Name) IS7 / INFORMATION SYSTEMS (OP SYS DEV)		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
Continue updating a mandated net-centric environment by providing enabling tools which include the CBRN Data Model and Data Dictionary, which define Common CBRN semantics and syntax and the CBRN Extensible Markup Language (XML) schemas that define reusable XML types for information exchange throughout the enterprise.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.					
<b>Title:</b> 16) SSA Cybersecurity/Information Assurance (CS/IA)  <b>FY 2019 Plans:</b> Continue to maintain proper Cybersecurity/Information Assurance (CS/IA) accreditation of any system within the CBDP portfolio throughout its life-cycle. This includes periodic re-accreditation of JPEO CBDP systems.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.			0.423	0.422	-
Accomplishments/Planned Programs Subtotals			11.923	15.051	16.811
C. Other Program Funding Summary (\$ in Millions) N/A					
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.  CBRN INFORMATION SYSTEMS					

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program		<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> IS7 / <i>INFORMATION SYSTEMS (OP SYS DEV)</i>
<p>CBRN-IS acquisition strategy utilizes a Family-of-Systems (FoS) approach to align multiple programs of record capabilities to the CBRN-IS architecture and operational environment. CBRN-IS enterprise will initially integrate appropriate JPEO-CBD products into a FoS framework beginning with the Joint Warning and Reporting (JWARN) and Joint Effects Model (JEM) program capabilities. CBRN-IS leverages the concepts of CBRN Hazard Awareness and Understanding and DISA Enterprise Services to integrate current CBRN capabilities, and other information and intelligence services, applications, and systems to provide increased situational awareness and decision support to commanders for CBRN defense. The strategy supports the implementation of integrated early warning capabilities by incorporating the inclusion of mature science and technology products and emerging technologies from existing ATD and experimental capability demonstrations (ECD). CBRN-IS utilizes the Agile software development process with the IT Box acquisition strategy to provide for the spiral development and fielding of modular capability packages.</p> <p>JOINT EFFECTS MODEL (JEM)</p> <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 &amp; REPORTING NETWORK (JWARN)</p>		

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program		<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> IS7 / <i>INFORMATION SYSTEMS (OP SYS DEV)</i>
<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 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><b>SOFTWARE SUPPORT ACTIVITY (SSA)</b></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>		

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	Project (Number/Name) IS7 / INFORMATION SYSTEMS (OP SYS DEV)
E. Performance Metrics N/A		

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) IS7 / INFORMATION SYSTEMS (OP SYS DEV)					
Product Development (\$ in Millions)				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 - Global-BSP Modernization	MIPR	Various : Various	0.000	1.753	Dec 2017	2.649	Dec 2018	2.904	Dec 2019	-		2.904	Continuing	Continuing	0.000
JEM - SW S - Increment 2 - Modernization	C/CPAF	General Dynamics Information Technologies : Fairfax, VA	2.928	4.497	Apr 2018	5.392	Apr 2019	2.632	Apr 2020	-		2.632	Continuing	Continuing	0.000
JWARN - 1- SW S - Modernization	C/CPAF	Northrop Grumman Corp. : Winter Park, FL	13.003	0.568	Dec 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JWARN - 1-SW S- Modernization	C/CPAF	DCS Corps : Alexandria, VA	0.000	0.000		0.000		0.699	Dec 2019	-		0.699	Continuing	Continuing	0.000
JWARN - 2- SW S - Modernization	C/CPAF	Northrop Grumman Corp. : Winter Park, FL	1.901	2.414	Dec 2017	0.000		0.000		-		0.000	Continuing	Continuing	0.000
JWARN - 2- SW S - Modernization Follow-On	C/CPAF	DCS Corps : Alexandria, VA	0.000	0.000		2.801	Dec 2018	2.589	Dec 2019	-		2.589	Continuing	Continuing	0.000
SSA - SW S - Development Services	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	3.186	0.445	Dec 2017	0.444	Dec 2018	0.459	Dec 2019	-		0.459	Continuing	Continuing	0.000
Subtotal			21.018	9.677		11.286		9.283		-		9.283	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
BSP - ILS C - Training and Logistics Support	Various	Various : Various	0.000	0.000		0.000		1.162	Dec 2019	-		1.162	Continuing	Continuing	0.000
CBRN IS - ES S - milCloud support	MIPR	Various : Various	0.000	0.284	Dec 2017	2.352	Dec 2018	1.841	Dec 2019	-		1.841	Continuing	Continuing	0.000
JEM - ILS C - Training and Logistics Support	Various	Various : Various	0.000	0.000		0.000		1.675	Dec 2019	-		1.675	Continuing	Continuing	0.000

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program</b>												<b>Date: March 2019</b>			
<b>Appropriation/Budget Activity</b> 0400 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)						<b>Project (Number/Name)</b> IS7 / INFORMATION SYSTEMS (OP SYS DEV)			
<b>Support (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
JWARN - 1&2 - ES S - Modernization	MIPR	Various : Various	1.211	0.000		0.000		0.704	Nov 2019	-		0.704	Continuing	Continuing	0.000
SSA - TD/D C - Information Assurance Activities	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	3.179	0.268	Dec 2017	0.268	Dec 2018	0.428	Dec 2019	-		0.428	Continuing	Continuing	0.000
<b>Subtotal</b>			4.390	0.552		2.620		5.810		-		5.810	Continuing	Continuing	N/A
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
JWARN - 1- OTE S - FOT&E	MIPR	Various : Various	4.419	0.162	Nov 2017	0.000		0.050	Nov 2019	-		0.050	Continuing	Continuing	0.000
JWARN - 2- OTE S	MIPR	Various : Various	0.070	0.636	Dec 2017	0.313	Dec 2018	0.185	Dec 2019	-		0.185	Continuing	Continuing	0.000
SSA - OTHT S - Integration Verification and Valuation (IV&V)	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	3.302	0.423	Dec 2017	0.445	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
<b>Subtotal</b>			7.791	1.221		0.758		0.235		-		0.235	Continuing	Continuing	N/A
<b>Management Services (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
BSP - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.000		0.000		0.402	Dec 2019	-		0.402	Continuing	Continuing	0.000
JEM - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.000		0.000		0.479	Aug 2020	-		0.479	Continuing	Continuing	0.000
JWARN - PM/MS S - Program management	MIPR	Various : Various	1.705	0.473	Dec 2017	0.387	Dec 2018	0.469	Dec 2019	-		0.469	Continuing	Continuing	0.000



**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2020 Chemical and Biological Defense Program												<b>Date:</b> March 2019		
<b>Appropriation/Budget Activity</b> 0400 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>				<b>Project (Number/Name)</b> IS7 / <i>INFORMATION SYSTEMS (OP SYS DEV)</i>				

  

<b>Management Services (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>				
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
SSA - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.000		0.000		0.133	Dec 2019	-		0.133	Continuing	Continuing	0.000	
<b>Subtotal</b>			1.705	0.473		0.387		1.483		-		1.483	Continuing	Continuing	N/A	

  

			<b>Prior Years</b>	<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			34.904	11.923		15.051		16.811		-		16.811	Continuing	Continuing	N/A

  

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2020 Chemical and Biological Defense Program			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> IS7 / <i>INFORMATION SYSTEMS (OP SYS DEV)</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 - CSG BD 7	■																											
BSP - CSG BD 8			■																									
BSP - CSG BD 9					■																							
BSP - CSG BD 10							■																					
BSP - Final Operational Test and Evaluation - RDP 1										■																		
BSP - Total Package Fielding																												
CBRN IS - Technical Guidance																												
CBRN IS - Product Development																												
CBRN IS - Operational Assessments																												
CBRN IS - Limited Deployment (LD)																												
CBRN IS - Initial Operational Capability (IOC)																												
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 - Govt DT / OT / V&V																												
JEM Increment 2 - Modernization and Update																												
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																												

**UNCLASSIFIED**

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

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> IS7 / <i>INFORMATION SYSTEMS (OP SYS DEV)</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
JEM Increment 2 - FOC C-2 Systems																												
JEM Increment 2 - IOC Analyst Tools																												
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 - Provide Information Assurance Site Compliance Testing																												
SSA - Provide Information Assurance Certification/Acceptance products/services, including compliance testing																												
SSA - Provide Modeling, Simulation, VV&A, Integration/Test support and interoperability demonstrations.																												
SSA - Sustain CCSI, including investigation, as an industry standard																												
SSA - Sustain Common Components products, process and services																												

**UNCLASSIFIED**

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Chemical and Biological Defense Program																				Date: March 2019																					
Appropriation/Budget Activity 0400 / 7										R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)										Project (Number/Name) IS7 / INFORMATION SYSTEMS (OP SYS DEV)																					
										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				
SSA - Provide CBRN Interface Standards, including reference implementations, e.g. Common CBRN Sensor Interface																																									
SSA - Provide Configuration Management Services for Common User Products and Services																																									

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Chemical and Biological Defense Program			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> IS7 / <i>INFORMATION SYSTEMS (OP SYS DEV)</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
BSP - CSG BD 7	1	2018	1	2018
BSP - CSG BD 8	3	2018	3	2018
BSP - CSG BD 9	1	2019	1	2019
BSP - CSG BD 10	3	2019	3	2019
BSP - Final Operational Test and Evaluation - RDP 1	2	2020	2	2020
BSP - Total Package Fielding	4	2020	3	2022
CBRN IS - Technical Guidance	1	2018	2	2024
CBRN IS - Product Development	1	2018	2	2024
CBRN IS - Operational Assessments	1	2018	2	2024
CBRN IS - Limited Deployment (LD)	1	2018	2	2020
CBRN IS - Initial Operational Capability (IOC)	2	2018	3	2019
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 - Govt DT / OT / V&V	1	2018	4	2022
JEM Increment 2 - Modernization and Update	1	2018	4	2021
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

**UNCLASSIFIED**

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Chemical and Biological Defense Program				Date: March 2019	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)		Project (Number/Name)	
0400 / 7		PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)		IS7 / INFORMATION SYSTEMS (OP SYS DEV)	
		Start		End	
Events	Quarter	Year	Quarter	Year	
JEM Increment 2 - FOC Standalone	2	2019	2	2019	
JEM Increment 2 - IOC Emerging Capabilities	4	2019	4	2019	
JEM Increment 2 - FOC C-2 Systems	4	2022	4	2022	
JEM Increment 2 - IOC Analyst Tools	4	2018	4	2018	
JEM Increment 2 - FOC Analyst Tools	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 - Provide Information Assurance Site Compliance Testing	1	2018	1	2024	
SSA - Provide Information Assurance Certification/Acceptance products/services, including compliance testing	1	2018	1	2024	
SSA - Provide Modeling, Simulation, VV&A, Integration/Test support and interoperability demonstrations.	1	2018	1	2024	
SSA - Sustain CCSI, including investigation, as an industry standard	1	2018	1	2024	
SSA - Sustain Common Components products, process and services	1	2018	1	2024	
SSA - Provide CBRN Interface Standards, including reference implementations, e.g. Common CBRN Sensor Interface	1	2018	1	2024	
SSA - Provide Configuration Management Services for Common User Products and Services	1	2018	1	2024	

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) MB7 / MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)			
COST (\$ in Millions)	Prior Years	FY 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
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
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

The project supports technology refresh of fielded medical diagnostic systems and associated capabilities (e.g., assays) that contribute to the layered medical defenses against biological warfare agent threats facing U.S. Forces in the field.

Efforts in this project include:

- (1) Joint Biological Agent Identification and Diagnostic System (JBAIDS)
- (2) Next Generation Diagnostic System (NGDS)

JBAIDS is a commercial off the shelf system that provides a critical capability to identify bacterial and viral agents in environmental surveillance and clinical specimen sample types. The JBAIDS is reaching its end of life. Replacement of JBAIDS with NGDS Increment 1 began in 2017 and will achieve full replacement by the end of FY20.

The NGDS is a family of systems providing increments of diagnostic capabilities over time that address varied 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 Food and Drug Administration (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 Inc 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.

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

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> 1) JBAIDS	0.019	0.018	0.489
<b>Description:</b> Program Management and Obsolescence Monitoring			
<b>FY 2019 Plans:</b> Continue to monitor obsolescence and Program, financial, acquisition, regulatory, and technical planning and oversight.			
<b>FY 2020 Plans:</b> Complete obsolescence and Program, financial, acquisition, regulatory, and technical planning and oversight.			
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program		<b>Date:</b> March 2019	
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> MB7 / <i>MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2018</b>	<b>FY 2019</b>
Program/project funding transferred to another funding line.			
<b>Title:</b> 2) NGDS 1  <b>Description:</b> System Upgrades & Support  <b>FY 2019 Plans:</b> Continue development and upgrade of additional objective FDA cleared medical diagnostic assays, continue development of additional assays and sample validation protocols to meet JBAIDS equivalence. Continue annual cyber security updates and management of hardware and software configurations.  <b>FY 2020 Plans:</b> Continue development and upgrade of additional objective FDA cleared medical diagnostic assays. Complete development of additional assays and sample validation protocols to meet JBAIDS equivalence. Continue annual cyber security updates and management of hardware and software configurations.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Program/project transitioned to Production and Deployment Phase.		11.176	9.003
<b>Accomplishments/Planned Programs Subtotals</b>		11.195	9.021
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
JOINT BIO AGENT IDENT AND DIAG SYSTEM (JBAIDS)			
JBAIDS is a commercial off-the-shelf capability to identify multiple biological agents and other pathogens of operations concern, to include environmental and FDA cleared in vitro diagnostic assays. JBAIDS also has pre-positioned Emergency Use Authorizations assays for the identification of low probability, high consequence pathogens in clinical samples that can be deployed in the event of a declared health emergency. The JBAIDS program is preparing for full replacement by NGDS Increment 1 systems, beginning in FY17.			
NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)			



# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program		<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> MB7 / <i>MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)</i>
<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> <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><b><u>E. Performance Metrics</u></b> N/A</p>		

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) MB7 / MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)					
Product Development (\$ in Millions)				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 - NGDS 1 - HW C - Assay Development	C/CPFF	BioFire Dx : Salt Lake City, UT	10.759	3.400	Dec 2017	3.445	Nov 2018	2.123	Dec 2019	-		2.123	Continuing	Continuing	0.000
NGDS - HW C - Assay Development	MIPR	Battelle Memorial Institute : Aberdeen, MD	0.000	0.441	Nov 2017	0.200	Dec 2018	0.000		-		0.000	Continuing	Continuing	0.000
NGDS - HW C - Assay Development #2	MIPR	Various : Various	0.000	0.641	Nov 2017	0.026	Jan 2019	0.000		-		0.000	Continuing	Continuing	0.000
Subtotal			10.759	4.482		3.671		2.123		-		2.123	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
NGDS - ES S - Engineering Support	C/CPFF	BioFire Dx : Salt Lake City, UT	0.000	0.682	Nov 2017	0.150	Jun 2019	0.150	Jun 2020	-		0.150	Continuing	Continuing	0.000
Subtotal			0.000	0.682		0.150		0.150		-		0.150	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
JBAIDS - PM/MS S - Project Management	MIPR	Various : Various	1.756	0.019	Jan 2018	0.018	Jan 2019	0.489	Jan 2020	-		0.489	Continuing	Continuing	0.000
NGDS - PM/MS C - PM/MS - Program Management Support	Various	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	0.394	Jan 2018	1.154	Jan 2019	0.234	Dec 2019	-		0.234	Continuing	Continuing	0.000
NGDS - PM/MS S - Product Management Support	MIPR	Various : Various	1.673	2.933	Jan 2018	1.189	Jan 2019	0.349	Dec 2019	-		0.349	Continuing	Continuing	0.000

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) MB7 / MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)					
Management Services (\$ in Millions)				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 C - Program Management Support	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.000	0.554	Dec 2017	0.157	Nov 2018	0.162	Dec 2019	-		0.162	Continuing	Continuing	0.000
NGDS - PM/MS C - NGDS1 ADMC Support	C/CPFF	Ology : Alachua, FL	0.000	1.126	Dec 2017	1.092	Nov 2018	0.000		-		0.000	Continuing	Continuing	0.000
NGDS - PM/MS S - Program Management Support	Various	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	4.288	1.005	Jan 2018	1.590	Jan 2019	0.213	Dec 2019	-		0.213	Continuing	Continuing	0.000
Subtotal			7.717	6.031		5.200		1.447		-		1.447	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			18.476	11.195		9.021		3.720		-		3.720	Continuing	Continuing	N/A
Remarks															

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2020 Chemical and Biological Defense Program			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> MB7 / <i>MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)</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
NGDS - System Upgrades & Support																												
NGDS - USAF FOC Increment 1																												
NGDS - Warrior II Assay Panel Feasibility Study																												
NGDS - Food & Water Assay Development																												
NGDS - FRP Increment 1																												
NGDS - USN IOC Increment 1																												
NGDS - USN FOC Increment 1																												
NGDS - USA IOC Increment 1																												
NGDS - USA FOC Increment 1																												

# UNCLASSIFIED

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Chemical and Biological Defense Program			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> MB7 / <i>MEDICAL BIOLOGICAL DEFENSE (OP SYS DEV)</i>	

## Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NGDS - System Upgrades & Support	1	2018	4	2024
NGDS - USAF FOC Increment 1	1	2018	1	2018
NGDS - Warrior II Assay Panel Feasibility Study	4	2018	4	2019
NGDS - Food & Water Assay Development	4	2018	4	2019
NGDS - FRP Increment 1	4	2018	4	2018
NGDS - USN IOC Increment 1	4	2019	2	2020
NGDS - USN FOC Increment 1	4	2020	2	2021
NGDS - USA IOC Increment 1	2	2019	4	2019
NGDS - USA FOC Increment 1	1	2020	2	2020

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) MC7 / MEDICAL CHEMICAL DEFENSE (OP SYS DEV)			
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
MC7: MEDICAL CHEMICAL DEFENSE (OP SYS DEV)	-	0.000	0.000	1.248	-	1.248	0.000	0.000	0.000	0.000	0.000	1.248
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

This project provides for the upgrade and modernization of fielded medical nerve agent treatment system that contribute to the layered medical defenses against chemical warfare agent threats facing U.S. Forces in the field.

The effort included in this project is:

(1) Improved Nerve Agent Treatment System (INATS)

INATS, which includes Food and Drug Administration (FDA) approved prophylactics, pre-treatments, and therapeutics, is intended to protect and/or sustain the Joint Service Member in a toxic chemical threat environment. Efforts and studies conducted under this project address direction from the FDA to conduct specific post-New Drug Application (NDA)-approval efforts and studies (e.g. required studies, Post Marketing Commitments), and requirements from the joint service users for the FDA-approved Soman Nerve Agent Pretreatment Pyridostigmine (SNAPP) product.

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

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> 1) INATS	-	-	1.248
<b>Description:</b> Studies required by the FDA and/or users to modernize or upgrade medical chemical defense countermeasures.			
<b>FY 2020 Plans:</b> Initiate studies on the FDA-approved Soman Nerve agent Pretreatment Pyridostigmine (SNAPP), a Pyridostigmine Bromide (PB) medical pre-treatment against nerve agent poisoning to upgrade its joint service utility and ensure its continued safety and efficacy.			
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Increase due to change in program/project schedule.			
<b>Accomplishments/Planned Programs Subtotals</b>	-	-	1.248

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

N/A

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program		<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> MC7 / <i>MEDICAL CHEMICAL DEFENSE (OP SYS DEV)</i>
<b><u>D. Acquisition Strategy</u></b> 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.		
<b><u>E. Performance Metrics</u></b> N/A		

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2020 Chemical and Biological Defense Program													<b>Date:</b> March 2019		
<b>Appropriation/Budget Activity</b> 0400 / 7							<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>				<b>Project (Number/Name)</b> MC7 / <i>MEDICAL CHEMICAL DEFENSE (OP SYS DEV)</i>				

  

<b>Product Development (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
INATS - HW C - Non Clinical Studies PB	Various	TBD : TBD	0.000	0.000		0.000		1.248	Dec 2019	-		1.248	0.000	1.248	0.000
<b>Subtotal</b>			0.000	0.000		0.000		1.248		-		1.248	0.000	1.248	N/A

  

	<b>Prior Years</b>	<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	0.000	0.000		0.000		1.248		-		1.248	0.000	1.248	N/A

  

**Remarks**



UNCLASSIFIED

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 / 7					PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)					MC7 / MEDICAL CHEMICAL DEFENSE (OP SYS DEV)			

	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
INATS - PB Studies																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Chemical and Biological Defense Program			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> MC7 / <i>MEDICAL CHEMICAL DEFENSE (OP SYS DEV)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
INATS - PB Studies	2	2020	4	2020

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2020 Chemical and Biological Defense Program										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) TE7 / TEST & EVALUATION (OP SYS DEV)			
COST (\$ in Millions)	Prior Years	FY 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
TE7: TEST & EVALUATION (OP SYS DEV)	-	6.475	6.318	5.403	-	5.403	5.720	5.716	5.716	5.716	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

This project provides revitalization of existing instrumentation and technology upgrades to equipment at West Desert Test Center (WDTC) at Dugway Proving Ground (DPG), a Major Range and Test Facility Base (MRTFB), in support of their Chemical and Biological (CB) test mission.

Efforts included in the project are:

- (1) T&E Upgrades (T&E UPGRAD)
- (2) Biological Test Branch T&E Upgrade (BTB UPGRADE)

The T&E Upgrade effort supports upgrades to equipment for the Major Test Chambers Materiel Test Facility (MTF) which house the secondary containment modules (SCMs) for Non-Traditional Agent (NTA) testing, as well as other detector test chambers and Building 4165) at WDTC which houses the small item decontamination (SID) test fixture, swatch test fixtures, as well as several smaller labs (2) the CB Test Grid at WDTC which includes all dissemination, field referee equipment, and support equipment (generators, CP) and will include all upgraded test grid equipment transitioned from PD CCATTI and (3) the Combined Chemical Test Facility (CCTF) which includes the majority of chemical analytical equipment including Nuclear Magnetic Resonance (NMR) spectrometer, Gas Chromatograph (GC), GC-Mass Spectrometer (GC-MS), MS triple quads, Miniature Chemical Agent Monitoring System (MINICAMS), GASMETs, Liquid Chromatography MS (LCMS) and the majority of the laboratory hood space at WDTC.

BTB UPGRADE supports the MRTFB test mission of the Biological Test Branch (BTB) through instrumentation revitalization and technology upgrades to aging and obsolete equipment. These efforts maintain readiness at the BTB, which is the MRTFB's only laboratory equipped to test with aerosolized biosafety level-3 (BSL-3) agents. The BTB test mission requires cutting-edge biological laboratory and field testing capabilities to ensure the ability of the Department of Defense to test state-of-the-art materiel under development against known and emergent biological threats. Essential instrumentation requiring periodic revitalization and modernization due to technological obsolescence includes dissemination, referee, and support (e.g., generators, collective protection) equipment.

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

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> 1) BTB UPGRADE	0.925	0.885	0.757
<b>FY 2019 Plans:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program		<b>Date:</b> March 2019		
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> TE7 / <i>TEST &amp; EVALUATION (OP SYS DEV)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
Continues to provide instrumentation and equipment to BTB-ECBC, in support of the CB Defense mission. Continues to provide for BSL-3 biological laboratory equipment for the Lother Solomon Test Facility (LSTF) Annex. Provides for enhancement of the biological decontamination capability. Provides for enhanced laboratory referee capability and management.  <b>FY 2020 Plans:</b> Continues to provide instrumentation and equipment to BTB-ECBC, in support of the CB Defense mission. Continues to provide for BSL-3 biological laboratory equipment for the LSTF Annex. Provides for enhancement of the biological decontamination capability. Provides for enhanced laboratory referee capability and management.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.				
<b>Title:</b> 2) WDTC - MRTFB  <b>Description:</b> Major Test Chambers (MTF and Building 4165)  <b>FY 2019 Plans:</b> Continue modernization in the chambers to include: (a) Enhancements of an aerosol generation and sampling capability; (b) Additional upgrades to agent surety monitor and analytical instrumentation; (c) Enhancement of TIC detection; and (d) Expanded NTA test and detection capability.  <b>FY 2020 Plans:</b> Continue modernization in the chambers to include: (a) Enhancements of an aerosol generation and sampling capability; (b) Additional upgrades to agent surety monitor and analytical instrumentation; (c) Enhancement of TIC detection; and (d) Expanded NTA test and detection capability.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.		1.192	1.087	0.998
<b>Title:</b> 3) WDTC - MRTFB  <b>Description:</b> CB Test Grid  <b>FY 2019 Plans:</b> Continue modernization efforts to include: (1) Enhancement of point and standoff field referee systems; (2) Upgrade of grid communications and data analysis capabilities; (3) Additional upgrades to enhance optic data collection. Enhancements to		1.352	1.358	1.132

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program			<b>Date:</b> March 2019		
<b>Appropriation/Budget Activity</b> 0400 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)		<b>Project (Number/Name)</b> TE7 / TEST & EVALUATION (OP SYS DEV)	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
Test Grid provide near real time data analysis and rapid test adaptation to minimize costs and increase the effectiveness of field testing.					
<b>FY 2020 Plans:</b> Continue modernization efforts to include: (1) Enhancement of point and standoff field referee systems; (2) Upgrade of grid communications and data analysis capabilities; (3) Additional upgrades to enhance optic data collection. Enhancements to Test Grid provide near real time data analysis and rapid test adaptation to minimize costs and increase the effectiveness of field testing.					
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.					
<b>Title:</b> 4) WDTC - MRTFB			3.006	2.988	2.516
<b>Description:</b> Combined Chemical Test Facility (CCTF)					
<b>FY 2019 Plans:</b> Provide continued revitalization and upgrade of existing instrumentation and equipment at the CCTF at WDTC in support of their chemical test mission. Continue upgrade of chemical laboratory fume hoods. Modernization will result in improved test fixtures which will reduce risk to personnel and provide improved test capabilities. Continue efforts to enhance NTA test capability in these fixtures.					
<b>FY 2020 Plans:</b> Provide continued revitalization and upgrade of existing instrumentation and equipment at the CCTF at WDTC in support of their chemical test mission. Modernization will result in improved test fixtures which will reduce risk to personnel and provides improved test capabilities. Continue efforts to enhance NTA test capability in these fixtures.					
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.					
<b>Accomplishments/Planned Programs Subtotals</b>			6.475	6.318	5.403
<b>C. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>Remarks</b>					
<b>D. Acquisition Strategy</b>					
BIO TEST BRANCH T&E UPGRADE (BTB UPGRADE)					

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Chemical and Biological Defense Program		<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> TE7 / <i>TEST &amp; EVALUATION (OP SYS DEV)</i>
<p>Test and evaluation Range Instrumentation/Technology Upgrades is a continuing project. It provides for technical upgrades to Bio Test Branch (Edgewood Chemical Biological Center) capabilities for Biological testing of DoD CB materiel, weapons, and weapons systems from concept through production. Technical and Facility upgrades will utilize full and open competition as appropriate through ECBC contract resources.</p> <p>T&amp;E RANGE INSTRUMENT/TECH UPGRADE (T&amp;E UPGRADE)</p> <p>Test and evaluation Range Instrumentation/Technology Upgrades is a continuing project. It provides for technical upgrades to WDTC capabilities for Chemical and Biological testing of DoD CB materiel, weapons, and weapons systems from concept through production. Upgrades will utilize Military Interdepartmental Purchase Requests (MIPR) and contracts.</p> <p><b><u>E. Performance Metrics</u></b> N/A</p>		

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Chemical and Biological Defense Program												Date: March 2019			
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				Project (Number/Name) TE7 / TEST & EVALUATION (OP SYS DEV)					
Test and Evaluation (\$ in Millions)				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
BTB UPGRADE - OTHT S - T&E Upgrade	C/FFP	Various : Various	0.000	0.925	Mar 2018	0.885	Apr 2019	0.757	May 2020	-		0.757	Continuing	Continuing	0.000
T&E UPGRAD - OTHT C - Technology Upgrade - WDTC Major Test Chambers (MTF and Building 4165)	MIPR	Various : Various	2.551	1.192	Mar 2018	1.087	Feb 2019	0.998	Feb 2020	-		0.998	Continuing	Continuing	0.000
T&E UPGRAD - OTHT C - Technology Upgrade - WDTC CB Test Grid	MIPR	Various : Various	0.000	1.352	Mar 2018	1.358	Feb 2019	1.132	Feb 2020	-		1.132	Continuing	Continuing	0.000
T&E UPGRAD - OTHT C - Technology Upgrade - WDTC CCTF	MIPR	Various : Various	0.000	0.490	Mar 2018	1.076	Feb 2019	2.516	Feb 2020	-		2.516	Continuing	Continuing	0.000
T&E UPGRAD - OTHT C - Technology Upgrade - CCTF Chemical Laboratory Fume Hoods	MIPR	Health and Human Services : Washington, DC	0.000	2.516	Jan 2018	1.912	Feb 2019	0.000		-		0.000	Continuing	Continuing	0.000
Subtotal			2.551	6.475		6.318		5.403		-		5.403	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			2.551	6.475		6.318		5.403		-		5.403	Continuing	Continuing	N/A
Remarks															

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2020 Chemical and Biological Defense Program																<b>Date:</b> March 2019			
<b>Appropriation/Budget Activity</b> 0400 / 7								<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>								<b>Project (Number/Name)</b> TE7 / <i>TEST &amp; EVALUATION (OP SYS DEV)</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
BTB UPGRADE - LSTF Instrumentation & Equip Upgrades, WDTC																												
T&E UPGRAD - Modernization of Major Test Chambers, WDTC																												
T&E UPGRAD - Revitalize & Upgrade Instrumentation & Equipment at Combined Chemical Test Facility, WDTC																												
T&E UPGRAD - Enhance Instrumentation & Equipment at Chemical Biological (CB) Test Grids, WDTC																												



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Chemical and Biological Defense Program			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> TE7 / <i>TEST &amp; EVALUATION (OP SYS DEV)</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
BTB UPGRADE - LSTF Instrumentation & Equip Upgrades, WDTC	1	2018	4	2023
T&E UPGRAD - Modernization of Major Test Chambers, WDTC	1	2018	4	2024
T&E UPGRAD - Revitalize & Upgrade Instrumentation & Equipment at Combined Chemical Test Facility, WDTC	1	2018	4	2024
T&E UPGRAD - Enhance Instrumentation & Equipment at Chemical Biological (CB) Test Grids, WDTC	1	2018	4	2024