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**Department of Defense
Fiscal Year (FY) 2025 Budget Estimates**

March 2024



Chemical and Biological Defense Program

Defense-Wide Justification Book Volume 4 of 5

Research, Development, Test & Evaluation, Defense-Wide

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Chemical and Biological Defense Program • Budget Estimates FY 2025 • RDT&E Program

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Chemical and Biological Defense Program Fiscal Year 2025 Budget Overview

Thirty years after its creation, the Chemical and Biological Defense Program (CBDP) is at an inflection point. Chemical and biological (CB) threats are metastasizing due to geopolitical and technological changes with profound impacts on how the CBDP must achieve its mission.

Senior Administration and Department leaders have now recognized the risks of novel CB threats, resulting in a new collection of strategic guidance and increased prioritization. It is the responsibility of the CBDP to translate this strategic direction into concrete action that ensures the Joint Force is equipped to fight and win in CB-contested environments.

To do so, the CBDP has launched an ambitious pivot that is transforming everything from how we are organized to the capabilities we pursue. The Under Secretary of Defense for Acquisition and Sustainment has approved a new CBDP governance framework, which strengthens alignment to White House and Departmental strategic objectives, ensures warfighter needs are incorporated, and more tightly integrates the CBDP Enterprise. This new framework enables us to pursue a portfolio-based approach to identify and close capability gaps more quickly. The overriding priority is to shrink the time from concept origination to capability delivery. Although much work remains, business operation reforms are already having noticeable impacts, including improving first-year Research, Development, Test and Evaluation (RDT&E) execution rates.

Building off these reforms, the CBDP is putting forward a FY2025 budget request of \$1,656.7 Million (M). These funds will enable the CBDP to continue the Program's existing momentum, allowing the Program to meet strategic guidance and adapt faster than the threat. This budget request continues the Enhanced Biodefense and Pandemic Preparedness (ENBD) funding that began in Fiscal Year (FY) 2023 and includes investments to close gaps identified by the 2023 Biodefense Posture Review. In short, this budget request enables the CBDP to equip the Joint Force with the capabilities it needs to deter CB use or, if necessary, prevail in CB-contested environments both now and in the future.

Strategic Overview

The CBDP is flush with strategic guidance. Both the 2022 *National Security Strategy* and 2022 *National Defense Strategy* prioritize strategic competition and the growing risk of CB threats. As described more below, the CBDP is impacted by both these challenges.

The *NDS* identifies the People's Republic of China (PRC) as the pacing challenge, and Russia as an acute threat. The same document lists North Korea and Iran as persistent challenges. The United States assessed Russia and North Korea both maintain offensive biological and chemical weapons programs and raised concerns about Iran's compliance with the Chemical Weapons Convention (CWC) and Biological Weapons and Toxins Convention (BWC).



The United States also has concerns about the PRC's compliance with the BWC and cannot certify that the PRC has met its CWC obligations in light of its research on pharmaceutical-based agents and toxins with potential dual use applications. The Department assesses that the PRC probably has the technical expertise to weaponize CB agents and delivery systems that can be adapted for chemical and biological weapons (CBW). Additionally, Chinese publications have described biology as a new domain of warfare and PRC leaders aspire to make their country a world leader in dual-use scientific disciplines, such as in genetic engineering, precision-medicine, and brain sciences.

The NDS identifies integrated deterrence as the backbone of the Department's approach to addressing strategic competition. Integrated deterrence is enabled by combat-credible forces prepared to fight and win, as needed, and backstopped by a safe, secure, and effective nuclear deterrent. Both the *NDS* and the *2023 Strategy for Countering Weapons of Mass Destruction* (hereinafter *CWMD Strategy*) affirm that combat-credible forces must be able to operate in CB-contested environments. The Department's *Strategic Management Plan for Fiscal Years 2022 – 2026* (SMP) identifies CB defense as a priority within Strategic Objective 1.4: "Modernize and sustain the nuclear deterrent and protect against chemical and biological threats."

The CBDP also receives strategic guidance from the *2022 National Biodefense Strategy and Implementation Plan on Countering Biological Threats, Enhancing Pandemic Preparedness, and Achieving Global Health Security*. This serves as the interagency playbook on biodefense, with the Department of Defense (DoD) as the co-lead for deterring biological weapons. The CBDP also supports DoD's contributions to the NBS in many other areas, including early warning and rapidly developing medical countermeasures (MCMs).

In 2023, DoD published the first of its kind *Biodefense Posture Review (BPR)*. Building off the *NDS* and *NBS*, the *BPR* postures the Department to counter biothreats—whether deliberate attack, accidental release, or naturally occurring—through 2035. The *BPR* established a new four star-level body, the Biodefense Council (BDC), to holistically coordinate internally, prioritize threats, and provide oversight of biodefense capabilities. The CBDP will actively support the BDC and contribute to the *BPR*'s four reform initiatives:

- 1) Enhance early warning and understanding to counter biothreats;
- 2) Improve preparedness for a resilient Total Force;
- 3) Speed response to mitigate the impact on DoD missions and the Total Force;
- 4) Improve strategic coordination and collaboration to enhance biodefense.



Impact on CBDP

CBDP's mission is receiving an appropriately high level of senior level attention because the threat landscape is rapidly evolving. Science and Technology (S&T) advances are making CB weapons increasingly attractive to potential adversaries. Synthetic biology and chemistry are converging with other emerging technologies, including artificial intelligence, big data, and nanotechnology. The National Intelligence Council has termed this bioconvergence, but it applies equally to the chemical space.

In the past, CB weapons were unstable to use with unpredictable results. Bioconvergence will potentially enable adversaries to design stable CB weapons with precise and tailorable impacts, furthering their ability to use them for a diverse array of objectives across the conflict continuum. Bioconvergence will also challenge our ability to detect and attribute CB threats, potentially making adversaries see them as more attractive than kinetic weapons to achieve the same effects. Finally, armed with bioconvergence, adversaries can potentially re-create pathogenic viruses, engineer de novo agents, or tweak existing ones to evade our physical and medical sensors and defenses.

Traditionally, the Department designed distinct countermeasures against a defined list of CB threats. With bioconvergence, the number of potential threats is exponentially larger, and some cannot be identified ahead of time. In this environment, a “one bug, one drug” approach is obsolete. In response, the CBDP has published a new approach for the Research, Development, and Acquisition of Medical Countermeasures and Test Products (hereinafter “MCM approach.”) Utilizing Enhanced Biodefense and Pandemic Preparedness (ENBD) funding, the new MCM approach seeks to provide the Joint Force with MCMs that enable it to fight through initial unknown agents and be agile enough to rapidly respond with narrow-spectrum MCMs once a threat has been identified.

Bioconvergence, when paired with the renewed emphasis in the NDS on nation state competition, necessarily expands the scope and focus of the CBDP mission. The Joint Force is developing new operational concepts and force postures to achieve the NDS mission in the current security environment. The CBDP must adapt CB defense capabilities to fit these new operational concepts, and not ask the Joint Force to adapt to meet CB defense capability needs.

The Department can no longer assume that CB attacks will be limited in scale. State actors have the resources and technical acumen to potentially pose CB threats across multi-domains and vast geographical expanses, including the homeland. Consequently, CB defense can no longer focus on specialized units that wait to deploy and provide expertise when asked to do so. Instead, as the CWMD Strategy notes, “the Total Force must carry out CWMD efforts daily,” and “the Department must now recapitalize, and in some cases reconstitute, its ability to conduct large-scale joint operations within a WMD-contested environment.” In this environment, the CBDP must deliver capabilities scaled to the Total Force. The FY25 budget request funds S&T projects to overcome barriers to scale and includes investments aimed at building up the necessary manufacturing capabilities.

Furthermore, the Department can no longer assume that CB threats will only impact the Joint Force during an armed conflict. In the era of strategic competition, potential adversaries may view CB threats as tools for coercion, warfighting, and constraining U.S. options across the three phases of the conflict continuum: competition, crisis, and armed conflict. Indeed, adversaries could view CB weapons as versatile

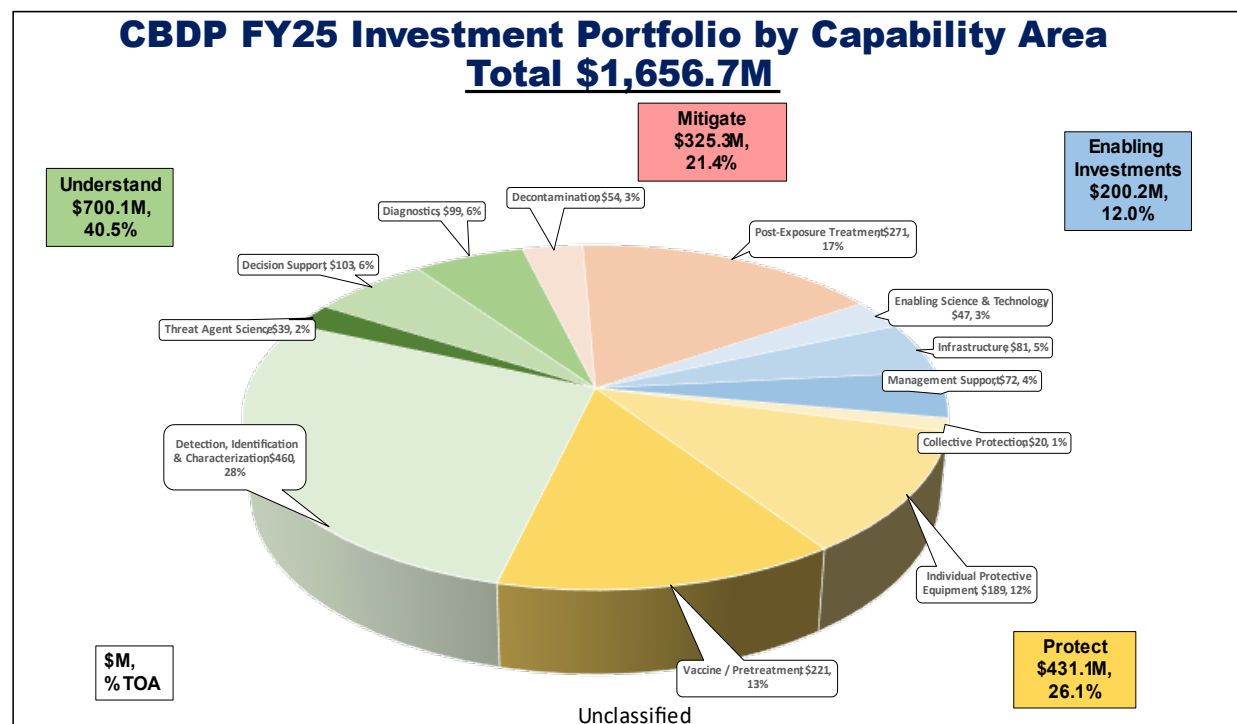


tools, from misinformation aimed at disrupting alliance cohesion and targeted killings to mass casualty attacks on cities with nuclear-like impacts. In between, CB threats can have strategic, operational, and tactical impacts on Joint Force operations that can be similar to kinetic weapons, including to support anti-access/area denial objectives.

The Joint Force must be equipped with capabilities across the conflict continuum. Personal protective gear is essential during crises and armed conflict but won't be worn during the competition phase. Similarly, biosurveillance capabilities like wastewater surveillance are essential for providing early warning during the competition phase but may not provide the near-real time information required during a crisis or armed conflict.

FY 2025 Portfolio Overview

The FY 2025 budget request of \$1,656.7M enables the CBDP to translate strategic guidance into concrete capabilities tailored to the future threat. This budget request continues the ENBD efforts to modernize the Department's biodefense capabilities to stay ahead of the threat.



Starting in FY23, the CBDP moved to a portfolio-based management approach to strengthen oversight, identify and buy down risk, and close capability gaps. The CBDP investments are aligned to the following portfolios (Figure 1):

- **Understand Portfolio (\$700.1M)** - Investments in this Portfolio aim to prevent strategic surprise and increase decision space for different echelons of the Joint Force as well as, political leaders and acquisition developers. Understand efforts begin far left of boom through Threat Agent Science investments, which provide over-the-horizon technology scanning to help the Department avoid strategic surprise. This budget helps increase the number of detection and sensing capabilities—from biosurveillance to CB sensors and wearables—with a focus on threat-agnostic systems. The goal is to increase the number of

Figure 1



sensors—as well as their detection accuracy, range and effectiveness—while integrating them into the Service’s existing systems to reduce the logistical burden on the warfighters. Other efforts in areas like threat characterization, environmental response, diagnostics, and advanced analytics translate this raw intelligence into actionable information to expand the Joint Force’s situational awareness. Rapid characterization of CB threats also enables rapid response countermeasure development and delivery. These advanced analytical capabilities harness emerging technologies including genome sequencing and AI/machine learning. Other Understand investments ensure these data integrate seamlessly with the Service’s existing non-CB sensor systems and relevant information systems, removing the need for warfighters to actively seek out CB threat information.

- Protect Portfolio (\$431.1M)– Investments in this portfolio enable the Warfighter to fight through CB exposure by limiting its impact. Efforts include personal protective equipment, collective protection, and prophylaxis MCMs. Developmental efforts focus on advances in materials and systems engineering to make personal protective gear more natural to operate in, while expanding the range of threats it protects against. MCM investments focus on developing platform-based approaches that will enable the rapid development and delivery of prophylaxis MCMs once a threat is characterized.
- Mitigate Portfolio (\$325.3M) – Investments are focused on rapid response and recovery to CB hazards by quickly restoring combat readiness of critical personnel and platforms. Developmental efforts address personnel decontamination and materiel decontamination including sensitive equipment and aircraft. Novel decontamination approaches focus on broad decontaminant applicability to CB hazards, while minimizing harm to individuals, equipment, and platforms. Medical countermeasure efforts focus on discovery and development of therapeutic products treating biological agents (bacteria, toxins, and viruses), emerging infectious diseases, and chemical agents. This includes investments aimed at quickly identifying existing MCMs that can be repurposed to address CB threats. Repurposing helps accelerate the drug development and delivery process and reduces manufacturing constraints.
- Enabling Investments (\$200.2M) – Provides fundamental knowledge, support to Research, Development, Testing, and Evaluation (RDT&E) infrastructure, technology demonstrations, and overarching RDT&E support functions as portfolio enablers key to responding to emerging threats. Dedicated funding in this portfolio supports National and Departmental response and preparedness to CB threats. Investments are also aimed at manufacturing optimization and other enabler capabilities to ensure the Department can deliver capabilities at the necessary speed and scale.



Modernized Chemical and Biological Defense

Figure 2

Although managed from a portfolio perspective, the CBDP is adopting an integrated layered defense (ILD) approach to align to strategic guidance, stay ahead of the threat, and get capabilities in the hands of the warfighter. ILD is the deliberate and synergistic employment of multi-domain CBRN capabilities, arranged through time, space, and purpose, to enable the understanding of the environment, protection of the joint force, and mitigation of risks posed by CBRN threats and hazards. This approach denies adversary effects and increases total force resilience. From an acquisition standpoint, ILD recognizes we are never going to build the perfect sensor, personal protective gear, or vaccine. Instead, the CBDP will seek to combine capabilities within and across the different portfolios to effectively buy down risk and get capabilities into the warfighters' hands.

The new MCM approach also cuts across different portfolios. Faced with too many potential threats to continue a “one bug, one drug” approach, the new MCM approach pursues a two-pronged approach aimed at removing or reducing agents' impact. The first prong seek broad-spectrum and threat agnostic capabilities that enable the Joint Force to fight through an unknown or novel agents. This includes threat-agnostic diagnostics as well as broad-spectrum MCMs that target classes of threats and host-directed MCMs that reduce transmission or severity, address symptoms, and allow for the warfighter to return to service more quickly. The second part of the MCM approach is building rapid response capabilities to rapidly develop and delivery narrow-spectrum MCM once a threat has been characterized.

During the competition phase, our day-to-day focus is on developing broad-spectrum MCMs and speeding up our rapid response platforms. For the latter, the competition phase focuses on developing different types of MCMs (mRNA vaccines, repurposed therapeutics, monoclonal antibodies) to improve our manufacturing processes and learning lessons to speed up future response times. Expanding the library of MCMs in the shelf will enable the CBDP to tweak them to address new but similar threats. Additionally, the CBDP is focused on manufacturing optimization and investing in key enabling technologies (including artificial intelligence/machine learning) to accelerate drug discovery, development, and delivery. ENBD funding is crucial to implementing this new MCM approach, including (but not limited to) through the following programs:

- Accelerated Antibodies,
- Vaccine Acceleration by Modular Progression,
- Countering Emerging Threats Rapid Acquisition and Investigation of Drugs for Repurposing,
- Discovery of MCMs Against Novel Entities, and
- Generative Unconstrained Intelligent Drug Engineering.

ENBD funding also modernizes the current operating paradigms including novel sciences and technologies that drive the United States' dynamic private industry. These additional resources will allow the Department to prioritize and support Joint All-Domain Operations and



integrate the Department's biodefense capabilities with interagency investments. Ultimately, this approach will posture the Department to quickly detect and identify emerging biological threats, reduce risks, and prepare for, respond to, and recover from any type of biological threat-based event.

The enhanced investment levels are focused on advancing five key overarching goals aligned to the NBS, BPR, and 2021 American Pandemic Preparedness Plan:

(1) Enhancing Rapid Response Vaccine Platforms Research and Manufacturing

- *Establish key partnerships and exploit successful vaccine platforms, prototypes, and manufacturing capabilities*
- *Enhance the discovery or development of rapid response vaccine platforms research and manufacturing*

(2) Expediting Surveillance and Pathogen Characterization (including diagnostics and detection)

- *Enhance the flow of surveillance data and samples through a network of laboratories*
- *Expands deployable analytical capabilities, wearable technologies and leverages data analysis and modeling with machine learning/artificial intelligence*

(3) Expanding Protection & Hazard Mitigation Capabilities

- *Accelerates prototyping and delivery of low-burden biothreat respiratory protection, collective protection, isolation systems, and improved disinfection*

(4) Evolving Therapeutics Research and Development

- *Focused on delivering or making available Food and Drug Administration (FDA) approved MCM products or tests to the warfighter that can either be immediately deployed in far-forward settings or included with the warfighter prior to deployment*

(5) Enhancing Biodefense Workforce and Biosafety

- *Adds critical technical expertise enhancing the CBDP biodefense and biosecurity activities and supply chain resiliency*

FY 2025 Budget Request Highlights

This budget implements an integrated portfolio approach reducing risk in research, development, and acquisition and quickly delivering capabilities into the warfighter's hands. The increased resources for this portfolio are in direct support of the 2023 BPR. FY 2025 funding continues investments in Service and Combatant Commander priorities, to include focused efforts providing rapid capability for the Special Operations Forces.



RDT&E

The FY 2025 RDT&E budget request of \$1,230.6M supports key efforts including:

- \$281.1M supporting enhanced biodefense and pandemic preparedness efforts. Efforts are focused on accelerating characterization and situational awareness of emerging biothreats, optimizing MCM manufacturing, and accelerating delivery of improved protection from and mitigation of biothreats, including rapid repurposing of available therapeutics and development of new vaccines.
- \$492.5M to implement the new MCM approach.
- \$281.5M supporting RDT&E efforts advancing environmental detection and medical diagnostic capabilities providing enhanced situational awareness of traditional and non-traditional chemical hazards, as well as traditional and emerging biological hazards.
- \$103.8M supporting RDT&E for personnel protection, respiratory and ocular protection, collective protection, and hazard mitigation capabilities against traditional and non-traditional CB agents.
- \$100.6M supporting integrated early warning, warning & reporting, decision support, and modeling and simulation capabilities.
- \$76.4M supporting basic research and threat agent sciences, advancing fundamental knowledge and experimental research in the life and physical sciences.
- \$47.0M supporting improved preparedness and response to include dedicated efforts improving capabilities to address potential future pandemic and biological incidents.
- \$41.2M supporting concepts development, technology demonstrations, enhanced capability demonstrations, and Special Operations Forces (SOF) Rapid Capability Development and Deployment to enhance military operational capabilities with technologies and equipment. Resources a dedicated innovation fund to rapidly address emerging threats.



Procurement

The FY 2025 Procurement budget request of \$426.0M supports key efforts including:

- \$141.3M to procure improved air crew and ground forces protective ensembles to increase protection against advanced chemical and biological threats and decrease physiological burden. Includes non-medical protective equipment allowing the Operational Force to maintain a 90-day contingency supply.
- \$74.1M to procure CBRN Dismounted Reconnaissance Sets, Kits, and Outfits which allows warfighters to perform CBRN dismounted reconnaissance, surveillance, and site assessment of WMD suspect areas not accessible by traditional CBRN reconnaissance-mounted platforms.
- \$67.1M to procure near-term urgent CBD requirements providing SOF critical life-saving protective capabilities and systems to safely operate in a CB-contaminated environment.
- \$45.7M to procure novel chemical detection equipment including the Multi-phase Chemical Agent Detector, Compact Vapor Chemical Agent Detector, and the Solid Liquid Adaptor for the Joint Chemical Agent Detector. Capabilities will provide portable chemical detection capabilities supporting solid, liquid, and vapor sampling and detection to alert general and specialized units to an unsafe environment without further impacting mission requirements.
- \$31.6M to procure Enhanced Maritime Biological Detectors and Joint Biological Tactical Detection Systems (including the Joint Handheld Biological Identifier) providing improved detection and identification capabilities with decreased operational costs and increased reliability for detection of biological agents.
- \$15.3M to procure the Advanced Anticonvulsant System providing a midazolam autoinjector for treatment against nerve induced seizures supporting operational readiness.

Summary

Political, Military, and Department leaders have rightly concluded that CB agents increasingly threaten the Joint Force's ability to achieve its NDS objectives and defend the nation. The CBDP is transforming itself to better align to strategic guidance, support interagency and intra-Department efforts, and provide Joint Force with the capabilities it needs to fight and win against the current and future threat. The CBDP \$1,656.7M request focuses on key efforts across the Understand, Protect, Mitigate and Enable portfolios to provide these necessary CB defense capabilities. Amid this new technological revolution, the United States must continue modernizing our defensive capabilities and reinvest in the Department's scientific and technological edge.



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Department of Defense
FY 2025 President's Budget
Exhibit R-1 FY 2025 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Mar 2024

<u>Appropriation</u>	<u>FY 2023 Actuals</u>	<u>FY 2024 PB Request with CR Adjustments*</u>	<u>FY 2025 Request</u>
Research, Development, Test and Evaluation, Defense-Wide	1,256,712	1,398,625	1,230,640
Total Research, Development, Test, & Evaluation	1,256,712	1,398,625	1,230,640

*A full-year FY 2024 appropriation for this account was not enacted at the time the budget was prepared; account is operating under the Further Additional Continuing Appropriations and Other Extensions Act, 2024 (Public Law 118-35). The amounts included for FY 2024 reflect the annualized level provided by the continuing resolution.

Department of Defense
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Mar 2024

	FY 2023 Actuals	FY 2024 PB Request with CR Adjustments'	FY 2025 Request
<u>Summary Recap of Budget Activities</u>			
Basic Research	38,999	36,235	37,812
Applied Research	240,016	240,610	224,777
Advanced Technology Development	221,213	267,073	230,051
Advanced Component Development & Prototypes	246,531	316,853	304,374
System Development & Demonstration	294,774	382,977	270,265
Management Support	150,951	74,382	79,263
Operational Systems Development	64,228	80,495	84,098
Total Research, Development, Test, & Evaluation	1,256,712	1,398,625	1,230,640
<u>Summary Recap of FYDP Programs</u>			
Research and Development	1,256,712	1,398,625	1,230,640
Total Research, Development, Test, & Evaluation	1,256,712	1,398,625	1,230,640

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Defense-Wide
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Defense-Wide
FY 2025 President's Budget
Exhibit R-1 FY 2025 President's Budget
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(Dollars in Thousands)

Mar 2024

<u>Appropriation</u>	FY 2023 Actuals	FY 2024 PB Request with CR Adjustments	FY 2025 Request
Chemical and Biological Defense Program	1,256,712	1,398,625	1,230,640
Total Research, Development, Test and Evaluation, Defense-Wide	1,256,712	1,398,625	1,230,640

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Defense-Wide
 FY 2025 President's Budget
 Exhibit R-1 FY 2025 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

Mar 2024

Appropriation: 0400D Research, Development, Test and Evaluation, Defense-Wide

Line No	Program Element Number	Item	Act	Sec	FY 2023	FY 2024 PB	FY 2025
					Actuals	Request with CR Adjustments*	Request
8	0601384BP	Chemical and Biological Defense Program	01	U	38,999	36,235	37,812
	Basic Research				38,999	36,235	37,812
17	0602384BP	Chemical and Biological Defense Program	02	U	240,016	240,610	224,777
	Applied Research				240,016	240,610	224,777
		Chemical and Biological Defense Program - Advanced Development					
50	0603384BP	Development	03	U	221,213	267,073	230,051
	Advanced Technology Development				221,213	267,073	230,051
80	0603884BP	Chemical and Biological Defense Program - Dem/Val	04	U	246,531	316,853	304,374
	Advanced Component Development & Prototypes				246,531	316,853	304,374
137	0604384BP	Chemical and Biological Defense Program - EMD	05	U	294,774	382,977	270,265
	System Development & Demonstration				294,774	382,977	270,265
170	0605384BP	Chemical and Biological Defense Program	06	U	124,464	74,382	79,263
171	0605502BP	Small Business Innovative Research - Chemical Biological Def	06	U	26,487		
	Management Support				150,951	74,382	79,263
		Chemical and Biological Defense (Operational Systems Development)					
217	0607384BP	Development)	07	U	64,228	80,495	84,098
	Operational Systems Development				64,228	80,495	84,098
Total Research, Development, Test and Evaluation, Defense-Wide					1,256,712	1,398,625	1,230,640

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Chemical and Biological Defense Program
 FY 2025 President's Budget
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 (Dollars in Thousands)

Appropriation: 0400D Research, Development, Test and Evaluation, Defense-Wide

Line No	Program Element Number	Item	Act	Sec	FY 2023	FY 2024 PB	FY 2025
					Actuals	Request with CR Adjustments	Request
8	0601384BP	Chemical and Biological Defense Program	01	U	38,999	36,235	37,812
	Basic Research				38,999	36,235	37,812
17	0602384BP	Chemical and Biological Defense Program	02	U	240,016	240,610	224,777
	Applied Research				240,016	240,610	224,777
		Chemical and Biological Defense Program - Advanced Development					
50	0603384BP	Development	03	U	221,213	267,073	230,051
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80	0603884BP	Chemical and Biological Defense Program - Dem/Val	04	U	246,531	316,853	304,374
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Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

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Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

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Chemical and Biological Defense Program • Budget Estimates FY 2025 • RDT&E Program

Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

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Chemical and Biological Defense Program • Budget Estimates FY 2025 • RDT&E Program

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> / BA 1: <i>Basic Research</i>	R-1 Program Element (Number/Name) PE 0601384BP / <i>Chemical and Biological Defense Program</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	0.000	38.999	36.235	37.812	0.000	37.812	43.264	49.270	50.188	50.188	Continuing	Continuing
LF1: <i>Life Sciences (Basic Research)</i>	-	18.485	20.335	21.125	0.000	21.125	26.206	29.030	29.575	29.575	Continuing	Continuing
PS1: <i>Physical Sciences (Basic Research)</i>	-	20.514	15.900	16.687	0.000	16.687	17.058	20.240	20.613	20.613	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) resources basic research efforts directed at promoting theoretical and experimental research in Life and Physical Sciences. These efforts are part of an integrated portfolio addressing emerging chemical and biological (CB) threats, and are a key enabler supporting the Understand, Protect, and Mitigate portfolios. Basic research focuses on pursuing fundamental science to advance a greater understanding of threats, improve situational awareness of emerging threats, and support transformative research in emerging research areas that can potentially foster paradigm shifts in the CB defense research arena to a rapid response capability.

Individual projects include:

- Life Sciences (LF1): fundamental efforts to understand living systems' response to biological or chemical agents to support detection, diagnostics, protection, and medical treatment (e.g., microbiology, biochemistry, pathogenic mechanisms, cell and molecular biology, immunology, nanoscale science, and information science).
- Physical Sciences (PS1): fundamental scientific phenomena to support the investigation of physical and chemical properties and interactions for enhanced functionalities important to detection, diagnostics, protection, and decontamination (e.g., chemistry, physics, materials science, nanotechnologies, nanoscale science, and environmental science).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> / BA 1: <i>Basic Research</i>	PE 0601384BP / <i>Chemical and Biological Defense Program</i>

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	39.734	36.235	37.812	-	37.812
Current President's Budget	38.999	36.235	37.812	-	37.812
Total Adjustments	-0.735	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.735	-			
• Other Adjustments	-	-	0.000	-	0.000

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: PS1: *Physical Sciences (Basic Research)*

Congressional Add: *Waterless solutions for decontamination*

	FY 2023	FY 2024
Congressional Add Subtotals for Project: PS1	5.000	-
Congressional Add Totals for all Projects	5.000	-

Change Summary Explanation

Funding: FY 2023 (-\$0.735 Million): Transfer of funding to support Small Business Innovative Research/Small Business Technology Transfer efforts.

Schedule: N/A

Technical: N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program										Date: March 2024		
Appropriation/Budget Activity 0400 / 1					R-1 Program Element (Number/Name) PE 0601384BP / <i>Chemical and Biological Defense Program</i>				Project (Number/Name) LF1 / <i>Life Sciences (Basic Research)</i>			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
LF1: <i>Life Sciences (Basic Research)</i>	-	18.485	20.335	21.125	0.000	21.125	26.206	29.030	29.575	29.575	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Project (LF1) focuses on fundamental efforts to understand living systems' responses to biological or chemical agents to support detection, protection, diagnostics, and medical treatment. Research focuses on studying factors that influence the behavior of chemicals, toxins, and pathogens in relation to the host or target. Understanding host/agent interactions can drive the exploration of novel approaches to detect, diagnose or protect against threats. Research also focuses on medical countermeasures for improved efficacy against a wide array of current and future threat agents. This project is a key enabler supporting the Understand, Protect, and Mitigate portfolios.

Individual efforts in this Project include:

- Research to understand threats focused on illuminating pathogen/host interactions, innate and targeted immune responses, and drug/pathogen interactions that enable the development of new medical countermeasures and diagnostic platforms.
- Research in advancing countermeasures to understand underpinnings necessary to advance translational animal models for human disease, to explore artificial intelligence/machine learning (AI/ML) and novel structural biology approaches for enhancing rapid medical defense capabilities, to seek platform technologies with broad flexibility for drug development, and to improve protective factors for increasing therapeutic efficacy.

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

	FY 2023	FY 2024	FY 2025
Title: 1) Life Sciences	18.485	20.335	21.125
Description: Focuses on fundamental efforts to understand living systems' responses to biological agents, providing knowledge and capabilities that support medical countermeasure development for prophylaxis and therapeutic interventions.			
FY 2024 Plans:			
- Organoid Technology - Continue to investigate cellular toxicity and metabolic profiles in organoids and evaluate relevance to animal model data. Determine primary metabolite production in mouse cells.			
- Pathogenesis - Continue to assess peptide protection against multiple subtype viral insult in mouse model. Evaluate the impact of transcriptional changes on neuronal cell death in vitro.			
- Structural biology - Continue investigating efficacy of inhibitor molecules in mouse models. Characterize resistance to anti-alphavirus peptide to describe mechanism of action. Generate experimental data for testing of small molecules and validate machine-learning predictions.			

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 1	R-1 Program Element (Number/Name) PE 0601384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) LF1 / <i>Life Sciences (Basic Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>- Artificial Intelligence (AI) for Early Drug Discovery - Develop active learning strategy to guide selection and molecular screening. Continue to evaluate model response to changing conditions and extend forecasting to additional diseases. Use AI model to combine small molecule and therapeutic Monoclonal antibodies against bacterial targets and screen for efficacy.</p> <p>- Biomarkers - Begin iterative improvement of machine-learning model to predict cellular binding site targets. Integrate machine-learning architecture and sampling for iterative experimental design.</p> <p>- Inflammation Mapping - Begin testing of novel medical countermeasures in an in vitro nerve model. Begin validation of select molecules and demonstrate molecular design against in vitro data.</p> <p>FY 2025 Plans:</p> <p>- Organoid Technology – Continue investigating cellular toxicity and metabolic profiles in organoids and evaluate relevance to animal model data. Determine inflammatory signaling in rat models that are relevant to human cells.</p> <p>- Pathogenesis – Evaluate small molecule inhibitor on viral gene expression in vivo. Evaluate how hemorrhagic fever viruses alter biological activity of host cells.</p> <p>- Structural biology – Investigate efficacy of inhibitor molecule in an organ-on-chip platform. Begin training models to predict structural features for small molecules based on experimental data.</p> <p>- Artificial Intelligence (AI) for Early Drug Discovery – Characterize promising protein binding candidates based on model predictions. Validate predictive models ability to identify specific metabolic properties to enhance host immunity. Apply multi-learning prediction to molecular binding to expand general application drug design.</p> <p>- Biomarkers – Evaluation of machine-learning model to predict strain specific binding targets. Complete machine-learning architecture and sampling for iterative experimental design and begin validation of amino acid sequence capture.</p> <p>- Inflammation Mapping – Evaluate inflammatory pathways activated by chemical exposure using multiple characterization techniques. Validate potential medical countermeasure candidates in an in vitro nerve model.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to additional investment in Artificial Intelligence (AI) for Early Drug Discovery on a new topic in data science focusing on data standardization, FDA regulatory considerations, and machine learning (ML) specifications.</p>			
Accomplishments/Planned Programs Subtotals	18.485	20.335	21.125

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• UN2: <i>Understand (Applied Research)</i>	106.499	119.182	97.205	-	97.205	107.842	107.193	107.193	107.193	Continuing	Continuing
• PT2: <i>Protect (Applied Research)</i>	66.409	55.057	49.328	-	49.328	54.817	59.861	58.452	58.452	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 1	R-1 Program Element (Number/Name) PE 0601384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) LF1 / <i>Life Sciences (Basic Research)</i>

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• MT2: <i>Mitigate (Applied Research)</i>	67.108	66.371	55.744	-	55.744	55.426	66.420	68.824	68.824	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 1	R-1 Program Element (Number/Name) PE 0601384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) PS1 / <i>Physical Sciences (Basic Research)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To	Total
											Complete	Cost
PS1: <i>Physical Sciences (Basic Research)</i>	-	20.514	15.900	16.687	0.000	16.687	17.058	20.240	20.613	20.613	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Project (PS1) advances fundamental scientific knowledge in physical science areas that include chemistry, physics, materials science, environmental science, and nanotechnology that could potentially lead to transformational CB defensive capabilities enhancing warfighter performance and safety. This project is a key enabler supporting the Understand, Protect, and Mitigate portfolios.

Individual efforts in this Project include:

- Innovative materials focuses on understanding the physics, physical properties, fabrication pathways, and characterization methods related to material classes that would enable novel, advanced capabilities for decontamination, protection and detection of chemical and biological (CB) threats.
- Novel sensing research to improve the understanding of elementary physics or fundamental materials properties to construct novel platforms and approaches for detection, diagnostics, hazard mitigation and protection.
- Modeling sciences research to explore the potential of Artificial Intelligence/Machine Learning (AI/ML) computational approaches for hazard mitigation, stand-off physio-monitoring, rational and rapid design of medical countermeasures, and novel materials with enhanced efficacy.

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

	FY 2023	FY 2024	FY 2025
Title: 1) Physical Sciences	15.514	15.900	16.687
Description: Focuses on fundamental scientific phenomena including chemistry, physics, materials science, environmental science, and nanotechnology.			
FY 2024 Plans:			
-Multifunctional Materials - Begin development of peptoid-based ultrathin membranes with customized reactivation sites. Establish design, methodology and assembly protocols for fusion tag system and surface binding functionality at various densities.			
-Design Rules for Materials - Complete characterization and testing of bi-functional materials. Develop synthetic process for design of metal organic framework with high adsorption capacity and selectivity.			
-Biomimetic - Investigate scalability of protein designs and test membrane-protein against simulants. Begin synthesis of polymer coating to nylons and characterization of mechanical properties.			
-Photocatalysis - Characterize individual components of hybrid catalysts and their interactions with simulants, in light and dark. Continue studies of aerogels using simulants and model energetic effects.			

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 1	R-1 Program Element (Number/Name) PE 0601384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) PS1 / <i>Physical Sciences (Basic Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
-Novel Destruction - Investigate binding specificity of enzymes for catalytic activity and improved sensitivity. Experiment with photochemical activity and determine oxidation capacity of materials. FY 2025 Plans: - Multifunctional Materials – Demonstrate surface agnostic coating with selective moisture vapor transport. Optimize and characterize nano-sheet degradation of simulants with high throughput assay. - Design Rules for Materials – Begin testing feasibility of scaling 2D film deposition methods and operational limits. Begin mechanistic studies to evaluate structural characters and reactivity of fibers with impregnated metal organic framework composites. Utilize microscopy to evaluate elasticity of graphene fibers coated onto garment surfaces. - Biomimetic – Investigate scalability of protein designs and test membrane-protein against simulants. - Photocatalysis – Synthesize photo-reactor and begin characterization of chemical reactivity. Perform studies of simulants and modeling energetic effects. Demonstrate sustained degradation activity in the dark. - Artificial Intelligence (AI) for Materials Discovery – Investigate computational approaches for material discovery, design, and parameters for catalytic and reactive decomposition of chemical threats. FY 2024 to FY 2025 Increase/Decrease Statement: Increase in funding will apply to a new program in Artificial Intelligence (AI) for Material Discovery.			
Accomplishments/Planned Programs Subtotals	15.514	15.900	16.687

	FY 2023	FY 2024
Congressional Add: Waterless solutions for decontamination FY 2023 Accomplishments: - Identified and validated spectroscopic and other analytical methods for quality assessment and developed manufacturing scale-up and supply chain management plans. Perform Design of Experiments to test novel oxidant and type and source of zirconium hydroxide impact on formulation physical properties and decontamination effectiveness and assess potential manufacturing equipment and processes.	5.000	-
Congressional Adds Subtotals	5.000	-

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• UN2: <i>Understand (Applied Research)</i>	106.499	119.182	97.205	-	97.205	107.842	107.193	107.193	107.193	Continuing	Continuing
• PT2: <i>Protect (Applied Research)</i>	66.409	55.057	49.328	-	49.328	54.817	59.861	58.452	58.452	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 1	R-1 Program Element (Number/Name) PE 0601384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) PS1 / <i>Physical Sciences (Basic Research)</i>

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• MT2: <i>Mitigate (Applied Research)</i>	67.108	66.371	55.744	-	55.744	55.426	66.420	68.824	68.824	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 2: Applied Research</i>	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	0.000	240.016	240.610	224.777	0.000	224.777	240.585	255.974	256.969	256.969	Continuing	Continuing
UN2: <i>Understand (Applied Research)</i>	-	106.499	119.182	97.205	0.000	97.205	107.842	107.193	107.193	107.193	Continuing	Continuing
PT2: <i>Protect (Applied Research)</i>	-	66.409	55.057	49.328	0.000	49.328	54.817	59.861	58.452	58.452	Continuing	Continuing
MT2: <i>Mitigate (Applied Research)</i>	-	67.108	66.371	55.744	0.000	55.744	55.426	66.420	68.824	68.824	Continuing	Continuing
EN2: <i>Enabling Investments (Applied Research)</i>	-	0.000	0.000	22.500	0.000	22.500	22.500	22.500	22.500	22.500	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) resources Applied Research across the Understand, Protect, Mitigate, and Enabling Investments portfolios. Chemical and Biological Defense Program (CBDP) investments provide an integrated, layered capability to enable combating weapons of mass destruction (CWMD) missions ranging from combat operations to Department of Defense (DoD) support to domestic incident prevention and response. The Projects in this PE support applied research in the areas of physical technologies, non-traditional agent (NTA) medical and physical defense technologies, and medical technologies. These investments are a key component to sustaining the core physical and intellectual chemical and biological (CB) defense infrastructure of the Department and support the delivery of capabilities, assessments of emerging threats, and the ability to surge unique capabilities in response to a CB event. FY25 funding accelerates characterization and situational awareness of emerging biothreats and accelerates delivery of improved protection from and mitigation of biothreats, including rapid repurposing of available therapeutics and development of new vaccines.

Individual Projects include:

- Understand (UN2): Development of next-generation chemical and biological hazard detectors, point-of-need diagnostic devices, next-generation diagnostics systems, decision support tools, algorithms, and software.
- Protect (PT2): Development of antidotes, disease surveillance medical technologies, vaccines, nerve agent pretreatments, and respiratory and ocular protection. Improvement of protection technologies and biological weapon/agent surveillance.
- Mitigate (MT2): Improvement of CB defense material, including contamination avoidance and decontamination. Development of drug treatments, therapeutics, patient decontamination technologies, and individual protection advancements.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 2: Applied Research</i>	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>
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- Enabling Investments (EN2): Characterization of alternate animal and microphysiological models that mimic the human response to biological and chemical agents. Development and addition of physical and intellectual infrastructure capabilities to conduct defensive classified DoD work in laboratories. Execution of a robust emerging biothreat portfolio to enable readiness for future incidents.

CBDP Science and Technology (S&T) Applied Research Performers: U.S. Army Combat Capabilities Development Command Chemical Biological Center (DEVCOM CBC), United States Army Medical Research Institute of Infectious Diseases (USAMRIID), United States Army Medical Research Institute of Chemical Defense (USAMRICD), United States Army Natick Soldier Systems Center, Naval Research Lab (NRL), Air Force Research Lab (AFRL), and Department of Energy Laboratories such as Pacific Northwest National Laboratory (PNNL), among others. The intent is to maintain strategic partnerships with the DoD Service communities & the interagency for mission success across the enterprise through collaborative planning and programming maintaining budget assurance.

Efforts under this PE will transition to or will provide risk reduction for Advanced Technology Development (PE 0603384BP), Advanced Component Development and Prototypes (PE 0603884BP), and System Development and Demonstration (PE 0604384BP) activities.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	244.364	240.610	231.758	-	231.758
Current President's Budget	240.016	240.610	224.777	-	224.777
Total Adjustments	-4.348	0.000	-6.981	-	-6.981
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-3.721	-			
• Other Adjustments	-0.627	-	-6.981	-	-6.981

Change Summary Explanation

Funding: FY 2023 (-\$3.721 Million): Transfer of funding to support Small Business Innovative Research/Small Business Technology Transfer efforts.

FY 2023 (-\$0.627 Million): CBDP funding transferred to Under Secretary of Defense (Acquisition & Sustainment) high priority efforts.

FY 2025 (-\$6.981 Million): Applied Research adjustment to support DoD high priority efforts.

Schedule: N/A

Technical: N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) UN2 / <i>Understand (Applied Research)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
UN2: <i>Understand (Applied Research)</i>	-	106.499	119.182	97.205	0.000	97.205	107.842	107.193	107.193	107.193	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Understand Applied Research Project provides the Joint Force with the abilities to detect, identify, and characterize chemical and biological (CB) threat agents. This includes classification and/or identification of the threat and potentially the amount of chemical, biological, radiological, and nuclear (CBRN) hazards in all physical states. Efforts provide the ability to characterize the CBRN hazard to a commander and develop a clear understanding of the current and predicted CBRN situation; collect, query, and assimilate information from sensors, intelligence and medical communities, etc., in near real time to inform decisions; and provide actual and potential impacts of CBRN hazards.

Thrust Areas included in this Project are:

- (1) Chemical, Biological, Radiological, and Nuclear (CBRN) Battlespace Sensing, Alerting & Response
- (2) CBRN Decision Aids
- (3) CBRN Situational Awareness
- (4) Chemical Diagnostics
- (5) Diagnostic Building Blocks
- (6) Emerging Threats
- (7) Operational Diagnostics
- (8) Employment Characterization
- (9) Environmental Response
- (10) First Look
- (11) Host Response
- (12) Distributed CB Reconnaissance
- (13) Emerging and Enhanced Biothreat Sensing
- (14) Operational Biological Sensing
- (15) Expeditionary Analytical Toolkit (ExAnT)
- (16) Modernized and Enhanced Chemical Sensing
- (17) Operational Chemical Sensing
- (18) Unattended Perimeter Monitoring
- (19) Unconventional Detection Modalities
- (20) Technical Surprise

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) UN2 / <i>Understand (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
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<p>Title: 1) CBRN Battlespace Sensing, Alerting, and Response</p> <p>Description: The CBDP is trying to improve detection capabilities while reducing the burden on the warfighter. Wearable technologies will be a significant part of this effort, acting as the initial “check engine” light for the warfighter without adding any equipment requirements (since the Joint Force will already be equipped with wearables). This thrust area invests in breakthrough technology to improve wearable device-based early warning capabilities by conducting data collection trials to support algorithm development; leveraging artificial intelligence (AI) to identify key indicators, combinations of indicators, and sensing modalities; and exploring alternative methods for non-invasive early warning of chemical and biological (CB) exposure. This will reduce false alarms and strengthen predictions of potential CB exposure—including emerging threats.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue wearable device-based non-invasive algorithm enhancements for pre-symptomatic indication of chemical or biological exposure. - Continue to develop predictive algorithms and analytic tools utilizing artificial intelligence (AI) and ML techniques to allow for rapid response to emerging threats and detection of genetically engineered pathogens. - Continue development of AI-based drug discovery algorithms for Emerging Threats. - Continue the advancement of standoff physiological monitoring capabilities to include efforts that increase the standoff distance at which physiological data can be captured. - Continue work with multi-organ chip system to characterize the effects of biological threat agents on several different cultured human tissues and conduct multi-omics analysis (e.g. proteomics, metabolomics) to identify potential biomarkers associated with physiological responses from exposure to high, mid, and low multiplicity of infection. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue wearable device-based non-invasive algorithm enhancements for pre-symptomatic indication of chemical or biological (CB) exposure. - Continue to develop predictive algorithms and analytic tools utilizing artificial intelligence (AI) and machine learning (ML) techniques to allow for rapid response to emerging threats and early warning of exposure to genetically engineered pathogens. - Continue to advance standoff physiological monitoring capabilities (e.g., detecting fever from a distance and/or within a given population) to include efforts that increase the standoff distance at which physiological data can be captured and analyzed. - Continue work with multi-organ chip system to characterize the effects of CB threat agents on different parts of the human body (e.g., lung, brain, and skin), which will improve the accuracy and effectiveness of wearable-based early warning algorithms by helping us better understand how CB threats impact with the human body (biomarkers). <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>	7.270	7.250	4.600
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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) UN2 / <i>Understand (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Decrease due to delay in development of the Agile Medical Countermeasure Decision Support Tool prototype.			
<p>Title: 2) CBRN Decision Aids</p> <p>Description: In order to unencumber the warfighter at the tactical edge, efforts continue to develop and transition science & technology for Chemical, Biological, Radiological and Nuclear (CBRN) Decision Aids on End User Devices (EUDs) in both connected and disconnected operations by leveraging automation, reducing the burden experienced by the warfighter, and providing accurate, actionable information.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue development of warning and reporting decision aids for tactical users leveraging the compute resources resident on EUDs. - Continue development of Augmented Reality (AR) based technologies to incorporate CB threat situational awareness in EUDs. -Initiate the development of tools that support the interoperability, integration, and automation of decision aids to further reduce the need for manual user inputs. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue development of warning and reporting decision aids for tactical users leveraging the compute resources resident on End User Devices (EUDs). - Continue development of Augmented Reality (AR) based technologies to incorporate Chemical and Biological (CB) threat situational awareness in EUDs. - Enhance tools that support the interoperability, integration, and automation of decision aids to further reduce the need for manual user inputs. <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p> <p>Decrease due to developmental efforts maturing and transitioning to the Project UN3 CBRN Decision Aids thrust area.</p>	4.296	3.250	3.100
<p>Title: 3) CBRN Situational Awareness</p> <p>Description: Understanding how various chemical and biological (CB) threats—both traditional and emerging—interact with the environment and impact the human body is essential for the Joint Force to operate effectively in a CB-contested environment. Leveraging data from other Science and Technology (S&T) programs, Chemical, Biological, Radiological, and Nuclear (CBRN) Situational Awareness creates forecasting models and hazard assessments to provide warfighters with optimal situational awareness in these environments. This thrust area is also exploiting advances in eXtended Reality (XR), Virtual Reality (VR) and Augmented Reality (AR) to provide warfighters with an immersive environment for realistic training and mission rehearsal opportunities.</p> <p>FY 2024 Plans:</p>	10.712	15.880	17.180

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<ul style="list-style-type: none"> - Continue to develop Machine Learning (ML) algorithms for disease prediction and forecasting for mobile platforms. - Continue to enhance CB situational awareness capabilities for integration into Heads up Display (HUD) technologies. - Continue efforts to expand emerging threat hazard modeling, leveraging TAS data to ensure the Joint Force is able to characterize new CB hazards and mitigate their effects on mission success. - Continue the development of VR-based synthetic environments in order to provide a CBRN-specific cognitive, collective, multi-echelon training and mission readiness capability. - Continue the development of in-host modeling capabilities leveraging ML and Artificial Intelligence (AI) techniques to characterize predictive biomarkers of chemical and biological exposure prior to onset of symptoms. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Enhance machine learning (ML) algorithms for disease prediction and forecasting on various platforms (e.g., mobile/handheld, web-based, standalone). - Continue to enhance and expand chemical and biological (CB) situational awareness capabilities for integration into Heads up Display (HUD) technologies. - Expand emerging threat hazard models and assessment capabilities, leveraging experimental data to ensure the Joint Force is able to characterize new CB hazards and mitigate their effects on mission success. - Enhance and improve virtual reality (VR)-based synthetic environments through improved terrain transport and dispersion and infectious disease modeling to provide a Chemical, Biological, Radiological, and Nuclear (CBRN)-specific training and mission readiness capability. - Continue to leverage ML and artificial intelligence (AI) to develop modeling capabilities focused on the human response (e.g., biomarkers) to CB agent exposure, with a focus on characterizing predictive biomarkers that are expressed in the body prior to onset of symptoms and warfighter susceptibility. - Begin to explore next generation hazard modeling technologies (e.g., quicker run times, improved accuracy, dynamic visualization, course of action analysis) to increase CBRN situational awareness and further mitigate the effects of CB hazards on mission success. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred from another thrust area. Increase due to transfer of the Project UN3 CBRN Situational Awareness thrust area efforts focused on development of modeling capabilities utilizing Artificial Intelligence and Machine Learning and begin next generation hazard modeling capability development.</p>			
<p>Title: 4) Chemical Diagnostics</p> <p>Description: Provide innovative and integrated capabilities to the warfighter that are able to diagnose threats across the chemical spectrum. Enhance force protection by investing in diagnostics for exposure to traditional and nontraditional Chemical Warfare</p>	0.693	0.698	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Agents (CWAs), including pharmaceutical based agents (PBAs). Leverage the development of a chemical diagnostic that monitors blood, indicating whether a warfighter has been exposed to nerve agents within minutes.</p> <p>FY 2024 Plans: - Continue the development of integrated capabilities that address portable ultra-low detection of opioids to the Next Generation Diagnostic System Increment 2 Chemical Diagnostic (NGDS 2 CHEMDX) device that will allow for differentiating between classes of CWAs, resulting in more informed treatment decisions.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred to another thrust area. Funding moved to the Operational Diagnostics thrust area for better project alignment.</p>			
<p>Title: 5) Operational Diagnostics</p> <p>Description: Rapid diagnostics enables the use of MCMs to save warfighters' lives and minimize the impact chemical and biological threats have on Joint Force operations. Operational Diagnostics is investing in far-forward, point of care medical diagnostics to support the Joint Force's concepts of operations in priority theaters. It is also focused on producing platforms that can test for a wide variety of chemical and biological threats, including new and emerging ones.</p> <p>FY 2025 Plans: - Continue the development of integrated capabilities that address portable ultra-low detection of opioids to the advanced development Program of Record (POR) for Next Generation Diagnostic System Increment 2 Chemical Diagnostic (NGDS 2 CHEMDX) device and begin development of tests for Toxic Industrial Chemicals (TICs), resulting in more informed treatment decisions. - Continue development of diagnostics using novel, minimally invasive testing methods, including breath and the ocular (eye) system to identify biomarkers associated with CB threats and pre-symptomatic and contagious indicators that can be detected using portable diagnostics platforms. - Continue development of Wearable technologies to investigate customizable hardware and algorithms that detect warfighters autonomic- response to biological warfare agents, both natural and unnatural.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred from another thrust area. Minor decrease due to the Chemical Diagnostics thrust area transfer for economic cost adjustments.</p>	-	-	0.689
<p>Title: 6) Diagnostic Building Blocks</p> <p>Description: Develop novel, state of the art capabilities that lay the foundation for modernizing other areas within the diagnostics portfolio. This includes exploiting areas such as synthetic biology and chemistry to develop novel and rapid diagnostics for</p>	2.479	3.839	1.963

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>unknown threat. By leveraging artificial intelligence and machine learning, this thrust area aims to develop tests for new and emerging threats in days instead of weeks. This will allow the Joint Force to fight through initial exposure to novel threats.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue field validation studies for diagnostics prototypes using synthetic binders and evaluate performance against current gold standard diagnostic methods and integrate enzymes to create inexpensive, on-demand, diagnostics with reduced logistical burdens. - Continue efforts to collect the baseline data required for future development of a whole breath diagnostic platform the use of breath as a non-invasive sampling mechanism offers Warfighters little-to-no interruption to mission activities and provides the opportunity for earlier diagnosis/indication of infection or chemical exposure. - Initiate efforts to identify and establish testing methods utilizing low to minimally invasive clinical matrices. Matrices like breath, sweat or interstitial fluid could significantly expand field-forward testing abilities and minimize requirements for trained personnel to collect and administer testing. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue development of diagnostics prototypes using synthetic materials to potentially speed up the development of diagnostics methods. - Integrate enzymes to create modernized on-demand molecular assays (for tests) that are less reliant on supply chain disruptions and enable rapid, field-forward utilization. - Complete investments in breath-based diagnostics by expanding collection of data to establish a baseline of normal, healthy exhaled breath profiles. - Continue development of a portable, low to minimally invasive, rapid whole breath diagnostic platform that offers the warfighter little to no interruption to mission activities and provides the opportunity for earlier diagnosis/indication of infection or chemical exposure. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to the breath-based diagnostics development schedule changes requiring an expanded collection of data to establish a baseline of normal.</p>			
<p>Title: 7) Emerging Threats</p> <p>Description: To address the proliferation of potential CB threats, Emerging Threats invests in technologies that can provide actionable information on various characteristics of novel threats (e.g., bacterial vs viral) even before the threat is known. This works in conjunction with threat-agnostic medical countermeasures to allow the Joint Force to fight through initial exposure to novel threats before they are characterized as part of the new Chemical and Biological Defense Program (CBDP) Medical Countermeasures (MCM) approach.</p>	2.773	2.443	1.275

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Initiate efforts to identify novel platforms that are capable of identifying broad classes of toxins in complex matrices. These platforms will ideally enable the diagnosis of exposure to toxins as well as other biological threats, resulting in a broad-spectrum capability in the hands of the warfighter. - Begin preliminary research efforts to diagnose biological threats. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue to identify novel, field-forward deployable platforms capable of identifying broad classes of biological agents (toxins, viruses) in complex samples (i.e., blood, breathe), resulting in a broad-spectrum capability in the hands of the warfighter. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to development schedule changes for a rapid production pipeline of new high affinity reagents against toxins.</p>			
<p>Title: 8) Diagnostic Building Blocks - Enhanced Biological Defense (ENBD)</p> <p>Description: This effort will focus on Assay Development and Delivery Pipeline, Expand Biological Artificial Intelligence for Diagnostics (BioAID) efforts as well as developing novel, state of the art capabilities that lay the foundation for modernizing other areas within the diagnostics portfolio. This includes exploiting areas such as synthetic biology and chemistry to develop novel and rapid diagnostic tests for utilization in the event of an outbreak of an unknown threat. Invest in efforts that lead to accelerated assay development timelines and optimized test parameters through leveraging artificial intelligence (AI) and machine learning (ML) to allow us to quickly pivot and develop assays for emerging threats and speed up development to days instead of weeks.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue collection & analysis of individual's breath, skin emissions or other minimally invasive testing methods and adapt to possible prototypes which offers Warfighters little-to-no interruption to mission activities and provides the opportunity for earlier diagnosis/indication of infection or chemical exposure. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue collection & analysis of minimally invasive methodologies for rapid threat diagnostics to enable future identification of markers from threat-specific signatures. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to change in thrust area requirement. FY24 funding was used for a baseline study to identify biomarkers from minimally invasive samples (breath, skin). As the baseline study winds down, further development of diagnostics prototypes using breath or skin biomarkers will be done under the Operational Diagnostics thrust area.</p>	6.500	4.100	2.400
<p>Title: 9) Emerging Threats - Enhanced Biological Defense (ENBD)</p>	8.000	5.200	3.100

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: This effort will focus on Novel Non-Invasive Screening and Characterization. It will push beyond the boundaries of the traditional threat list in the field of diagnostics to better prepare for surprise. Development of diagnostic systems that leverage novel approaches to characterize pathogen or host response and can identify the classification of threat (e.g., bacterial vs viral) from an unknown sample. Invest in diagnostic tests that enable the delivery of actionable information, such as administering the appropriate medical countermeasure (e.g. antibiotic, antiviral, vaccine), by a medic or primary care provider greatly improves turnaround time for soldier wellness and return to duty.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue efforts to explore innovative methods to investigate genetically modified threats including pre-symptomatic, host-based biomarkers or synthetic biology approaches. Novel methods will allow for rapid assay fielding potentially cutting development time from months to weeks. - Continue next generation diagnostic platform development to meet the evolving needs of the CBDP enterprise, providing diagnostics that would address detection and identification technology needs with a combined affinity based and molecular platform for emerging pathogens. - Continue effort to predict disease severity to provide agnostic disease screening tool that enhances triage, transport and resource decision making support for the Warfighter in field forward environments. - Continue agnostic biomimetic sensing to explore additional panels of small and large molecular weight toxins with various modes of activity, and tested in both clinical and aerosol sample matrices to include environmental background. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue development of a comprehensive diagnostics platform that can be administered before or during medical transport that integrates human biomarkers, physiological data, and machine learning to predict disease severity before life-threatening symptoms develop. - Continue the development of agnostic biomimetic sensing techniques to combat emerging and unknown threats from diverse origins (e.g. toxins), and test in both clinical and aerosol sample matrices to include environmental background. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to change in thrust area requirement. FY25 funding will develop next generation diagnostic platform technology under the Operational Diagnostic thrust area.</p>			
<p>Title: 10) Unconventional Detection Modalities - Enhanced Biological Defense (ENBD)</p> <p>Description: Develop disruptive technologies to identify unknown or emerging threats and develop sensors that can operate in complex threat environments with high fidelity. This thrust area supports others as appropriate to the Joint Force mission needs (e.g., expeditionary, perimeter defense, or unmanned reconnaissance).</p>	2.000	1.000	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue Assays on Demand (AoD) for emerging biological threat detection. AoD will allow for real time assay manufacturing reducing supply chain constraints typically seen in currently fielded systems. <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p> <p>The Assays on Demand (AoD) program has matured from Project UN2 to Project UN3 Emerging and Enhanced Biothreat Sensing.</p>			
<p>Title: 11) Employment Characterization</p> <p>Description: How Chemical-Biological (CB) threats are delivered/disseminated has major impacts on the utility of CB defensive countermeasures. For example, our personal protective equipment (PPE) might be effective against an agent that is delivered in one way, but that same agent delivered a different way may make the same PPE ineffective or less effective. The same is true for detection, modeling and medical countermeasures. Employment characterization explores what is technically possible in terms of adversarial delivery/dissemination methods for known and emerging CB threats. This helps the Chemical and Biological Defense Program (CBDP) and ultimately the Joint Force understand gaps or potential gaps in CB defense capabilities. The data from these efforts then feeds into efforts to close/mitigate those gaps.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue to assess state of knowledge on agent employment (laboratory and outdoors) to identify gaps and threat agent science opportunities. - Continue studying different scale employment methods and their feasibility for use with emerging threat agents. - Continue Toxin Dissemination Studies and Anti-Material Efficacy Characterization studies. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue to assess state of knowledge on agent employment (laboratory and outdoors) to identify gaps and threat agent science opportunities. - Continue studying different scale employment methods and their feasibility for use with emerging threat agents. - Continue Toxin Dissemination Studies and Anti-Material Efficacy Characterization studies. - Evaluate the effect of encapsulation on adversarial employment of threat agents. - Continue to advance our understanding of adversaries' capabilities in agent employment to identify CBDP gaps and inform further research needs. These studies involve highly controlled laboratory (indoor) tests and outdoor releases of simulants to collect as much relevant and realistic data as possible. - Continue adapting these employment studies to understand their utility for adversarial emerging threat agents, dissemination technologies and the application of technologies (e.g. coating) that might alter the survivability, persistence, or detectability of 	4.235	5.358	5.325

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
the agents. New areas of study include naturally occurring toxic compounds and biologicals designed to degrade structural materials. FY 2024 to FY 2025 Increase/Decrease Statement: Minor decrease due to reduced investment in characterization deliverables.				
Title: 12) Environmental Response Description: The specific surface or soil type, along with conditions such as temperature, humidity, sunlight etc. on which an adversary's Chemical-Biological (CB) agent lands can have an enormous impact on how long that surface remains a danger to the warfighter. The same environmental conditions impact how far a gas/aerosol cloud might travel. In a contaminated operational environment, understanding the range of exposure levels that would allow continued operation without long-term adverse effects will impact decontamination vs. avoidance operational considerations. The information obtained is used to inform operators, predictive model development, and capability development. In addition, this information feeds into analysis of existing protection, decontamination and medical intervention capabilities to identify capability gaps that must be closed. Environmental response has the tools and processes to analyze solids, liquids, aerosols, toxins and pathogens on a variety of surfaces (soil, concrete, plant leaves, painted surfaces) under a variety of temperature and humidity conditions that might alter persistence and viability of CB agents. Preparing and adapting these same processes for responding to emerging chemical and biological threats is a fundamental responsibility of Threat Agent Science. FY 2024 Plans: - Continue evaluating stability of toxin and viral threats, including exploring the fundamental characteristics that influence viral stability in the environment. - Continue closing knowledge gaps associated with aerosol biology and its implications with the outdoor release of biological threats. - Continue environmental characterization of chemical threats, and increasing evaluation of degradation products and reaction byproducts for detection, diagnostics and other applications. FY 2025 Plans: - Evaluate the stability of chemical/toxin and viral threats in the environment remains an ongoing core function of Threat Agent Science. - Close existing knowledge gaps associated with aerosol biology and its implications with the outdoor release of CB threats (to include re-aerosolization of previously released threats) as well as ensuring processes and procedures are in place to respond to new, emerging threats as they are developed by our adversaries. This includes processes for understanding degradation products and reaction byproducts for detection, diagnostics and other applications. FY 2024 to FY 2025 Increase/Decrease Statement:		5.243	6.037	5.192

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Decrease due to delays in the nanoaerosols and encapsulation threat areas.			
<p>Title: 13) First Look</p> <p>Description: Often, concerns about new Chemical-Biological (CB) threat agents involve assumptions and suspicions at the ‘worst case’ end of the spectrum – this is inherent in an absence of good, solid data. However, there can be a host of reasons that an extremely deadly substance would make an impractical weapon and should thus be viewed as a less realistic threat. Is it prohibitively expensive to produce a militarily insignificant amount? Is it so fragile that it cannot survive dissemination? Is it so intractable that it cannot be made into a deliverable form? Understanding what threats rise to the credible/actionable level is what First Look is all about. First Look provides the science-based evaluation of known and emerging threat agents to determine their potential hazard to the warfighter. For both chemical and biological agents, this initial fundamental assessment includes evaluation of production/ availability, toxicity screening for chemicals and toxins, growth and/or virulence for biological agents, and feasibility of weaponization. It also develops methods and capabilities to quickly and accurately characterize the properties of chemical, biological, and toxin threat agents. First Look products and data inform warfighter mission planning, requirements generation, capability development, model development, the larger Chemical and Biological Defense Program (CBDP) Enterprise, Intelligence and other government stakeholders about known or emerging agent threats.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue developing innovative laboratory tools and approaches to enable expedient characterization of emerging or novel biological threats (to include highly infectious and novel organisms), including understanding enabling technologies' impact to gene modification/expression and the ability to assess toxin activity. - Continue developing advanced methods for threat agent characterization, including complex chemical agent mixtures or combinations. - Continue evaluating findings of technological advancement implications to discounted threats study. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Develop innovative laboratory tools and approaches to enable rapid characterization of emerging or novel biological threats (to include highly infectious and novel organisms), including understanding enabling technologies' impact to gene modification/ expression and the ability to assess toxin activity. - Develop advanced methods for threat agent characterization of chemical agent mixtures and threat agents ‘coated’ to alter our ability to detect or identify them. - Develop methodologies to provide rapid computer-based vetting and assessment of emerging threats. - Evaluate technological advancements that are anticipated to have potential implications for previously discounted threats (i.e. “Second Look”). <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>	8.433	9.910	9.117

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
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Decrease due to revised priorities in characterization deliverables for new threat evaluations.

Title: 14) Host Response 11.168 13.500 12.153

Description: How do we know if an individual has been exposed? What symptoms will develop? How soon? How can the effects of various attack agents be differentiated? How much time do we have to initiate medical intervention? Host Response provides the tools and data to understand what the body’s response will be after exposure to Chemical-Biological (CB) threat agents under a variety of realistic concentrations and routes of entering the body (e.g., lungs, skin, mouth, etc.) and looking at sudden versus long-term/low exposure. Data from host response studies are also used to develop exposure limits acceptable for continued utilization of decontaminated equipment in a combat environment to inform mission planning, requirements generation, capability development and model development for the larger Chemical and Biological Defense Program (CBDP) Enterprise, Intelligence and other government stakeholders. Host Response also includes developing the ability to rapidly predict the human response to chemical and biological threat agents, especially new/emerging threats. While these capabilities also work to close knowledge gaps associated with “traditional” threats, they are key to having an ability to explore effects associated with exposure to mixed threat agents, assesses bioavailability of threat agents that have been ‘coated’ to increase viability and/or decrease the detectability of a threat agent. Understand how the body’s response to such ‘coated’ agents is different versus un-coated threats is a vital part of our Threat Agent Science mission.

FY 2024 Plans:

- Continue to build on and further develop predictive methods and technologies for CB agent characterizations.
- Continue studies to address host response areas identified by gap analysis studies for traditional biological agents.
- Begin improvements/upgrades for CRISTAL (Computational Rapid Identification and Scientific Threat Analysis). Continue to enhance and modernize CRISTAL methods and tools.
- Continue to assess the human (host) response to novel and emerging threats (including combinatorial threats and mixtures).

FY 2025 Plans:

- Build on and further develop predictive methods and technologies for CB agent characterizations, both computer-based as well as in living tissues – increasingly making use of organ-on-a-chip technologies to replace older methodologies.
- Continue studies to address host response areas for traditional CB agents that earlier gap analyses have identified. These methodologies are also directly applicable to any emerging CB threat.
- Continue to implement improvements and upgrades for computer-based prediction of physical and toxicological properties as one of our key new tools and continue to assess the body’s response to mixed agents and any novel/emerging threats.

FY 2024 to FY 2025 Increase/Decrease Statement:

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Decrease due to revised priorities in characterization deliverables for implementing faster and less expensive threat toxicology determination technological advances.				
<p>Title: 15) Distributed CB Reconnaissance - Biological Detection</p> <p>Description: Developing capability to warn and inform the Joint Force of operationally-relevant threat utilizing sampling and sensing payloads on manned and unmanned systems (e.g. UAS, UGS). Point sensors on manned and unmanned assets will remotely sense threats relevant to mission environment at presumptive echelon of Integrated Layered Defense and Integrated Early Warning.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue to explore fundamental science and novel technologies to increase sensing performance through enhanced speed and specificity; low size, weight, and power; and reduced consumables and life-cycle costs of fielded biological sensors. - Continue developing biological threat sensing and sampling systems, to include unmanned and manned platforms. - Continue to evaluate the use of computational tools, like machine learning into detector/identifier technologies to further reduce false reporting due to environmental factors. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred to another thrust area. Funding moved to the Operational Biological Sensing thrust area for better project alignment.</p>		1.278	1.313	-
<p>Title: 16) Unattended Perimeter Monitoring - Biological Detection</p> <p>Description: Aims to enhance situational awareness against potential biological hazards by developing monitoring solutions to provide continuous, synchronous information of the operational environment and dynamic threat landscape. Capabilities developed here will focus on autonomy and improved accuracy and reliance that decreases operational burden to the warfighter.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue to make technological improvements to enhance early warning of aerosolized biological threats. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred to another thrust area. Funding moved to the Operational Biological Sensing thrust area for better project alignment.</p>		1.721	1.771	-
<p>Title: 17) Operational Biological Sensing</p> <p>Description: The Operational Biological Sensing Thrust Area aims to inform and alert the warfighter of biological hazards they may encounter in an operational setting, including technologies to support field-confirmatory and theater-level validation to support</p>		-	-	2.938

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) UN2 / <i>Understand (Applied Research)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Joint Force operational concepts. This thrust area continues to develop fieldable technologies capable of collecting and detecting biological hazards in the battlespace.</p> <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Initiate development of autonomous collection and detection systems for novel and innovative sensing solutions for automated, rapid biological detection, assessments and analyses. - Continue to develop preservation techniques that stabilize sample for storage and transport of samples to laboratory for analysis. - Continue to quantify risks due to infectious aerosol threats, including naturally-occurring infectious disease outbreaks and threats beyond the list. - Continue to invest in innovative biological sensing technologies that can be integrated onto manned and unmanned platforms to provide warfighters with situational awareness without imposing an additional logistical burden. - Continue efforts to reduce false alarm rates and increase sensitivity and specificity. - Continue to develop low Size, Weight, Power and Cost (SWaP-C) sensors to support tactical and dismounted site assessment missions and reduce the logistical burden on the Joint Force. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred from another thrust area. Decrease due to efficiencies gained by consolidating the Distributed CB Reconnaissance - Biological Detection and Unattended Perimeter Monitoring - Biological Detection thrust areas for biological threat sensing efforts.</p>				
<p>Title: 18) Emerging and Enhanced Biothreat Sensing</p> <p>Description: Establish a capability to rapidly develop advanced, agile, pathogen-agnostic laboratory and field forward detection capabilities to detect emerging and enhanced biological threats across different Joint Force Operational Concepts and Force Postures. Further investments will be used to modernize laboratory capabilities and tools to deliver enhanced biothreat sensing/detection capabilities to the Joint Force.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue development of detection algorithms, laboratory workflows, and implementation of bioinformatics analysis tools to identify threats in unknown samples - Continue incorporating advanced biological measurements and data processing techniques to detect biological threats. - Continue to leverage Assays on Demand (AoD) to develop computational tools to design and expedite assay development for biological detection. <p>FY 2025 Plans:</p>		9.921	12.922	7.329

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) UN2 / <i>Understand (Applied Research)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>- Develop novel detection algorithms through streamlined laboratory workflows (e.g. data generation, collection, analysis) that generate complex biological datasets and exploit advances in Artificial Intelligence/Machine Learning (AI/ML).</p> <p>- Develop novel detection solutions that differentiate between naturally occurring or genetic engineered, enhanced and emerging biological threats.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to Assays on Demand (AoD) technology maturation and transition to the Project UN3 Emerging and Enhanced Biothreat Sensing and Unconventional Detection Modalities - Biological Detection thrust areas.</p>				
<p>Title: 19) Unconventional Detection Modalities - Biological Detection</p> <p>Description: Develops disruptive technologies to identify unknown or emerging biological threats as well as sensors that can operate in complex threat environments with high accuracy. Efforts in this area pursue a “fail fast” approach, with promising technologies transferred to other thrust areas/budget lines for further development.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue Assays on Demand (AoD) to augment targeted detection modalities that focus on rapid delivery of novel assay development solutions. - Continue investigating alternative optical detection development not reliant on fluorescence for real-time detection of anomalous biological activity. - Continue evaluating the feasibility of organ-on-a-chip technologies for agent-agnostic techniques. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Initiate efforts to develop novel and innovative technologies to detect and identify toxins. Efforts will explore technologies beyond those based on traditional methods. - Continue to develop sensors that integrate advances in data science to address challenges in sample collection and detection of biological agents. The hope is to improve the speed, accuracy, and portability of tests under development. <p>FY 2024 to FY 2025 Increase/Decrease Statement: The Assays on Demand (AoD) program has matured from Project UN2 to Project UN3 Emerging and Enhanced Biothreat Sensing.</p>		5.032	5.276	3.055
<p>Title: 20) Distributed CB Reconnaissance - Chemical Detection</p> <p>Description: Develop threat sensing and sampling payloads for manned and unmanned aerial system (UAS) and ground (UGS) platforms to enhance early warning and situational awareness of biological and chemical threats. Sensor development will support dismounted reconnaissance and surveillance missions by providing low size, weight, power and cost sensors or sensing/ collection systems that are rugged, rapid and accurate.</p>		1.970	2.322	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) UN2 / <i>Understand (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p><i>FY 2024 Plans:</i></p> <ul style="list-style-type: none"> - Continue to explore fundamental science and novel technologies to increase sensing performance through enhanced speed and specificity; reduced size, weight, and power; and reduced consumables and life-cycle costs of fielded chemical sensors. - Continue developing chemical threat sensing and sampling systems, to include unmanned and manned platforms. - Continue to evaluate the use of computational tools, like machine learning, into detector/identifier technologies to further reduce false reporting due to environmental factors. <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Program/project funding transferred to another thrust area. Funding moved to the Operational Chemical Sensing thrust area for better project alignment.</p>			
<p><i>Title:</i> 21) Unattended Perimeter Monitoring - Chemical Detection</p> <p><i>Description:</i> Establish a layered defense capability by developing and implementing automated and integrated technologies enabling unattended monitoring for chemical threats. These technologies will provide early warning of vapor, aerosol, solid, and liquid hazards and unencumber the warfighter by reducing logistics and operator burden. Providing a reliable detect-to-warn capability at fixed or expeditionary sites will enhance the overall protective posture of ground and maneuver forces as robust technologies can be miniaturized for portability and operational sustainment.</p> <p><i>FY 2024 Plans:</i></p> <ul style="list-style-type: none"> - Continue to make technological improvements to enhance early warning of vapor, aerosol, solid, and liquid hazards. <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Program/project funding transferred to another thrust area. Funding moved to the Operational Chemical Sensing thrust area for better project alignment.</p>	2.279	3.054	-
<p><i>Title:</i> 22) Operational Chemical Sensing</p> <p><i>Description:</i> This thrust area will mature and miniaturize chemical threat sensing and sampling technologies for distributed and networked detection systems beyond the warfighter's line of sight to support early warning of chemical threats for fixed site, reconnaissance, and maneuver operations. Furthermore, the thrust area will provide capabilities for the full spectrum of missions and threats with rugged, low-cost point sensors and automated technologies.</p> <p><i>FY 2025 Plans:</i></p> <ul style="list-style-type: none"> - Initiate investment in novel standoff detection technology concepts to provide non-contact chemical sensors that further distance the warfighter from the threat. 	-	-	5.191

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) UN2 / <i>Understand (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>- Continue to make technological improvements to low size, weight, power, and cost sensors to enhance early warning of vapor, aerosol, solid, and liquid chemical hazards.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred from another thrust area. Decrease due to efficiencies gained by consolidating the Distributed CB Reconnaissance - Chemical Detection and Unattended Perimeter Monitoring - Chemical Detection thrust areas for chemical threat sensing efforts.</p>			
<p>Title: 23) Expeditionary Analytical Toolkit (ExAnT) - Chemical Detection</p> <p>Description: Provide general and specialized forces with the ability to modernize detection technologies for traditional threats while enhancing detection capabilities for non-traditional, emerging, and mixed chemical hazards.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue to invest in novel detection capabilities to address opioids and emerging chemical threat, focusing on developing more analogue agnostic capabilities. - Continue to invest in improvements of current detection technologies for chemical hazards in obscurant-heavy environments by improving currently-fielded detectors to provide early warning of chemical threats and offer robust performance in the future battlespace. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred to another thrust area. Funding moved to the Modernized and Enhanced Chemical Sensing thrust area for better project alignment.</p>	3.296	3.616	-
<p>Title: 24) Modernized and Enhanced Chemical Sensing</p> <p>Description: This thrust area will develop novel detection tools for a wide variety of chemical threats and miniaturize high confidence identification instruments for field use within the Joint Force's Operational Concepts.</p> <p>FY 2025 Plans:</p> <p>Surface and Ground Contamination Detection and Avoidance:</p> <ul style="list-style-type: none"> - Develop technologies to advance detection of surface and ground chemical contamination while on-the-move for maneuver support operations. - Identify and develop optical detection technology candidates for improved equipment and vehicle decontamination verification. <p>Threat Agnostic Detection:</p>	-	-	3.445

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) UN2 / <i>Understand (Applied Research)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>- Continue to invest in early developments of low size, weight, and power colorimetric detection technologies for the iterative modernization of the currently fielded chemical detection kits.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred from another thrust area. Decrease due to the Expeditionary Analytical Toolkit (ExAnT) thrust area transfer for developing modernized detection technologies for traditional chemical threats in complex environments.</p>				
<p>Title: 25) Unconventional Detection Modalities - Chemical Detection</p> <p>Description: Develops disruptive technologies to identify unknown or emerging chemical threats as well as sensors that can operate in complex threat environments with high accuracy. Efforts in this area pursue a “fail fast” approach, with promising technologies transferred to other thrust areas/budget lines for further development. This thrust area will also explore utilizing machine learning and other advanced computational tools to increase detection and identification accuracy, reduce false alarms, and enable mapping of hazardous locations to support Integrated Early Warning (IEW) capabilities.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue pursuing advances in photonic integrated circuits by reducing size, weight and power of traditional photonic sensors but keeping the selectivity and sensitivity of a traditional sensor. - Incorporate early warning and threat mapping using machine learning (ML)/artificial intelligence (AI) tools to aggregate and analyze sensor data in real-time. - Continue library-less detection to surmount current sustainment limitations of library-based or analyte-specific chemical sensor to be updated to detect emerging threats. - Continue development in ML and AI to make sensor detection faster with reduced false alarm rates. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue to develop database-independent (library-less) detection capabilities for identifying novel and emerging chemical threats by fusing data from multiple detection modalities. - Continue to develop novel approaches and materials (e.g. coatings) and new sensor approaches for the detection, quantification and/or identification of liquid, solid, gas, vapor, and aerosol chemical threats. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to economic cost adjustments.</p>		2.030	2.443	2.328
<p>Title: 26) Technical Surprise</p> <p>Description: Technological advancements may always have potential implications to aspects of agent use, production, release, persistence and even toxicity/pathogenicity. On the other hand, technological advancements can provide us with better tools for protecting our warfighters against Chemical-Biological (CB) threats. Technical Surprise conducts a continuous review of newly</p>		3.670	4.500	3.825

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) UN2 / <i>Understand (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>published technologies (e.g., synthetic biology, artificial intelligence, machine learning, quantum computing, etc.) to identify areas of potential concern as well as those that can be utilized to improve our CB defenses. Technical Surprise efforts also develop capabilities to evaluate and assess technical enhancements that potentially alter the nature or magnitude of risk posed by a threat agent; reduce obstacles to threat use; or make threats more likely to survive being released, etc. Additionally, Technical Surprise identifies and assesses where technological advancements may have overcome operational, logistical or technological hurdles, thus increasing the impact of a formerly discounted potential threat.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue identifying and assessing technological advancements that will impact the chemical and biological threat space, including potential threats that are not specifically chemical or biological in nature but have implications with respect to chemical and biological defense capabilities. - Continue a horizon scanning capability to provide situational awareness in assessing technological growth and convergence that may affect the chemical and biological threat space, while keeping abreast of changes in the nature of future threats. - Continue the assessment of synthetic biological tools and other biotechnology developments that can enhance or alter the threat space. - Enhance evaluation of converging technologies and their implications to the threat space. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Assess technological advancements that will impact the chemical and biological threat space, including potential threats that are not specifically chemical or biological in nature but have implications with respect to chemical and biological defense capabilities is an iterative and ongoing process. - Continue to review new technologies such as AI/ML, production/ synthesis, dissemination, etc. - Maintain and continuously modernize the horizon scanning capability to provide situational awareness to assess technological growth and convergence that may affect the chemical and biological threat space, while keeping abreast of changes in the nature of future threats is fundamental to negate any advantage our adversaries may perceive themselves to have. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to revised priorities in characterization deliverables for understanding/countering adversarial production capabilities.</p>			
<p>Title: 27) Technical Surprise - Enhanced Biological Defense (ENBD)</p> <p>Description: The technological plausibility of an adversary developing advanced biological pathogens is a particularly challenging (and relatively new) area of concern within the Chemical and Biological Defense Program (CBDP). Thus, in order to develop the unique capabilities with attention on synthetic biology tools adoption, methods development and characterization of host responses via multiomics, new funding line Enhanced Biodefense (ENBD)) was initiated. Technical Surprise (ENBD) aims to develop the capabilities needed to identify and assess for pathogenesis/transmissibility/equivalence studies, emerging biothreat</p>	1.500	3.500	3.000

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) UN2 / <i>Understand (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
characterization, signature assessments to accelerate threat understanding, detection/diagnostics, and medical countermeasures (MCM) development. This program enables our ability to quickly characterize emerging threats and will generate more robust data sets for training threat agnostic tools. FY 2024 Plans: - Continue the development of a robust characterization pipeline capable of characterizing emerging pathogens. - Continue the development of robust threat agnostic tools to characterize emerging pathogens. FY 2025 Plans: - Continue the development of robust threat agnostic tools to characterize emerging pathogens - Continue the development of a robust characterization process capable of safely addressing emerging pathogens. FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to revised priorities in characterization deliverables for new and emerging biothreats.			
Accomplishments/Planned Programs Subtotals	106.499	119.182	97.205

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025 Base</u>	<u>FY 2025 OCO</u>	<u>FY 2025 Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• UN3: <i>Understand (ATD)</i>	69.652	83.825	76.114	-	76.114	87.384	73.515	71.015	71.015	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) PT2 / <i>Protect (Applied Research)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
PT2: <i>Protect (Applied Research)</i>	-	66.409	55.057	49.328	0.000	49.328	54.817	59.861	58.452	58.452	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Protect Applied Research Project provides the Joint Force the ability to prevent the effects from exposure to chemical and biological hazards. PT2 emphasizes increasing protection capability and reducing physiological effects, preventing or reducing individual and collective exposures, applying prophylaxis to prevent or mitigate negative physiological effects, and protecting critical equipment in Chemical, Biological, Radiological, and Nuclear (CBRN) environments.

Thrust Areas included in this Project are:

- (1) Biological Warfare Defense Prophylaxis
- (2) Air Purification Enhancements
- (3) All-Hazards & Respiratory Protection
- (4) Enhanced Survivability Coatings
- (5) Multifunctional Materials for Protection (MMfP)
- (6) Protective Garments
- (7) Enabling Science
- (8) Nerve Agent Prophylaxis/Pretreatments
- (9) Reactivators of AChE as Therapeutics (ReACT)

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

	FY 2023	FY 2024	FY 2025
<p>Title: 1) Biological Warfare Defense Prophylaxis</p> <p>Description: The ultimate protection of the warfighter is achieved by pretreating the warfighter to withstand any biological threat, which will decrease reliance on early warning and personal protective equipment, and facilitate the warfighter to operate at peak performance. Medical countermeasure (MCM) strategies against broader classes of biological agents will be pursued with emphasis on broad-spectrum protection, platform technologies to enable rapid response, rapid onset to protection, fewer doses required, no cold chain required, and needle-free administration.</p> <p>FY 2024 Plans: Viral: - Continue nonclinical studies for vaccines and pretreatments for Crimean Congo Hemorrhagic Fever viruses. - Discovery and development of broadly protective strategies and nontraditional approaches (e.g., host-directed, nucleic acid, antibody, and immunomodulators) against new and emerging viral threats.</p>	32.256	22.116	16.544

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) PT2 / <i>Protect (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>- Explore the use of production pipelines for mosaic and/or engineered antigens for rapid deployment into established vaccine platforms.</p> <p>- Continue immune correlate identification for Ebola.</p> <p>- Continue animal model development for viral families to support Emerging Infectious Diseases (EID).</p> <p>- Test protective vaccine/therapeutic layered defense approaches to prevent Ebola Virus respiratory disease.</p> <p>Toxins:</p> <p>- Continue half-life extension of monoclonal antibodies (mAb) and scale up manufacturing of mAb against palytoxin.</p> <p>- Continue evaluation of naturally occurring anti-toxins to protect against marine toxins.</p> <p>- Continue development of animal models for evaluation of toxins and antitoxin prophylaxis.</p> <p>- Continue development of functional assays to determine biological activity for various toxins.</p> <p>- Continue evaluation of aptmers as MCM against conotoxins.</p> <p>- Continue characterization of toxin-host cell interactions for the continued development of pretreatment strategies.</p> <p>- Evaluate genetic and genomics approaches to address previously unforeseen threat of deliberate manipulation of threat agents so that they no longer are amenable for detection and neutralization</p> <p>Broad Spectrum:</p> <p>- Initial Prototype Development of Broad-spectrum Neuronal Nanosponges to protect against multiple types of neurotoxins.</p> <p>- Evaluate broad spectrum protection strategies based on mechanisms of action.</p> <p>- Expand nanosponge platform to target multiple toxin families.</p> <p>- Continue layered defense testing with candidate vaccine/antibiotic/antibody combinations to broaden protection and avoid interference between medical countermeasure.</p> <p>- Continue to evaluate multiple novel broad spectrum platform strategies for potential use to respond to EID, appropriate prototype pathogens will be used for test & evaluation, emphasis on broad-spectrum protection based on mechanism of action.</p> <p>FY 2025 Plans:</p> <p>- Discovery and development of broadly protective strategies and nontraditional approaches (e.g., host-directed, nucleic acid, antibody, and immunomodulators) against new and emerging threats.</p> <p>- Evaluation and development of vaccine platform technologies for potential use for rapid response to new and emerging threats, appropriate prototype pathogens will be used for test & evaluation, emphasis on broad-spectrum protection to enable rapid response.</p> <p>- Development of novel administration strategies (e.g. needle free) to reduce logistical burden and optimize immune response</p> <p>- Development of key enabling technologies to accelerate FDA approval for vaccine and pretreatment development</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) PT2 / <i>Protect (Applied Research)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>- Test and evaluate integrated layered defense strategies with candidate vaccine/therapeutic combinations to broaden protection and avoid interference between medical countermeasures.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to revised priorities to focus on emerging threats.</p>				
<p>Title: 2) Biological Warfare Defense Prophylaxis - Enhanced Biological Defense (ENBD)</p> <p>Description: Investments include efforts to develop technologies that strengthen and tune the host immune system through enhancement or stimulation to increase the ability to resist disease progression and spread (e.g. adjuvants and formulation). Identifying the most effective vaccine platform technologies for different threat agents based on host response and level of efficacy.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue to develop a predictive capability to rapidly identify the optimal vaccine platform with which to counter any particular current, novel or emerging biological threat. - Continue to identify and evaluate adjuvants/immune modulation technologies that can be combined with vaccines to stimulate a customized immunogenicity profile without compromising vaccine safety. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue development of a computational tool to rapidly identify the optimal vaccine platform with which to counter any particular current, novel, or emerging biological threat. - Continue to test threat agnostic prophylactic products as stand-alone MCMs and in combination with vaccines and therapeutics in a layered defense strategy. - Continue to evaluate novel adjuvants in various vaccine constructs to improve immune response. - Continue to evaluate multi-threat encapsulated oral platform for protection against biological threats. 		15.898	20.000	20.000
<p>Title: 3) Air Purification Enhancements</p> <p>Description: Air purification filters go on individual protective gear (masks) and collective protection (i.e., military systems such as tanks, ships, and buildings). Current filters are expensive and do not alert operators when they are no longer effective at blocking CB threats. Air Purification Enhancements develops filters that last longer and reduce lifecycle costs, as well as satellite filters to monitor their effectiveness throughout their lifecycle. The thrust's filters will develop and mature enhanced protection technologies against both traditional and advanced threats.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Integrate new filtration technologies with more stable, reactive materials into a next generation M98 filter to reduce costs and extending filter operational life. 		1.558	1.169	1.170

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) PT2 / <i>Protect (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<ul style="list-style-type: none"> - Continue to assess and mitigate impact of advanced threats on current and developing filtration technologies. - Transition Residual Life Indicator System to Modernization Collective Protection program of record in FY24 <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Assess and publish report on novel filter materials performance against conventional and advanced agents delivered in all states of matter (vapor, aerosol, and liquid) in operationally relevant environments. - Continue to assess impact of novel threats on current filter performance. - Reduce life-cycle maintenance costs by validating manufacturing processes and performing and validating new operationally relevant test methods. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to economic cost adjustments.</p>			
<p>Title: 4) All-Hazards & Respiratory Protection</p> <p>Description: Current individual protective gear can be uncomfortable to wear for extended periods of time and the gear can make it less natural to perform essential warfighting functions. All-Hazards and Respiratory Protection designs and develops reduced burden, low encumbrance respiratory and ocular (eye) protection. This will make it easier for the Warfighter to perform mission essential tasks while operating in individual protective gear. Because current CB protective masks don't integrate with the Services' existing, non-CB defense helmets and displays, All-Hazards Respiratory Protection works to develop CB defense masks that integrate with existing combat systems.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Develop designs for innovative, low burden respirator prototypes. - Develop use of innovative manufacturing techniques for respirators, such as 3D facial scanning and additive manufacturing. - Establish operationally-relevant protocols for next generation respiratory protection prototype testing. - Transition microcooling garment to Tactical Advance Threat Protective Ensemble (TATPE) under the UIPE FoS GP program of record. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Down select designs for prototype low-burden, unencumbering respirator that integrates with existing systems (e.g., helmets and displays) and may include off-the-face and low-profile filter designs. - Validate manufacturing methods for next generation respiratory protection, including potentially using additive manufacturing to produce customized mask for each warfighter. - Develop new individual protection filter for next generation protective mask. <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>	4.037	1.026	0.716

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) PT2 / <i>Protect (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Decrease due to delayed transition of next generation respirator until FY29.			
<p>Title: 5) Enhanced Survivability Coatings</p> <p>Description: Enhanced Survivability Coatings improves ability to restore asset to use in normal, unprotected operations and speeds ability to reduce MOPP.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Increase chemical agent resistance of current military coatings through development and testing of novel temporary coatings to reduce the spread of contamination and ease decontamination of military assets. - Continue to improve equipment coatings through bio-inspired surface treatments to repel agents of interest from current military equipment coatings. - Develop and verify test methods for chemical decontamination efficiency of equipment elastomers, including tire rubber. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred to another thrust area. Funding moved to the Protective Garments thrust area to support required development of scaling and manufacturing processes for prototype protective garments that detoxify chemical and biological agents and regenerate protective capacity.</p>	1.657	1.881	-
<p>Title: 6) Protective Garments</p> <p>Description: Protective Garments provides reduced burden, low encumbrance protective garments integrated into full systems with operationally relevant, whole system test methods, and reduces cost, logistical resupply demand, and increases sustainability of solutions.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Manufacture scaled responsive/reactive textile swatch samples that adapt or react to the threat and environment while reducing thermal burden and integrate with current combat garments. - Test scaled responsive/reactive textile swatch samples using whole system test methods. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Develop, verify, validate, and transition improved protective garment prototype test methodologies that provide greater validation of CB protection, are repeatable, and support testing under relevant conditions to UIPE FoS. - Continue development of scaling and manufacturing processes for prototype protective garments that detoxify chemical and biological agents and regenerate protective capacity. <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>	-	0.234	2.819

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) PT2 / <i>Protect (Applied Research)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Program/project funding transferred from another thrust area. Decrease due to efficiencies gained by consolidating the Enhanced Survivability Coatings thrust area and efforts within the MMfP thrust area for developing scaling and manufacturing processes for prototype protective garments that detoxify chemical and biological agents and regenerate protective capacity.</p> <p>Title: 7) Multifunctional Materials for Protection</p> <p>Description: Multifunctional Materials for Protection (MMfP) develops new materials for protective garment, filter, and coatings technologies that will absorb, neutralize, and repel chemical and biological warfare agents. This will reduce costs by extending service life. New materials can also reduce the heat burden of individual protection (i.e., boots, suits, masks, and gloves) and make it more natural to operate in. This will allow Warfighters to operate in individual protection gear for extended periods of time, reducing the necessity of early warning. MMfP replaces PFAS-based textile finishes and surface coatings. MMfP matures material technologies that transition to all physical protection thrust areas.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Generate prototype next generation reactive and regenerative protective garment swatches with longer service life and lower thermal burden for whole system testing. - Incorporate novel materials into individual and collective protection filtration systems and test for increased performance against conventional and advanced threats delivered in all states of matter (vapor, aerosol, and liquid) in laboratory. - Begin demonstration of enhanced filter bed performance towards emerging/advanced threats and toxic industrial chemicals/ materials in operationally-relevant environments. - Develop scaled manufacturing techniques for novel materials for incorporation into prototype protection technologies. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Develop scaled materials manufacturing processes for cost and process efficiency and characterize materials using operationally relevant test methods. - Assess new materials (i.e., biologically inspired and two-dimensional) for protection and hazard mitigation proof-of-concept as they mature from fundamental research to applied research. - Use machine learning techniques to develop materials that destroy chemical and biological agents more quickly and effectively. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to \$1.000M Protective Garments thrust area transfer of efforts developing scaling and manufacturing processes for prototype protective garments that detoxify chemical and biological agents and regenerate protective capacity.</p>		3.177	5.087	4.087
<p>Title: 8) Nerve Agent Prophylaxis/Pretreatments</p> <p>Description: Exposure to nerve agents is at worst catastrophic and at best disabling for an extended period – and in most cases the onset of symptoms is very fast. Nerve agents work by blocking the signal flow across nerve junctions, ultimately resulting in</p>		7.826	2.576	3.211

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) PT2 / <i>Protect (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>a loss of ability to control both voluntary and involuntary muscles and death by asphyxiation. Maintaining full mission readiness in a CB contested environment would require advance administration of a medical antidote well before exposure and would not require additional treatment after exposure (prophylaxis). Until now, no such antidote has existed. The nerve agent (NA) prophylaxis portfolio is developing protective medicines that are effective against a broader range of nerve agents – including fourth generation agents – than had ever before been thought possible. Successful development of these medicines will greatly enhance the ability of the Warfighter to stay in the fight and move forward.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue exploration of the therapeutic efficacy of atipamezole and other FDA-approved and developmental MCMs for non-opioid-based pharmaceutical based agents (PBAs). - Continue cross-toxidromic and pathway analysis to determine possible targets for multi-toxidromic therapeutic MCM discovery and development. - Finish a paper study to identify previous accomplishments, current state of the science and outline a path forward for discovering, developing, and fielding therapeutic MCMs for a broad scope of emerging chemical threats beyond PBAs. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Develop drug products currently focused on improving the duration of protection, determining the full spectrum of protection (in terms of agents and exposure concentration) and exploring the length of time protection lasts. - Conduct small animal testing and a large animal study to better predict drug behavior in humans. - Initiate efforts of one or more alternative nerve agent prophylactic technologies as a risk mitigation step. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Lead candidate drugs are advancing toward a Phase I Clinical Trial in 1.5 – 2 years. In preparation for that, studies grow more complex and expensive from this point on, thus there is an increase in required funding.</p>			
<p>Title: 9) Reactivators of AChE as Therapeutics (ReACT)</p> <p>Description: Exposure to nerve agents is at worst catastrophic and at best disabling for an extended period – and in most cases the onset of symptoms is very fast. Nerve agents work by blocking the signal flow across nerve junctions, ultimately resulting in a loss of ability to control both voluntary and involuntary muscles and death by asphyxiation. Currently, there is only one FDA- approved post-exposure drug treatment that restores the activity of the human molecule deactivated by nerve agent, and it is essentially unchanged since the 1950s. The ReACT portfolio is developing a number of different candidate medicines that are effective against a broader range of nerve agents – including fourth generation agents - than had ever before been thought possible. Successful development of these medicines will greatly enhance the ability of the Warfighter to survive and potentially stay in the fight and move forward.</p>	-	0.968	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) PT2 / <i>Protect (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>FY 2024 Plans: - Initiate efforts that utilize modelling and structural activity relationships in order to develop prophylactics with both centrally acting and broad spectrum capabilities.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred to another funding line. Work in FY25 focuses on therapeutics within Project MT2.</p>			
<p>Title: 10) Enabling Science</p> <p>Description: There are many technologies that can be applied across multiple thrust areas in the medical and physical portions of the S&T house, and thus pay dividends well beyond the actual investment. Examples include development of well-characterized animal models for use in FDA filings; incorporation of “organ-on-a-chip” technologies that will reduce the reliance on animal testing; development of AI capability to predict toxicology of new/unknown chemical compounds or evaluate the predicted safety profile of drug candidates. The Enabling Science thrust area funds research efforts that modernize the chemical medical countermeasure (cMCM) pipeline to develop and deploy cMCMs more rapidly to the Warfighter.</p> <p>FY 2025 Plans: - Continue to develop well characterized animal models with the goal of applying for status as FDA qualified animal models. This is key to support the development of MCMs that provide protection for the Warfighter against CWAs. Having multiple well-characterized animal models (per the FDA standard) is vital where licensure can only be accomplished under the FDA animal rule, as is the case with all scheduled chemical and biological agents.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred from another funding line. The continuing projects underlying this funding were initiated with Project MT2 funding in FY24 and focused on animal model development for therapeutics (mitigate), but in FY25 will include development for pre-exposure prophylaxis.</p>	-	-	0.781
Accomplishments/Planned Programs Subtotals	66.409	55.057	49.328

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PT3: <i>Protect (ATD)</i>	29.631	29.261	46.050	-	46.050	46.703	46.159	54.536	54.535	Continuing	Continuing
Remarks											

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) PT2 / <i>Protect (Applied Research)</i>

D. Acquisition Strategy
N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) MT2 / <i>Mitigate (Applied Research)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To	Total
											Complete	Cost
MT2: <i>Mitigate (Applied Research)</i>	-	67.108	66.371	55.744	0.000	55.744	55.426	66.420	68.824	68.824	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Mitigate Applied Research Project emphasizes the ability to conduct decontamination and medical actions that enable the quick restoration of combat power, maintain/recover essential functions that are free from the effects of Chemical, Biological, Radiological, and Nuclear (CBRN) hazards, and facilitate the return to pre-incident operational capability as soon as possible.

Thrust Areas included in this Project are:

- (1) Biological Warfare Defense Therapeutics
- (2) Discovery of Medical Countermeasures Against New and Emerging Threats (DOMANE)
- (3) Chemically Reactive Ocular, Wound and Dermal Therapeutics (CROWD)
- (4) Emerging and Pharmaceutical-based Agent Threats (EMPATH)
- (5) Enabling Science
- (6) Reactivators of AChE as Therapeutics (ReACT)
- (7) Enhanced Survivability Coatings
- (8) Equipment Decontamination
- (9) Multifunctional Materials for Protection (MMfP)
- (10) Personnel Decontamination

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

	FY 2023	FY 2024	FY 2025
<p>Title: 1) Biological Warfare Defense Therapeutics</p> <p>Description: Therapeutics represent an important component of integrated layered defense. Therapeutics will mitigate the impact of biological threats to the warfighter by enabling rapid recovery and expediting return to the fight. This effort funds biomedical research focused on the early discovery and evaluation of therapeutic countermeasures against known and emerging biological warfare (BW) threats for which Food & Drug Administration (FDA)-approved therapeutics are limited or lacking.</p> <p>FY 2024 Plans: Viral Therapeutics: - Continue to evaluate conserved targets, including host targets and processes of pathogenesis, for broad-spectrum treatment.</p>	32.224	31.363	24.913

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) MT2 / <i>Mitigate (Applied Research)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>- Continue drug discovery and development efforts to prepare for emerging threats by focusing on broad spectrum mechanism of action conserved targets and platform technologies. Upon establishment of proof of concept in small animal models, transition therapeutic candidates to advanced technology development.</p> <p>Bacterial Therapeutics:</p> <ul style="list-style-type: none"> - Continue to evaluate conserved therapeutic targets, with a focus on circumventing or overcoming antimicrobial resistance, for broad-spectrum treatment. - Continue to discover therapeutic candidates that employ novel strategies and mechanisms, such as new pathogen targets, drug delivery methods, or modulating the immune response, to overcome current and emerging mechanisms of antibiotic resistance in bacterial infections. Upon establishment of proof of concept in small animal models, transition to advanced technology development. - Continue to establish proof of concept efficacy of biologics to treat intracellular bacterial biothreat infections to lay the groundwork for future expansion of investments in biologic therapeutic class. <p>Toxin Therapeutics:</p> <ul style="list-style-type: none"> - Continue evaluation of repurposed small molecule drug for efficacy in the treatment of multiple serotypes of botulinum neurotoxin (BoNT) in small animal models in combination with botulinum antitoxin. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue to evaluate targets, including host targets and processes of pathogenesis, for broad-spectrum treatment of biological threats. - Continue to test therapeutic products as stand-alone MCMs and in combination with vaccines in a layered medical defense strategy. - Continue drug discovery and development efforts, including repurposing, to prepare for emerging threats by focusing on broad spectrum platform technologies. - Establish efficacy in small animal models and transition therapeutic candidates to advanced technology development. - Continue to evaluate therapeutic targets, with a focus on circumventing resistance, for broad- spectrum treatment. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to revised priorities to focus on emerging threats.</p>				
<p>Title: 2) Discovery of Medical countermeasures Against New and Emerging threats (DOMANE)</p> <p>Description: Develop and successfully transition emerging technology platforms to identify MCMs, targets, as well as innovative platforms that will support transition to applied programs for clinical trials. These developmental and translational studies will provide a knowledge foundation and broad candidate pipeline that will underpin the availability (via FDA-regulated Expanded</p>		3.603	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) MT2 / <i>Mitigate (Applied Research)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Access, Compassionate Use and Emergency Use authorities) of BW MCM to the Joint Force at the speed of relevance to allow freedom of action.				
<p>Title: 3) Discovery of Medical countermeasures Against New and Emerging threats (DOMANE) - Enhanced Biological Defense (ENBD)</p> <p>Description: Provides innovative and rapid medical countermeasures (MCMs) development capabilities (Artificial Intelligence, machine learning, data science, and platform technologies) that reduce developmental risks, cost, and schedule associated with MCM fielding. These rapid MCM developmental approaches afford protection against new and emerging threats and allow the Joint Force freedom of action. Effort is focused on developing tools that enable prediction of disease type and identify broad-spectrum targets for both host and pathogen.</p> <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Establish a universal data format - Validate protocols for AI/ML (e.g. meet FDA standards) - Manage small/limited datasets - Understand the algorithm decision making process <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to no Project MT2 funding in FY24.</p>		-	-	4.000
<p>Title: 4) Chemically Reactive Ocular, Wound and Dermal Therapeutics (CROWD)</p> <p>Description: While there exist multiple processes and reagents for cleaning physical surfaces that have been contaminated with chemical agents, there are limited options for human skin, and nothing that could be used for open wounds. This represents a source of continuing exposure for the warfighter and a hazard to medical personnel treating them. CROWD focuses on developing a ready-to-use product to remove Chemical Warfare Agent (CWA) contamination on skin, eyes and ultimately wounds. Removing or neutralizing CWA decreases the total exposure to the warfighter and allows optimal effectiveness of other medicines.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Initiate proof of concept test of candidate decontamination products for capability to decontaminate CWAs from wounds. - Determination of dosing strategies for use of candidate products in traumatic wounds. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue to develop animal models for dermal and wound application, determine dosing strategies, format for use in the battlefield, and establish the regulatory strategy for candidate products in traumatic wounds. <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>		3.915	5.639	2.937

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) MT2 / <i>Mitigate (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Decrease due to revised priorities.			
<p>Title: 5) Emerging and Pharmaceutical-based Agent Threats (EMPATH)</p> <p>Description: As technology increases, so does the number of available chemicals. Some of these new chemicals pose threats to the warfighter and are therefore termed Emerging Chemical Threats (ECTs). In addition to ECTs, a subset of chemical threats includes legitimate medicines that are repurposed as chemical threat agents, referred to collectively as Pharmaceutical Based Agents (PBAs). These compounds have genuine medical utility but can be abused (by level of exposure and/or delivery method) as a general incapacitants and large doses can easily become lethal. The warfighter requires effective MCMs that prevent or reverse the adverse effects of ECTs and PBAs, while still allowing for the use of U.S. Food & Drug Administration (FDA) approved drugs (e.g., morphine, fentanyl) by Joint Force Medical Staff for their labeled indications of pain management and sedation. EmpPATH is evaluating approved medicines as well as developing new ones for use in the field to counteract these effects. The portfolio is working to develop MCMs that are effective against a wide range of ECT/PBA-induced symptoms which may be common across several different types of threat agents. Groups of symptoms caused by a family of threat agents that act similarly are called toxidromes; and medical countermeasures that address the symptoms of several different types of threat agents are called cross-toxidromic medicines.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue exploration of the therapeutic efficacy of atipamezole and other FDA-approved and developmental MCMs for non-opioid-based PBAs. - Continue cross-toxidromic and pathway analysis to determine possible targets for multi-toxidromic therapeutic MCM discovery and development. - Finish a paper study to identify previous accomplishments, current state of the science and outline a path forward for discovering, developing, and fielding therapeutic MCMs for a broad scope of emerging chemical threats beyond PBAs. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue to find medicine candidates that treat key symptoms regardless of the specific agent that is causing them. This moves us away from “one risk, one remedy” solutions. This approach is called a “cross-toxidromic” approach and will be critical in addressing the rapidly expanding universe of chemical threat agents. Additional work here includes efforts based on a recently completed paper study to identify and assess 1) novel chemical threat agnostic MCMs and 2) previously FDA approved drugs (human and/or veterinary) with potential to prevent or treat the adverse effects of multiple classes of chemical threats. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to moving away from “one risk, one remedy” and to an approach that treats sets of symptoms regardless of the agent that causes them (called a cross-toxidromic approach).</p>	2.425	3.753	0.855
Title: 6) Enabling Science	13.136	13.878	10.451

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) MT2 / <i>Mitigate (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: There are many technologies that can be applied across multiple thrust areas in the medical and physical portions of the S&T house, and thus pay dividends well beyond the actual investment. Examples include development of well-characterized animal models for use in FDA filings; incorporation of “organ-on-a-chip” technologies that will reduce the reliance on animal testing; development of Artificial Intelligence/Machine Learning (AI/ML) capability to identify new drug targets, to predict toxicology of new/unknown chemical compounds or evaluate the predicted safety profile of drug candidates. The Enabling Science thrust area funds research efforts that modernize the chemical medical countermeasure (cMCM) pipeline to develop and deploy cMCMs more rapidly to the Warfighter, with lower costs to the government.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue to employ AI/ML-based tools for drug design and predictive drug safety. - Continue to maintain screening and safety databases for drug candidates. - Continue to perform select animal and safety studies for lead therapeutic candidates. - Continue to investigate technologies for delivering therapeutics (e.g. 2-PAM) to the brain. - Continue to support the therapeutic candidate pipeline. - Continue to develop well characterized or FDA qualified animal models to support the development of MCMs requiring licensure under the FDA animal rule that provide protection for the Warfighter against CWAs. - Continue to develop naturally derived MCMs with innovative mechanisms of action against a broad spectrum of OPNA threats. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue efforts on projects that include using AI/ML to better design drugs and predict drug safety; maintain screening and safety databases for drug candidates; investigate new production technologies (e.g. “on demand” or “continuous flow” manufacturing); alternate indications for existing medications; and further characterize animal models with the goal of applying for status as fully qualified with the FDA. - Support modernized development of MCMs to provide protection for the Warfighter against known and emerging CWAs. Having multiple well-characterized animal models (per the FDA standard) is vital where licensure can only be accomplished under the FDA animal rule, as is the case with all scheduled chemical and biological agents. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to revised priorities and \$0.500M transfer of technologies into the Project MT2 line ReACT thrust area.</p>			
<p>Title: 7) Reactivators of AChE as Therapeutics (ReACT)</p> <p>Description: Exposure to nerve agents is at worst catastrophic and at best disabling for an extended period – and in most cases the onset of symptoms is very fast. Nerve agents work by blocking the signal flow across nerve junctions, ultimately resulting in a loss of ability to control both voluntary and involuntary muscles and death by asphyxiation. Currently, there is only one FDA- approved post-exposure drug treatment that restores the activity of the human molecule deactivated by nerve agent, and</p>	3.486	4.879	6.423

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) MT2 / <i>Mitigate (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>it is essentially unchanged since the 1950s. The ReACT portfolio is developing a number of different candidate medicines that are effective against a broader range of nerve agents – including fourth generation agents - than had ever before been thought possible. Successful development of these medicines will greatly enhance the ability of the Warfighter to survive and potentially stay in the fight and move forward.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue efforts that utilize modelling and structural activity relationships in order to develop therapeutics with both centrally acting and broad spectrum capabilities. - Continue to down select generated chemical libraries to the most promising broad spectrum therapeutic candidates for follow on safety and efficacy assessments. - Continue development screening for novel broad spectrum enzyme reactivators that are effective in the brain. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue efforts that use modeling tools to develop therapeutics that are effective both in the brain and against a broader range of nerve agents. - Initiate preclinical and formulation studies for improved reactivators. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to 1) \$0.500M associated with transfer of technologies from the Project MT2 Enabling Science thrust area and 2) initiating preclinical and formulation studies in FY25 cost more than the continuation of modeling, down select and screening efforts.</p>			
<p>Title: 8) Enhanced Survivability Coatings</p> <p>Description: Enhanced Survivability Coatings assesses existing technologies and develops new coatings to increase chemical agent resistance for equipment and individual protection gear. This will make it quicker and easier to decontaminate and restore assets for use in normal, unprotected operations. It will also allow the Joint Force to reduce individual protective gear more quickly.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue evaluating polymer coatings as potential temporary or permanent military equipment coatings to decrease logistical burden of decontamination. - Increase chemical agent resistance of current military coatings through development and testing of novel temporary coatings to reduce the spread of contamination and enable more facile decontamination of military assets. 	1.283	0.542	0.537

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) MT2 / <i>Mitigate (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>- Continue to improve equipment coatings through bio-inspired surface treatments to repel agents of interest from current military equipment coatings.</p> <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue evaluating new types of coatings as potential temporary or permanent military equipment coatings to decrease logistical burden of decontamination in support of the Tactical Temporary Coatings (TTC) Program of Record. - Increase chemical agent resistance of current military coatings through development and testing of novel temporary coatings to reduce the spread of contamination and enable easier decontamination of all military asset surfaces. - Develop and optimize test methods for temporary overcoat evaluation for elastomers. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to economic cost adjustments.</p>			
<p>Title: 9) Equipment Decontamination</p> <p>Description: Equipment Decontamination provides reduced troop-to-task, logistics decontaminants, and decontamination methods with operationally-relevant test methods.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Refine autonomous equipment decontamination platform to reduce troop-to-task and logistics requirements for operational decontamination. - Transition hot air decontamination technologies to Joint Biological Aircraft Decontamination System and Service Equipment Decontamination Systems programs of record in early FY24. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Test autonomous equipment decontamination subsystems to reduce troop-to-task and logistics requirements for operational decontamination. - Develop technologies and methods for chemical and biological tactical and thorough decontamination of aircraft (e.g., helicopter) interiors and exteriors. - Investigate directed energy-driven and on-demand vaporous technologies to improve sensitive equipment and facility decontamination processes, logistics, and materials compatibility. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to transfer of funds to the Enhanced Survivability Coatings thrust area to support development of coating evaluation test method for hazard mitigation applications.</p>	4.232	2.925	2.236
<p>Title: 10) Multifunctional Materials for Protection</p>	1.854	2.222	2.222

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) MT2 / <i>Mitigate (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: Multifunctional Materials for Protection (MMfP) develops new materials for decontaminants and coatings technologies that will absorb, neutralize, and repel chemical and biological warfare agents. This will make decontamination easier, reducing costs and the logistical burden on the Joint Force, supporting the Joint Force's operational concepts in priority theaters. MMfP also develops new materials to replace PFAS-based finishes and surface coatings. MMfP matures technologies that transition to all hazard mitigation thrust areas.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Integrate reactive materials into decontamination systems for enhanced threat spectrum mitigation. - Continue ambient pressure characterization of reactive chemical decontamination mechanisms. - Scale materials manufacturing processes for cost-efficiency and characterize materials using operationally-relevant conditions. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue to improve scaled materials manufacturing processes for cost and process efficiency and characterize materials using operationally relevant test methods. - Assess two-dimensional materials for integration into hazard mitigation technologies. - Develop analyses that show environmentally relevant, real-time decontamination on surfaces. - Design more effective materials using machine learning techniques to discover materials that rapidly destroy threats. 			
<p>Title: 11) Personnel Decontamination</p> <p>Description: Decontamination is critical to being able to fight through and recover quickly after CB threat usage. Personnel Decontamination provides new personnel decontamination kits with reduced costs and logistics (storage and shelf-life limitations) compared to the currently fielded product and provides new processes and methods for decontamination of unbroken skin.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Generate efficacy and safety data against representative traditional and nontraditional agents required to submit a medical device package for FDA consideration for skin decontaminants. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Assess existing and novel decontaminants and processes for individual and skin decontamination in support of the Medical Decontamination Personnel Skin (MDPS) program of record. - Develop and assess physical removal technologies for potential replacement of reactive skin decontamination lotion. 	0.950	1.170	1.170
Accomplishments/Planned Programs Subtotals	67.108	66.371	55.744

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program			Date: March 2024			
Appropriation/Budget Activity 0400 / 2		R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>			Project (Number/Name) MT2 / <i>Mitigate (Applied Research)</i>	

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

Line Item	FY 2023	FY 2024	FY 2025	FY 2025	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Cost To	
			Base	OCO	Total					Complete	Total Cost
• MT3: <i>Mitigate (ATD)</i>	83.766	100.791	81.920	-	81.920	90.704	84.795	86.434	86.435	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program										Date: March 2024		
Appropriation/Budget Activity 0400 / 2					R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>				Project (Number/Name) EN2 / <i>Enabling Investments (Applied Research)</i>			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
EN2: <i>Enabling Investments (Applied Research)</i>	-	0.000	0.000	22.500	0.000	22.500	22.500	22.500	22.500	22.500	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Enabling Investments Applied Research Project focuses on characterization of alternate animal and microphysiological models that mimic the human response to biological and chemical agents. This area also develops and provides infrastructure capabilities to conduct defensive classified Department of Defense (DoD) work in laboratories, the appropriate DoD workforce to execute Science & Technology (S&T) in high containment at various levels of classification, and executes a robust emerging biothreat portfolio to enable readiness for future incidents. In FY 2025, Project EN2 aligns revised CB incident preparedness and response priorities for required applied research activities. The FY 2025 efforts continue resourcing for this portfolio in alignment with efforts conducted in Project EN3.

Thrust Areas included in this Project are:

- (1) Biological Warfare Defense Prophylaxis
- (2) Enabling Science

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

	FY 2023	FY 2024	FY 2025
<p>Title: 1) Biological Warfare Defense Prophylaxis - Comparing Animal Models to Organ (CAMO)</p> <p>Description: This effort will focus on the characterization of alternative to animal models that mimic the human response to biological and chemical agents to enable rapid response.</p> <p>FY 2025 Plans: -Initiate evaluation of alternative animal models for exemplar chemical and biological agents and compare to the accepted large animal models. -Initiate evaluation of microphysiological platforms ability to mimic human response to biological threats</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred from another funding line. Funds were moved from Project EN3 Medical Countermeasures Initiative to better align requirements within Budget Activity 2 to support investments in alternatives to animal models supporting rapid response for new and emerging threats.</p>	-	-	2.500
<p>Title: 2) Enabling Science</p> <p>Description: This effort is aimed at identifying what alterations (policy, processes and facilities) will be required in order to attain the ability to conduct classified defensive DoD work in biosafety laboratories. This will necessarily include training and</p>	-	-	20.000

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) EN2 / <i>Enabling Investments (Applied Research)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
maintaining sufficient scientists and technicians able to execute S&T in high containment at various levels of classification. This effort executes a robust emerging biothreat portfolio to enable readiness for future incidents.			
<i>FY 2025 Plans:</i> - Provide oversight and accreditation assistance to upgrade selected existing high containment suites to adhere to SCIF standards as promulgated and/or mitigated by DIA. Implement and develop protocols and execute S&T biothreat characterization work that can be performed at various classification levels.			
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Increase due to additional requirements for infrastructure capabilities to conduct laboratory work.			
Accomplishments/Planned Programs Subtotals	-	-	22.500

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025 Base</u>	<u>FY 2025 OCO</u>	<u>FY 2025 Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• EN3: <i>Enabling Investments (ATD)</i>	38.164	43.196	16.967	-	16.967	19.040	19.040	19.040	19.040	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	0.000	221.213	267.073	230.051	0.000	230.051	252.831	232.509	240.025	240.025	Continuing	Continuing
UN3: <i>Understand (ATD)</i>	-	69.652	83.825	76.114	0.000	76.114	87.384	73.515	71.015	71.015	Continuing	Continuing
PT3: <i>Protect (ATD)</i>	-	29.631	29.261	46.050	0.000	46.050	46.703	46.159	54.536	54.535	Continuing	Continuing
MT3: <i>Mitigate (ATD)</i>	-	83.766	100.791	81.920	0.000	81.920	90.704	84.795	86.434	86.435	Continuing	Continuing
EN3: <i>Enabling Investments (ATD)</i>	-	38.164	43.196	16.967	0.000	16.967	19.040	19.040	19.040	19.040	Continuing	Continuing
ET3: <i>Emerging Threats (ATD)</i>	-	0.000	10.000	9.000	0.000	9.000	9.000	9.000	9.000	9.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) resources Advanced Technology Development across the Understand, Protect, Mitigate, and Enabling Investments portfolios. Chemical and Biological Defense Program (CBDP) investments provide an integrated, layered capability to enable Countering Weapons of Mass Destruction (CWMD) missions ranging from combat operations to Department of Defense (DoD) support to domestic incident prevention and response. The Projects in this PE demonstrate technologies supporting the transition to advanced component development for physical capabilities, which cover chemical and biological (CB) detection, situational awareness and effects modeling, and protection and hazard mitigation. FY25 funding accelerates characterization and situational awareness of emerging biothreats and accelerates delivery of improved protection from and mitigation of biothreats, including rapid repurposing of available therapeutics and development of new vaccines.

Individual Projects include:

- Understand (UN3): Demonstration of enhanced chemical detection capabilities for aerosols and non-traditional agents, expanded capabilities for biosurveillance in pathogen detection and diagnosis, produce biological diagnostic arrays and reagents and diagnostic device platforms.
- Protect (PT3): Production of pretreatment candidates for bacterial, viral, and toxin threats.
- Mitigate (MT3): Production of therapeutic candidates for bacterial, viral, and toxin threats.
- Enabling Investments (EN3): Demonstrations of CB defense technologies, including biological detection, chemical detection, and decontamination, including non-traditional agents. Continued efforts to enhance the military operational capability, concepts of operation, and WMD elimination.
- Emerging Threats (ET3): identify and develop scientific solutions or to modernize capabilities that allow for a more rapid response to emerging threats.

CBDP Science and Technology (S&T) Applied Research Performers: U.S. Army Combat Capabilities Development Command Chemical Biological Center (DEVCOM CBC), United States Army Medical Research Institute of Infectious Diseases (USAMRIID), United States Army Medical Research Institute of Chemical Defense

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>
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(USAMRICD), United States Army Natick Soldier Systems Center, Naval Research Lab (NRL), Air Force Research Lab (AFRL), and Department of Energy Laboratories such as Pacific Northwest National Laboratory (PNNL), among others. The intent is to maintain strategic partnerships with the DoD Service communities & the interagency for mission success across the enterprise through collaborative planning and programming maintaining budget assurance.

Work conducted under this PE will transition to and will provide risk reduction for Advanced Component Development and Prototypes (PE 0603884BP) and System Development and Demonstration (PE 0604384BP) activities.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	226.225	267.073	273.070	-	273.070
Current President's Budget	221.213	267.073	230.051	-	230.051
Total Adjustments	-5.012	0.000	-43.019	-	-43.019
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-5.012	-			
• Other Adjustments	-	-	-43.019	-	-43.019

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: MT3: *Mitigate (ATD)*

Congressional Add: *Broad Spectrum Small Molecule Anti-viral Development*

	FY 2023	FY 2024
Congressional Add Subtotals for Project: MT3	5.000	-
Congressional Add Totals for all Projects	5.000	-

Change Summary Explanation

Funding: FY 2023 (-\$5.012 Million): Transfer of funding to support Small Business Innovative Research/Small Business Technology Transfer efforts.

FY 2025 (-\$43.019 Million): The decrease in Budget Activity 3/Advanced Technology Development aligns to revised FY2025 CB Incident Preparedness and Response planning priorities (-\$24.500 Million) and an Advanced Technology Development adjustment to support DoD high priority efforts (-\$18.519 Million).

Schedule: N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> / BA 3: <i>Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	
Technical: N/A		

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>				Project (Number/Name) UN3 / <i>Understand (ATD)</i>			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
UN3: <i>Understand (ATD)</i>	-	69.652	83.825	76.114	0.000	76.114	87.384	73.515	71.015	71.015	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Understand Advanced Technology Development (ATD) Project supports freedom of maneuver and informs commanders' decisions by predicting, locating, identifying, analyzing, and warning of chemical and biological (CB) hazards.

Thrust Areas included in this Project are:

- (1) Chemical, Biological, Radiological, and Nuclear (CBRN) Battlespace Sensing, Alerting & Response
- (2) CBRN Decision Aids
- (3) CBRN Situational Awareness
- (4) Battlefield Readiness
- (5) Chemical Diagnostics
- (6) Clinical Evaluation
- (7) Diagnostic Building Blocks
- (8) Emerging Threats
- (9) Operational Diagnostics
- (10) Technical Surprise
- (11) Emerging and Enhanced Biothreat Sensing
- (12) Distributed CB Reconnaissance
- (13) Expeditionary Analytical Toolkit (ExAnT)
- (14) Modernized and Enhanced Chemical Sensing
- (15) Operational Biological Sensing
- (16) Operational Chemical Sensing
- (17) Unconventional Detection Modalities
- (18) Unattended Perimeter Monitoring

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

	FY 2023	FY 2024	FY 2025
Title: 1) CBRN Battlespace Sensing, Alerting, and Response	4.301	4.500	5.549
Description: The CBDP is trying to improve detection capabilities while reducing the burden on the warfighter. Wearable technologies will be a significant part of this effort, acting as the initial "check engine" light for the warfighter without adding any			

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>equipment requirements (since the Joint Force will already be equipped with wearables). This thrust area invests in breakthrough technology to improve wearable device-based early warning capabilities by conducting data collection trials to support algorithm development; leveraging artificial intelligence (AI) to identify key indicators, combinations of indicators, and sensing modalities; and exploring alternative methods for non-invasive early warning of chemical and biological (CB) exposure. This will reduce false alarms and strengthen predictions of potential CB exposure—including emerging threats.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue the improvement of algorithms that leverage non-invasive based physiological data to provide early warning of chemical and biological threats and/or exposure. - Continue the advancement of standoff physiological monitoring capabilities. - Expand and further develop a data and Artificial Intelligence (AI) platform to support the access to harmonized physiological status monitoring data and development and validation of models in order to continue to develop predictive algorithms for the rapid response to Emerging Threats. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue to isolate and identify indicators of respiratory infection that can be used in determining severity of infection, and predicting return to mission readiness after exposure. - Continue to expand and enhance a cloud-based data and Artificial Intelligence (AI) platform to support the access to harmonized physiological status monitoring data and development and validation of models in order to continue to develop predictive algorithms for the rapid response to Emerging Threats - Continue competitive prototyping to evaluate alternative concepts for providing remote sensing and/or minimally and noninvasive techniques to enhance our ability to quickly identify afflicted personnel and inform courses of action, ideally prior to the onset of symptoms. - Continue to advance standoff physiological monitoring capabilities (e.g., detecting fever from a distance and/or within a given population) to include efforts that increase the standoff distance at which physiological data can be captured and analyzed. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to transfer from CBRN Battlespace Sensing, Alerting & Response - Enhanced Biological Defense (ENBD) for advancement of competitive prototyping efforts focused on optimizing wearable-based algorithms for the early warning of CB exposures.</p>				
Title: 2) CBRN Decision Aids		2.700	3.500	3.750
Description: In order to unencumber the warfighter at the tactical edge, efforts continue to develop and transition science & technology for Chemical, Biological, Radiological and Nuclear (CBRN) Decision Aids on End User Devices (EUDs) in both				

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>connected and disconnected operations by leveraging automation, reducing the burden experienced by the warfighter, and providing accurate, actionable information.</p> <p>FY 2024 Plans: - Continue developing new decision support plug-ins for integration with TAK, including the Android, web, Windows OS, and virtual and augmented reality versions, to further enhance the TAK infrastructure and cross-community tools and develop a rapid and iterative software capability.</p> <p>FY 2025 Plans: - Continue the development and deployment of new decision support plug-ins for integration with Tactical Assault Kit (TAK), including the Android, web, Windows Operating System (OS), and virtual and augmented reality versions, to further enhance the TAK infrastructure and cross-community tools and develop a rapid and iterative software capability.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to development efforts maturing and transitioning from Project UN2 CBRN Decision Aids (\$0.150M).</p>			
<p>Title: 3) CBRN Situational Awareness</p> <p>Description: Understanding how various chemical and biological (CB) threats—both traditional and emerging—interact with the environment and impact the human body is essential for the Joint Force to operate effectively in a CB-contested environment. Leveraging data from other Science and Technology (S&T) programs, Chemical, Biological, Radiological, and Nuclear (CBRN) Situational Awareness creates forecasting models and hazard assessments to provide warfighters with optimal situational awareness in these environments. This thrust area is also exploiting advances in eXtended Reality (XR), Virtual Reality (VR) and Augmented Reality (AR) to provide warfighters with an immersive environment for realistic training and mission rehearsal opportunities.</p> <p>FY 2024 Plans: - Complete development of a digital environment prototype for science and technology software modernization using a Development, Security, and Operations (DevSecOps) framework. - Continue improvement of performance enhancements for T&D models, particularly for urban environments and for hazard release from drone platforms and alternate types of delivery mechanisms. - Continue the development of comprehensive infectious disease epidemiological modeling applications for disease prediction, forecasting, medical planning and treatment. - Continue to enhance CB situational awareness capabilities for integration into Heads up Display (HUD) technologies for tactical use.</p>	3.581	6.690	5.819

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<ul style="list-style-type: none"> - Continue work to ingest and store disparate chemical and biological threat datasets and advanced analytic development to support the CBDP medical enterprise. - Expedite the development of a CB Defense Digital Laboratory capability encompassing a DevSecOps environment for end-to-end AI/ML data analysis, model development and training, and agile software development. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Complete the development of a Chemical and Biological (CB) Defense Digital Laboratory capability encompassing a DevSecOps environment for end-to-end Artificial Intelligence (AI)/Machine Learning (ML) data analysis, model development and training, and agile software development. - Enhance the performance of Transport and Dispersion (T&D) models, particularly for urban environments and for hazard release from drone platforms and alternate types of delivery mechanisms. - Continue work to ingest and store disparate chemical and biological threat datasets and advanced analytic development to support the Chemical and Biological Defense Program (CBDP) medical enterprise. - Enhance comprehensive infectious disease epidemiological modeling applications for disease prediction, forecasting, medical planning and treatment. - Continue to enhance CB situational awareness capabilities for integration into Heads up Display (HUD) technologies for tactical use. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to transfer of the Project UN2 CBRN Situational Awareness thrust area efforts (\$0.871M) focused on development of modeling capabilities utilizing Artificial Intelligence and Machine Learning and begin next generation hazard modeling capability development.</p>			
<p>Title: 4) CBRN Battlespace Sensing, Alerting & Response - Enhanced Biological Defense (ENBD)</p> <p>Description: The CBDP seeks to enhance the warfighters' ability to seek medical treatment, as well as take other measures to minimize the impact to Joint Force operations, by identifying exposure to biothreats at the earliest time possible, including before symptoms appear. Efforts in this area include focusing on data collection and analysis of chemical and biological (CB) exposure data; competitive prototyping of wearable-based early warning algorithms to optimize performance; expansion of efforts to develop analytic resources for early warning/decision support; and the advancement of an integrated cloud-based data environment to store a dynamic knowledge base of biothreat characteristics.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue to isolate and identify indicators of respiratory infection that can be used in determining severity of infection, and predicting return to mission readiness after exposure. 	2.400	2.500	1.000

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>- Continue competitive prototyping to evaluate alternative concepts for providing remote sensing and/or minimally and non-invasive techniques to enhance our ability to quickly identify afflicted personnel and inform courses of action, ideally prior to the onset of symptoms.</p> <p>- Continue the development and expansion of an advanced, integrated cloud based data environment to store a dynamic knowledge base of biothreat characteristics; capability would support automated data ingestion, collection, curation, search, and advanced analytics of data.</p> <p>FY 2025 Plans:</p> <p>- Continue to evaluate competitive prototyping initiatives for alternative approaches to remote sensing and/or minimally and non-invasive techniques to enhance our ability to quickly identify afflicted personnel, inform courses of action prior to the onset of symptoms, and mitigate impacts for chemical and biological (CB) agent exposure.</p> <p>- Continue the development and expansion of an advanced, integrated cloud-based data environment to store a dynamic knowledge base of biothreat characteristics; this capability will support automated data ingestion, collection, curation, search, and advanced analytics of data for rapid response to CB threats.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred to another thrust area. Funding (-\$1.049M) moved to the CBRN Battlespace Sensing, Alerting and Response thrust area for better project alignment. \$0.451M not transferred due to realized cost savings.</p>			
<p>Title: 5) CBRN Decision Aids - Enhanced Biological Defense (ENBD)</p> <p>Description: Focus on improved solutions for comprehensive biothreat characterization in support of Chemical and Biological Defense Program (CBDP) biodefense modernization goals, to include leveraging a cloud based data environment of biothreat characteristics, data sources, repositories created and curated under the Chemical, Biological, Radiological and Nuclear (CBRN) Battlespace Sensing, Alerting, and Response thrust area, and translating it into actionable information for transmission to and use on end-user devices (EUDs).</p> <p>FY 2024 Plans: -Explore and initiate efforts that will utilize data streams from a cloud based data environment to provide actionable information about biological threats and exposures on EUDs.</p> <p>FY 2025 Plans: -Continue efforts that utilize data streams from the enhanced cloud-based data environment in order to provide actionable information about biological threats and exposures on End User Devices (EUDs).</p>	-	1.000	1.000
<p>Title: 6) CBRN Situational Awareness - Enhanced Biological Defense (ENBD)</p>	3.000	2.500	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: Focus on exploring solutions for comprehensive biothreat characterization in support of Chemical and Biological Defense Program (CBDP) biodefense modernization goals, including the development of data analytics using machine learning (ML) and artificial intelligence (AI) and efforts to provide a suite of analytic tools for biological threat agent modeling, forecasting, and prediction to determine optimal defense postures.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue the development of analytic tools for biological threat agent surveillance, modeling, forecasting, and prediction. - Continue efforts to develop data analytics using ML/AI to predict individual warfighter susceptibility to acute CB agent exposure based on advanced omics, epigenetics, host immune responses, and wearables data sources. - Continue to explore mathematical models for innate immune recognition based on clinical data and prediction of signature patterns associated with bacterial vs. viral pathogens. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to funds moved to Project UN2 CBRN Situational Awareness to better align requirements with budget activity.</p>			
<p>Title: 7) Battlefield Readiness</p> <p>Description: Develop platforms to prepare the warfighter with rapid and easy to use diagnostics tests to make sure they are healthy and ready for movement. Platforms developed with affinity-based identification of either pathogen or host response to the pathogen may leverage immunodiagnostics to identify specific targets using antibodies, or explore other innovative approaches. This will enable broader and more accurate diagnosis for a range of targets and across a wider window following exposure. Investments in this area will provide capabilities to the warfighter that increase the speed of relevancy, enhance troop preparedness, aid with triage support, and provide diagnosis at lower roles of care.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue investigating minimally invasive testing methods and reduce diagnostic windows, even to pre-symptomatic identification. - Continue the development of a Point of Contamination (POC) diagnostic platform, capable of pre-symptomatically diagnosing infection within minutes and transition technology to Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense's (JPEO-CBRND) Advanced Differential Diagnostics (ADD) program. Pre-symptomatic evaluation will enable forces to determine personnel who are ideal candidates for troop movements or basic training. - Continue the development of a non-invasive diagnostic platform that can predict severity of disease which will enable logistical and resource optimization as well as quicker return of duty for a majority of patients. <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>	8.732	5.085	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Program/project funding transferred to another thrust area. Funding moved to the Operational Diagnostics thrust area for better project alignment.				
<p>Title: 8) Chemical Diagnostics</p> <p>Description: Provide innovative and integrated capabilities to the warfighter that are able to diagnose threats across the chemical spectrum. Enhance force protection by investing in diagnostics for exposure to traditional and nontraditional Chemical Warfare Agents (CWA), including pharmaceutical based agents.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue efforts that expand the capability of wearable devices from an alert to an FDA-approved diagnostic platform that can detect a chemical threat and allow a physician to diagnose and determine a treatment strategy for exposure to traditional/nontraditional chemical agents. <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p> <p>Program/project funding transferred to another thrust area. Funding moved to the Operational Diagnostics thrust area for better project alignment.</p>		2.414	1.695	-
<p>Title: 9) Operational Diagnostics</p> <p>Description: Develop diagnostic platforms that equip the warfighter with tools ensuring force protection against chemical and biological (CB) threats. Enhance force protection by investing in field forward, point of care medical diagnostics to identify multiple pathogens simultaneously.</p> <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue the development of a point of care (POC) diagnostic platform, capable of pre-symptomatically diagnosing infection within minutes and transition technology to the Advanced Differential Diagnostics (ADD) program. - Continue the development of a minimally invasive diagnostic platform that can predict severity of disease which will enable logistical and resource optimization as well as a more prompt return to duty for a majority of patients. <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p> <p>Program/project funding transferred from another thrust area. Decrease due to revised priorities from the Battlefield Readiness, Chemical Diagnostics, and Battlefield Readiness - Biological Defense Improvement Program thrust area transfers to focus on wearable technologies to FDA diagnostics.</p>		-	-	10.117
<p>Title: 10) Clinical Evaluation</p> <p>Description: Optimize the diagnostic development pathway by incorporating independent testing and evaluation for more informed prototype transition prior to advanced development. Investments in this area allow evaluation of diagnostic platforms</p>		2.314	0.848	1.836

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
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<p>through real world, austere environment testing. This area maintains access to research sites where populations are exposed to diseases of interest that would affect the warfighter in battlefield settings, thus providing valuable test data which will aid further prototype development.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue to maintain the capability to access clinical samples for infectious diseases of interest, and collaborate with sites around the world where diseases of concern are circulating. - Continue independent third-party testing - to establish clinical and performance parameters to evaluate diagnostic platforms through real world, austere environment testing and evaluation prior to transition. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue to maintain capability to access clinical samples for a variety of biological threats of interest and expand collaboration with sites around the world where diseases of concern are circulating performing clinical evaluations of various prototype platforms to validate transition readiness. - Expand independent third-party evaluation of lab-based clinical and performance parameters to test diagnostic platforms in real world, austere environments prior to transition. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to maturing prototypes culminating in expanded requirements independent third-party evaluation to de-risk potential transitions to advanced developers.</p>			
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Title: 11) Diagnostic Building Blocks	6.813	5.934	8.507
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<p>Description: Develop novel, state of the art capabilities that lay the foundation for modernizing other areas within the diagnostics portfolio. This includes exploiting areas such as synthetic biology and chemistry to develop novel and rapid diagnostic tests for utilization in the event of an outbreak of an unknown threat. Invest in efforts that lead to accelerated assay development timelines and optimized test parameters through leveraging artificial intelligence (AI) and machine learning (ML) to allow us to quickly pivot and develop assays for emerging threats in days instead of weeks.</p>			
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<p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue field validation studies for diagnostics prototypes using synthetic binders and evaluate performance against current gold standard diagnostic methods and integrate enzymes to create inexpensive, on-demand, diagnostics with reduced logistical burdens. - Continue efforts to collect the baseline data required for future development of a whole breath diagnostic platform the use of breath as a non-invasive sampling mechanism offers warfighters little-to-no interruption to mission activities and provides the opportunity for earlier diagnosis/indication of infection or chemical exposure. 			
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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>- Initiate efforts to identify and establish testing methods utilizing low to minimally invasive clinical matrices. Matrices like breath, sweat or interstitial fluid could significantly expand field-forward testing abilities and minimize requirements for trained personnel to collect and administer testing.</p> <p>FY 2025 Plans:</p> <p>- Initiate characterization and development of the organ-on-a-chip (OOC) technology and develop high thru put systems for biomarker discovery. Identifying new biomarkers will lead to tests that require less reagents, and are potentially more sensitive and specific than those currently fielded.</p> <p>- Continue developing prototypes that will supplant current test methodologies. New prototypes will be more sensitive, rely less on supply chain disruption, and can be developed and fielded faster than current technology allows.</p> <p>- Continue implementation of breath-based biomarkers for bacterial and viral respiratory infections into a portable prototype device to provide the warfighter with a minimally invasive tool for rapid diagnostics against biological threats.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred from another thrust area. Increase due to revised priorities from the Diagnostic Building Blocks - Biological Defense Improvement Program thrust area transfer for development of emerging technologies.</p>				
<p>Title: 12) Emerging Threats</p> <p>Description: Push beyond the boundaries of the traditional threat list in the field of diagnostics to better prepare for surprise. Development of diagnostic systems that leverage novel approaches to characterize pathogen or host response and can identify the classification of threat (e.g., bacterial vs viral) from an unknown sample. Invest in diagnostic tests that enable the delivery of actionable information, such as administering the appropriate medical countermeasure (e.g. antibiotic, antiviral, vaccine), by a medic or primary care provider greatly improves turnaround time for soldier wellness and return to duty.</p> <p>FY 2024 Plans:</p> <p>- Initiate efforts to identify novel platforms that are capable of identifying broad classes of toxins in complex matrices. These platforms will ideally enable the diagnosis of exposure to toxins as well as other biological threats, resulting in a broad-spectrum capability in the hands of the warfighter.</p> <p>- Begin preliminary research efforts to diagnose biological threats.</p> <p>FY 2025 Plans:</p> <p>- Continue development of novel platforms for field forward toxin identification devices into light, deployable, and easy to use technologies for rapid diagnosis and characterization of toxin exposure.</p> <p>- Initiate development of a portable assay capable of performing multiple detection assays against a panel of marine toxins and pharmaceutical- based agents to be compatible with advanced development Program of Record (POR) for Next Generation</p>		4.796	3.391	4.754

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Diagnostics System (NGDS) Increment 2 system to rapidly and comprehensively characterize traditional and emerging threat agents in field-forward settings. FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred from another thrust area. Decrease due to revised priorities from the Emerging Threats - Biological Defense Improvement Program thrust area transfer.				
Title: 13) Emerging and Enhanced Biothreat Sensing - Waste Water Surveillance Description: Emerging Biological Threat Surveillance is designed to address capabilities identified in the National Biodefense Strategy and DoD Biodefense Posture Review. The goal of this thrust is to analyze wastewater for emerging biological threats and help foster early warning. Early warning will allow for more timely and useful consequence management operations (Vaccine development, diagnostic testing). FY 2024 Plans: - Expand early warning through wastewater surveillance capabilities to enable detect to warn capability and identification of unknown biological threats in Total Force populations. - Initiate technology to deliver capabilities to detect any pathogen, including engineered bioweapons. FY 2025 Plans: - Initiate augmentation of biological detection by leveraging characterization to hasten development of detection solutions to inform of potential biological hazards in wastewater environments. - Continue to develop quicker workflows to monitor and characterize novel or emerging threats. - Continue to develop workflow with automated processes that can sample, analyze, and report. - Continue Demos, initiate sprint tests and refinement of detection workflows. - Showcase the detection workflow and demonstrate rapid detection and reporting. Optimize, repeat, and field when successful. FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to additional investment to advance the overarching goals aligned with the 2022 National Biodefense Strategy and Implementation Plan (NBS).		-	5.700	6.200
Title: 14) Battlefield Readiness - Biological Defense Improvement Program Description: Provide non-invasive disease screening capabilities to rapidly respond to emerging biological threats and greatly enhance the warfighters' ability to seek medical treatment at the earliest indication of exposure. FY 2024 Plans:		-	4.235	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Expand development of Wearable technologies to evaluate customizable hardware and algorithms that detect warfighters autonomic- response to biological warfare agents, both natural and unnatural. FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred to another thrust area. Funding moved to the Operational Diagnostics thrust area for better project alignment.			
Title: 15) Diagnostic Building Blocks - Biological Defense Improvement Program Description: Provide agile assay development capabilities aided by Artificial Intelligence (AI) to advance the speed and accuracy of diagnostic assay design, addressing a key functional capability needed for emerging biological threat response. FY 2024 Plans: - Continue the development of agile biological assays to reduce the design assay and increase assay quality to better respond to emerging biological threats. FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred to another thrust area. Funding moved to the Diagnostic Building Blocks thrust area for better project alignment.	1.000	1.347	-
Title: 16) Emerging and Enhanced Biothreat Sensing - Biological Defense Improvement Program Description: Provide end users with a rapid assay capability (< 6 weeks from discovery of emerging/enhanced threat to delivery of the initial assay) that will be disruptive to current detection and diagnostic timelines. Eliminate the need to rely on single-source reagents to rapidly respond to emerging biological threat. FY 2024 Plans: - Continue assay development to provide rapid, agile, and scalable biodetection technology to quickly address emerging biological threats and allow the warfighter to use a highly-specific assay that is built to minimize logistics burden and is user-friendly. FY 2024 to FY 2025 Increase/Decrease Statement: Program/project is entering completion and all activities will be closed.	2.200	1.865	-
Title: 17) Emerging Threats - Biological Defense Improvement Program Description: Expand on agnostic disease screening and sensing capabilities for emerging biological threats. FY 2024 Plans:	0.460	3.170	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>- Continue prototype development investments in agnostic sensing/screening capabilities for multiple sample types and environments that are end user-friendly and can be deployed in the field.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred to another thrust area. Funding moved to the Emerging Threats thrust area for better project alignment.</p>				
<p>Title: 18) Technical Surprise - Biological Defense Improvement Program</p> <p>Description: Technical Surprise assesses technological advancements for potential implications to the threat space, including agent use and release. Technical Surprise includes horizon scanning to identify potential areas of concern as well as conducts technical assessments of emerging technological advancements (e.g. biotechnology, artificial intelligence, machine learning, quantum computing). This program develops capabilities to evaluate and assess technical enhancements that may alter the nature or magnitude of a threat agent. The technical surprise program evaluates technologies and convergence of technologies that improve the ease of threat use and make threats more likely to survive being released. The program identifies the limitations and barriers associated with synthetic biology and assesses the implications. Finally, these efforts identify and assess former technology hurdles that have been lowered or overcome and assesses the implications to the magnitude of the potential threat.</p> <p>FY 2024 Plans: - Complete the Threat Area Panel (TAP) efforts at US Army Medical Research Institute of Infectious Disease (USAMRIID). Complete and augment horizon scanning capabilities, including identification of knowledge gaps for emerging/future agents enhancing or altering the biological threat space, and use these to inform more focused studies within Threat Agent Science.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project is entering completion and all activities will be closed.</p>		2.452	0.500	-
<p>Title: 19) Distributed Chemical Reconnaissance</p> <p>Description: Develop threat sensing and sampling payloads for manned and unmanned aerial system (UAS) and ground (UGS) platforms to enhance early warning and situational awareness of chemical threats. Sensor development will support dismounted reconnaissance and surveillance missions by providing low size, weight, power and cost sensors or sensing/collection systems that are rugged, rapid and accurate.</p> <p>FY 2024 Plans: - Continue development toward a deployable microsensor development pipeline and enhance sensor integration efforts. - Initiate efforts to modernize capabilities to reduce false alarms and increase sensitivity and specificity.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>		3.157	3.176	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Program/project funding transferred to another thrust area. Funding moved to the Operational Chemical Sensing thrust area for better project alignment.			
<p>Title: 20) Operational Chemical Sensing</p> <p>Description: The Operational Chemical Sensing thrust area will mature and miniaturize chemical threat sensing and sampling technologies for distributed and networked detection systems beyond the warfighter’s line of sight to support early warning of chemical threats for fixed site, reconnaissance, and maneuver operations. Furthermore, the thrust area will provide capabilities for the full spectrum of missions and threats with rugged, low-cost point sensors and automated technologies.</p> <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue development toward a deployable microsensor development pipeline for improved size, weight, and power CBRN sensor prototypes. - Initiate integration of mature chemical threat sensing and sampling system prototypes onto unmanned and manned platforms and perform test assessments. - Continue efforts to modernize detection prototypes to reduce false alarms and increase sensitivity and specificity. <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p> <p>Program/project funding transferred from another thrust area. Decrease due to the Distributed Chemical Reconnaissance thrust area transfer to focus on deployable microsensor development pipeline maturation.</p>	-	-	2.956
<p>Title: 21) Expeditionary Analytical Toolkit (ExAnT)</p> <p>Description: Provide general and specialized forces with the ability to modernize detection technologies for traditional threats while enhancing detection capabilities for non-traditional, emerging, and mixed chemical hazards.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Transition stand-off detector prototypes that identify and alert to chemical hazards to PCAD Program of Record. - Continue development toward detection prototypes to address PBA and other emerging threats. - Continue the development of sensor technologies against non-traditional threats of concern to develop class-based detection and reduce reliance on known threat libraries. <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p> <p>Program/project funding transferred to another thrust area. Funding moved to the Modernized and Enhanced Chemical Sensing thrust area for better project alignment.</p>	13.972	17.269	-
<p>Title: 22) Modernized and Enhanced Chemical Sensing</p>	-	-	13.457

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: The Modernized and Enhanced Chemical Sensing thrust area will develop a suite of modernized detection technologies for traditional chemical threats while enhancing detection capabilities for non-traditional, emerging, and mixed chemical hazards. Furthermore, this thrust area will miniaturize high-fidelity identification instruments for field use, keeping the warfighter ahead of traditional and emerging chemical threats in complex environments.</p> <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Transition hand-held, non-contact (1-2 meters standoff) detector prototypes that identify and alert to trace chemical hazards on surfaces to the Proximal Chemical Agent Detector (PCAD) Program of Record. - Transition detection prototype with fast identification of pharmaceutical based agents (PBA) and the ability to classify other emerging threats, targeting Joint Program Executive Office for Chemical, Biological, Radiological, and Nuclear Defense (JPEO-CBRND) - Joint Product Manager for Chemical, Biological, Radiological, and Nuclear (CBRN) Special Operation Forces (JPM CBRN SOF) as transition partner. - Continue the development of sensor technologies against non-traditional threats of concern to develop class-based detection and reduce reliance on known threat libraries. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred from another thrust area. Decrease due to the Expeditionary Analytical Toolkit (ExAnT) thrust area transfer to focus on developing modernized detection technologies for traditional chemical threats in complex environments.</p>			
<p>Title: 23) Unconventional Detection Modalities - Chemical Detection</p> <p>Description: Develops disruptive technologies to identify unknown or emerging chemical threats as well as sensors that can operate in complex threat environments with high accuracy. Efforts in this area pursue a “fail fast” approach, with promising technologies transferred to other thrust areas/budget lines for further development.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue pursuing advances in photonic integrated circuits by reducing size, weight and power of traditional photonic sensors but keeping the selectivity and sensitivity of a traditional sensor. - Incorporating early warning and threat mapping using ML/AI tools to aggregate and analyze sensor data in real-time. - Continuing library-less detection to surmount current sustainment limitations of library-based or analyte-specific chemical sensor to be updated to detect emerging threats. - Continue development in machine learning (ML) and artificial intelligence (AI) to make sensor detection faster with reduced false alarm rates. <p>FY 2025 Plans:</p>	1.485	2.443	2.328

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<ul style="list-style-type: none"> - Continue to develop library-less chemical detection capabilities to surmount sustainment limitations of library-based or analyte specific chemical sensor to detect emerging threats - Continue development of commercial telecommunication radiofrequency bands for networked and integrated chemical sensing - Continue the development of chip-sized, manufacture-ready optical detectors based on recent advances in photonic technologies - Transition the development of machine learning (ML)/artificial intelligence (AI) to improve sensor detection response with reduced false alarm rates to the Nuclear Biological Chemical Reconnaissance Vehicle – Sensor Suite Upgrade (NBCRV –SSU) Program of Record. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to maturing technologies transitioning to other thrust areas (Modernized and Enhanced Chemical Sensing and Operational Chemical Sensing).</p>				
<p>Title: 24) Distributed Biological Reconnaissance</p> <p>Description: Develop threat sensing and sampling payloads for manned and unmanned aerial system (UAS) and ground (UGS) platforms to enhance early warning and situational awareness of biological and chemical threats. Sensor development will support dismounted reconnaissance and surveillance missions by providing low size, weight, power and cost sensors or sensing/ collection systems that are rugged, rapid and accurate. Early indications from capabilities under Chemical and Biological (CB) Reconnaissance will allow for enhanced warning of threats.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue to develop innovative sensor solutions and make technological improvements to include early warning of aerosolized biological threats. -Continue to explore fundamental science and novel technologies to increase sensing performance through enhanced speed and specificity; low size, weight, and power (SWaP); low-burden; and reduced consumables and life-cycle costs of fielded biological sensors. - Continue developing enhanced sensing capabilities and sampling systems, to include unmanned vehicles and mobile platforms. - Initiate the use of computational tools, like machine learning, into detector/identifier technologies to further reduce false reporting due to environmental factors. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred to another thrust area. Funding moved to the Operational Biological Sensing thrust area for better project alignment.</p>		0.948	1.741	-
<p>Title: 25) Unattended Perimeter Monitoring - Biological Detection</p>		0.687	1.283	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: Establish a layered defense capability by developing and implementing automated and integrated technologies enabling unattended monitoring for chemical and biological threats. These technologies will provide early warning of vapor, aerosol, solid, and liquid hazards and unencumber the warfighter by reducing logistics and operator burden. Providing a reliable detect-to-warn capability at fixed or expeditionary sites will enhance the overall protective posture of ground and maneuver forces as robust technologies can be miniaturized for portability and operational sustainment.</p> <p>FY 2024 Plans: - Continue efforts to modernize capabilities to reduce false alarms and increase sensitivity and specificity.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred to another thrust area. Funding moved to the Operational Biological Sensing thrust area for better project alignment.</p>			
<p>Title: 26) Operational Biological Sensing</p> <p>Description: The Operational Biological Sensing Thrust Area aims to inform and alert the warfighter of biological hazards they may encounter in an operational setting. This thrust area continues to develop fieldable technologies capable of collecting and detecting air-borne biological threats in the battlespace.</p> <p>FY 2025 Plans: - Continue to develop prototype of novel and innovative detectors to identify airborne biological threats. - Continue to integrate computational tools (e.g. machine learning) into detector/identifier technologies to further reduce false reporting. - Validate HEPA filtration purification systems aboard US Navy hospital ship Sample Collection for Detection. - Continue to develop automated, hands-free biosample collection systems to optimize collection efficiencies and reduce end-user interaction and potential exposure. - Initiate rapid sample collection for either perimeter defense or unmanned platform operation. - Continue development and transition enhanced sensing capabilities, particle classifiers, and sampling systems for unmanned vehicles and mobile platforms.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred from another thrust area. Decrease due to efficiencies gained by consolidating the Distributed Biological Reconnaissance and Unattended Perimeter Monitoring - Biological Detection thrust areas for biological threat sensing efforts.</p>	-	-	2.880
<p>Title: 27) Emerging and Enhanced Biothreat Sensing</p>	1.369	3.453	4.943

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: Establish robust capability to assess emerging and enhanced biological threats to rapidly develop biosensors for detecting emerging or enhanced biological threats. Quickly develop adaptable, analyte-agnostic laboratory and field-forward detection capabilities to provide a spectrum of improved detection assets for novel threats. This thrust area leverages multi-omics data science or the combining multiple measurements to inform rational and rapid design and development of biodetection solutions. Synthetic biological concepts will be thoroughly evaluated and exploited for the development of biosensing solutions and refinement of laboratory methods.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue development of detection and identification capabilities that discern if pathogens are genetically manipulated and/or identify pathogens of unknown origin. - Continue development of detection algorithms, laboratory workflows, and implementation of bioinformatics analysis tools to identify threats in unknown samples - Continue development of assays on demand biological threat detection assays that provide the Warfighter with the ability to rapidly respond to emerging biological threats and provide only the assay needed for threat identification and therefore reducing cost and reagents needed by most current assay kits. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue to augmenting machine learning (ML)/artificial intelligence (AI) application to data processing algorithms and workflows for strategic assessment of agnostic threat signatures toward enhanced detection capabilities of emerging biothreats. - Develop portable technologies that can process, sequence and analyze samples in the field to detect emerging pathogens and engineered microorganisms. - Complete Assays on Demand (AoD) applied research component of far-forward pathogen agnostic sensing. - Continue AoD development and transition rapidly fieldable, high-performance biothreat identification assay. - Continue AoD development of point-of-need assay capability in the field. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred from another funding line. Increase due to Assays on Demand (AoD) technology maturation and transition from Project UN2 Emerging and Enhanced Biothreat Sensing thrust area.</p>			
<p>Title: 28) Unconventional Detection Modalities - Biological Detection</p> <p>Description: Develops disruptive technologies to identify unknown or emerging biological threats as well as sensors that can operate in complex threat environments with high accuracy. Efforts in this area pursue a “fail fast” approach, with promising technologies transferred to other thrust areas/budget lines for further development</p> <p>FY 2025 Plans:</p>	0.871	-	1.018

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) UN3 / <i>Understand (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
- Continue development of low size, weight, and power collection system integrated onto robotic bees. - Continue maturation of electrochemical sensors for biological detection.			
FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to maturing technologies transitioning from Project UN2.			
Accomplishments/Planned Programs Subtotals	69.652	83.825	76.114

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• UN4: <i>Understand (ACD&P)</i>	52.163	61.638	53.120	-	53.120	47.808	49.646	49.608	62.105	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) PT3 / <i>Protect (ATD)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
PT3: <i>Protect (ATD)</i>	-	29.631	29.261	46.050	0.000	46.050	46.703	46.159	54.536	54.535	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Protect Advanced Technology Development (ATD) Project enhances mission performance while providing effective protection against current and emerging chemical and biological (CB) threats, enables Joint Force lethality by protecting Warfighters against adverse effects of CB hazards, and fields protection capabilities against engineered biological agents, opioids and other Pharmaceutical Based Agents (PBAs), and Fourth Generation Agents (FGAs).

Thrust Areas included in this Project are:

- (1) Biological Warfare Defense Prophylaxis
- (2) Air Purification Enhancements
- (3) All-Hazards & Respiratory Protection
- (4) Enhanced Survivability Coatings
- (5) Multifunctional Materials for Protection (MMfP)
- (6) Protective Garments
- (7) Nerve Agent Prophylaxis/Pretreatments

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

	FY 2023	FY 2024	FY 2025
Title: 1) Biological Warfare Defense Prophylaxis	22.731	15.082	24.043
<p>Description: The ultimate protection of the warfighter is achieved by pretreating the warfighter to withstand any biological threat, which will decrease reliance on early warning and personal protective equipment, and facilitate the warfighter to operate at peak performance. This area supports transitions of lead PT2 platforms and capabilities (including broad-spectrum and rapid response) and develops them further before transition to advanced development.</p> <p>FY 2024 Plans: Bacterial: - Initiate Phase 1 vaccine clinical trial in collaboration with Australia for the Burkholderia OMV vaccine. - Continue building relationships in Madagascar to collect plague survivor samples for identification of vaccine antigen targets from emerging plague strains</p> <p>Viral:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) PT3 / <i>Protect (ATD)</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<ul style="list-style-type: none"> - Initiate Phase 1 clinical trial for the VEE deoxyribonucleic acid (DNA) Vaccine. - Continue preclinical development of Hydrovax pan-Alphavirus vaccine - Continue preclinical development of mucosal SARS CoV2 vaccine, expanding to multivalent coronavirus vaccine - Complete Current Good Manufacturing Practices (cGMP) manufacture of Recombinant Vesicular Stomatitis Virus rVSV Marburg virus vaccine and IND enabling studies to support pivotal animal studies and upcoming Phase 1 clinical trial. - Continue correlates of protection studies for viral vaccines. - Continue evaluation and mitigation studies of Filovirus aerosol pathology. - Continue development of rVSV Marburg vaccine in animal models to support investigational new drug (IND) submission. - Continued development of alphavirus animal models to support animal rule licensure of alphavirus vaccines - Continue assay qualification and validation for Marburg virus, and alphavirus vaccines <p>Broad Spectrum:</p> <ul style="list-style-type: none"> - Continue layered defense studies for pathogen threats to test vaccines, antibody therapies and antibiotics in combination to broaden protection. - Continue development of the multivalent Nanolipoprotein vaccine against multiple bacterial agents. - Continue preclinical development of universal cellular nanosponge MCM to protect against multiple respiratory viruses. - Continue non-clinical safety and efficacy studies with the broad spectrum NLP vaccine for advancement to clinical Phase 1. - Initiate development of oral multivalent mRNA vaccine <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Complete Phase 1 clinical trials for two vaccine candidates and transition to advanced development. - Complete preclinical studies and manufacturing process development for two additional vaccines using other platforms for transition to advanced development. - Continue preclinical development of multiple broad spectrum and multivalent vaccine platforms and toxin mAbs for transition to advanced development. - Data from preclinical studies will enhance understanding of how to use these platforms in rapid response scenarios. - Continue establishment of animal models for FDA approval. - Initiate and improve manufacturing process development and scale up for toxin antibodies and multiple prophylactic platform technologies. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increased investments in broad-spectrum and multivalent prophylactic platform technologies. Impacts late development and transition of advanced capabilities and well characterized animal models</p>			
Title: 2) Multifunctional Materials for Protection	1.432	1.404	0.256

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) PT3 / <i>Protect (ATD)</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
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<p>Description: Multifunctional Materials for Protection (MMfP) iteratively develops and tests new materials and prototypes for protective garment, filter, and coatings technologies that will absorb, neutralize, and repel chemical and biological warfare agents. This will reduce costs by extending service life. New materials can also reduce the heat burden of individual protection (i.e., boots, suits, masks, and gloves) and make it more natural to operate in. . This will allow Warfighters to operate in individual protection gear for extended periods of time, reducing the necessity of early warning MMfP replaces PFAS-based textile finishes and surface coatings. MMfP matures and scales technologies that transition to all physical protection thrust areas.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Generate prototype next generation reactive and regenerative protective garment prototypes with longer service life and lower thermal burden for whole system testing. - Integrate responsive technologies to develop prototype protective suits that adapt to the environment by switching between low burden and high protection mode on demand in response to the presence of CB agents, offering proactive contamination protection. - Integrate reactive materials into filters for enhanced threat spectrum protection, extending service life and regenerative capacity. - Scale materials manufacturing processes for cost-efficiency. - Characterize materials using operationally-relevant test methods and conditions. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Optimize scaled materials manufacturing processes for cost and process efficiency and characterize materials using operationally relevant test methods. - Fabricate and test biologically inspired and two-dimensional materials for protection as they mature from applied research to advanced applied research. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred to another thrust area. Decrease due to efficiencies gained by moving efforts to the Air Purification Enhancements (\$.500M) and Protective Garments (\$.500M) thrust areas to support development of next generation individual protection filter and self-detoxifying garment prototypes.</p>			
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<p>Title: 3) Protective Garments</p> <p>Description: Protective Garments provides reduced burden, low encumbrance protective garments integrated into full systems with operationally relevant, whole system test methods, and reduces cost, logistical resupply demand, and increases sustainability of solutions.</p> <p>FY 2024 Plans:</p>	-	0.117	0.617
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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) PT3 / <i>Protect (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>- Manufacture scaled responsive/reactive prototype garments that adapt or react to the threat and environment while reducing thermal burden and integrate with current combat garments.</p> <p>- Test scaled responsive/reactive prototype garments using whole system test methods.</p> <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Perform user assessments of prototype protective garments for self-detoxifying and regenerative capacity to inform iterative design improvements. - Continue swatch material and whole system testing of prototype protective garments for self-detoxifying and regenerative capacity to inform chemical threat protection, neutralization, and increased service life. - Develop, optimize, and demonstrate scaled manufacturing methods for prototype protective garments for self-detoxifying and regenerative capacity to inform cost projections. - Incorporate elasticity into laminated regenerative fabrics. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred from another thrust area. Funding moved from the Multifunctional Materials for Protection thrust area to support development of self-detoxifying garment prototypes.</p>			
<p>Title: 4) Air Purification Enhancements</p> <p>Description: Air purification filters go on individual protective gear (masks) and collective protection (i.e., military systems such as tanks, ships, and buildings). Current filters are expensive and do not alert operators when they are no longer effective at blocking CB threats. Air Purification Enhancements develops filters that last longer and reduce lifecycle costs, as well as satellite filters to monitor their effectiveness throughout their lifecycle. The thrust's filters will transition enhanced protection technologies against both traditional and advanced threats to the advanced developer.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Transition improved, compact vehicle ColPro system filters to the Modernization ColPro program of record to broaden the spectrum of threat protection and reduce production and replacement costs. - Transition the Residual Life Indicator System to the Modernization ColPro program of record to accurately predict remaining filter life, reducing cost and logistics for facility and shipboard ColPro systems. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Redesign and down select improved M98 filter designs with extended filter life. - Improve filter integration/interoperability into Service equipment and platforms that offer protection against diverse threat agents. <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>	0.126	0.117	0.617

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) PT3 / <i>Protect (ATD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Program/project funding transferred from another thrust area. Funding moved from the Multifunctional Materials for Protection thrust area to support development of next generation individual protection filter.				
<p>Title: 5) All-Hazards & Respiratory Protection</p> <p>Description: All-Hazards and Respiratory Protection tests, scales, and transitions prototypes for reduced burden, low encumbrance respiratory and ocular (eye) protection. This will make it easier for the Warfighter to perform mission essential tasks while operating in individual protective gear. Because current CB protective masks don't integrate with the Services' existing, non-CB defense helmets and displays, All-Hazards Respiratory Protection works to develop CB defense masks that integrate with existing combat systems.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Transition a microcooling-garment system that extended the time for mission operations to the Tactical Advanced Threat Protective Ensemble (TATPE) effort under the UIPE FoS GP program of record. - Complete design challenge for next generation respiratory protection concepts. - Perform early user assessment of next generation prototype respiratory protection concepts in the form of a low-burden, unencumbering respirator that integrates with existing systems (e.g., helmets and displays) and may include off-the-face and low profile filter designs. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Transition Full Spectrum Respiratory Protection System (as part of the Tactical All Hazards Ensemble) to the UIPE FoS and to the Tactical All Hazards Threat Protective Ensemble programs of record. - Transition next generation low burden respirator to ASPIRE program of record. - Transition wearable respiratory protection assessment system for operationally relevant mask fit testing. - Transition anti-fogging test standard and improved optical correction for masks. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Microcooling garment system transitions in FY24 to UIPE Fos GP program for advanced development.</p>		1.241	1.912	1.637
<p>Title: 6) Enhanced Survivability Coatings</p> <p>Description: Enhanced Survivability Coatings improves ability to restore asset to use in normal, unprotected operations and speeds ability to reduce MOPP.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Transition candidate temporary overcoats that are commercially-available, improve success of decontamination, have low impact on signature, and reduce logistics to the TTC (Tactical Temporary Coatings) program of record. 		0.501	0.629	0.380

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) PT3 / <i>Protect (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<ul style="list-style-type: none"> - Continue to evaluate and demonstrate industry polymer coatings as potential temporary or permanent military equipment coatings to decrease logistical burden of decontamination in support of the TTC program of record. - Conduct operational user assessments to validate temporary overcoats that improve decontamination for equipment elastomers. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue evaluating polymer coatings as potential temporary or permanent military equipment coatings to decrease logistical burden of decontamination in support of the TTC program of record. - Conduct equipment coatings broad materials surveys and improve two-dimensional surface treatments to repel agents of interest from current military equipment coatings. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to revised priorities to no longer pursue temporary equipment overcoats.</p>			
<p>Title: 7) Air Purification Enhancements - Enhanced Biological Defense (ENBD)</p> <p>Description: Air Purification Enhancements (Enhanced Biodefense) provides low cost, continuous-operation collective protection engineering standards and guidelines for temporary, rapid enhancement of unprotected DOD facilities during pandemic or biological warfare agent release.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Generate validated experimental data that quantifies the range of biological infection risk reduction based on indoor air quality measurements. - Use appropriate, validated experimental methodologies to characterize and compare the impact of collective protection biological infection risk and cost, and plan operationally-relevant testing. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Use operationally relevant test beds to evaluate technologies that enhance DoD facility collective protection to reduce risk of biological infection from internal or external sources. 	2.000	2.000	2.000
<p>Title: 8) All-Hazards & Respiratory Protection - Enhanced Biological Defense (ENBD)</p> <p>Description: All-Hazards and Respiratory Protection (Enhanced Biodefense) reduces Warfighter physical burden imposed by existing respiratory and ocular protection capabilities, reduces cost, and extends equipment service life.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Identify potential antimicrobial textiles and innovative designs for respirators by partnering with industry, Department of Defense laboratories, and academic performers. - Evaluate textiles for bactericidal and bacteriostatic effects using standardized test methods. 	1.285	1.500	1.000

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) PT3 / <i>Protect (ATD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>- Scale manufacturing of candidate antimicrobial textiles for respirator prototypes.</p> <p>FY 2025 Plans:</p> <p>- Perform early user assessment of respiratory and ocular protection specifically for protection against biological agents.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p> <p>Decrease due to transfer of funding to Protective Garments - ENBD thrust area to support advancement of successful antimicrobial swatch materials to prototype protective garment design, manufacture, scaling, and whole system testing.</p>				
<p>Title: 9) Protective Garments - Enhanced Biological Defense (ENBD)</p> <p>Description: Protective Garments (Enhanced Biodefense) reduces Warfighter physical burden imposed by existing personal protection capabilities, reduces cost, and extends garment service life.</p> <p>FY 2024 Plans:</p> <p>- Partner with industry, Department of Defense laboratories, and academic partners to identify potential antimicrobial textiles for evaluation.</p> <p>- Down select and evaluate textiles for bactericidal and bacteriostatic effects using standardized test methods.</p> <p>- Scale manufacturing of candidate antimicrobial textiles for prototype garments.</p> <p>FY 2025 Plans:</p> <p>- Perform early user assessment and swatch testing for percutaneous protection specifically for protection against biological agents.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p> <p>Increase due to transfer of funding from All-Hazards & Respiratory Protection - ENBD to support advancement of successful antimicrobial swatch materials to prototype protective garment design, manufacture, scaling, and whole system testing.</p>		0.315	0.500	1.000
<p>Title: 10) Nerve Agent Prophylaxis/Pretreatments</p> <p>Description: Exposure to nerve agents is at worst catastrophic and at best disabling for an extended period – and in most cases the onset of symptoms is very fast. Nerve agents work by blocking the signal flow across nerve junctions, ultimately resulting in a loss of ability to control both voluntary and involuntary muscles and death by asphyxiation. Maintaining full mission readiness in a CB contested environment would require advance administration of a medical antidote well before exposure and would not require additional treatment after exposure (prophylaxis). Until now, no such antidote has existed. The nerve agent (NA) prophylaxis portfolio is developing protective medicines that are effective against a broader range of nerve agents – including fourth generation agents – than had ever before been thought possible. Successful development of these medicines will greatly enhance the ability of the Warfighter to stay in the fight and move forward.</p>		-	6.000	14.500

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) PT3 / <i>Protect (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>FY 2024 Plans: - Continue to advance candidate bioconjugated organophosphorus hydrolase (OPH) mutants as catalytic nerve agent prophylaxes through current Good Manufacturing Practice (cGMP) production and on-Good Laboratory Practice (GLP)/GLP efficacy, toxicity and PK studies.</p> <p>FY 2025 Plans: - Continue to perform studies on how well the protective drugs work (efficacy), how they move into, through and out of the body (pharmacokinetics), and if there are any significant harmful effects (toxicity). These continuing studies are performed at standards suitable for submission to the FDA. Additionally, Phase I clinical studies will be initiated for one protective drug.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Current planning calls for FY25 initiation of a Phase I clinical trial, which necessitates a large increase in cost/funding.</p>			
Accomplishments/Planned Programs Subtotals	29.631	29.261	46.050

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PT4: <i>Protect (ACD&P)</i>	170.788	179.158	172.190	-	172.190	154.024	131.577	137.660	120.758	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) MT3 / <i>Mitigate (ATD)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
MT3: <i>Mitigate (ATD)</i>	-	83.766	100.791	81.920	0.000	81.920	90.704	84.795	86.434	86.435	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Mitigate Advanced Technology Development (ATD) Project provides the Joint Force the ability to preserve combat power by mitigating exposure to chemical and biological (CB) hazards and restoring combat readiness of critical personnel and platforms.

Thrust Areas included in this Project are:

- (1) Biological Warfare Defense Therapeutics
- (2) Discovery of Medical Countermeasures Against New and Emerging Threats (DOMANE)
- (3) Chemically Reactive Ocular, Wound and Dermal Therapeutics (CROWD)
- (4) Emerging and Pharmaceutical-based Agent Threats (EMPATH)
- (5) Reactivators of Acetylcholinesterase as Therapeutics (ReACT)
- (6) Enhanced Survivability Coatings
- (7) Equipment Decontamination
- (8) Multifunctional Materials for Protection (MMfP)
- (9) Personnel Decontamination
- (10) Wide Area Decontamination
- (11) Critical Area Decontamination

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

	FY 2023	FY 2024	FY 2025
<p>Title: 1) Biological Warfare Defense Therapeutics</p> <p>Description: Funds biomedical research focused on the nonclinical and early clinical development of therapeutic countermeasures against known and emerging viral, bacterial, and toxin biological warfare (BW) threats for which U.S. Food & Drug Administration (FDA) approved therapeutics are limited or lacking.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue nonclinical and regulatory activities to transition broad spectrum antibacterial candidate to Biomedical Advanced Research and Development Authority (BARDA). - Initiate clinical and/or nonclinical studies for broad-spectrum antiviral therapeutic candidates. <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>	-	3.984	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) MT3 / <i>Mitigate (ATD)</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
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Decrease due to funding consolidation for Biological Warfare Defense Therapeutics.			
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Title: 2) Biological Warfare Defense Therapeutics	29.065	29.703	17.694
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Description: Therapeutics represent an important component of integrated layered defense. Therapeutics will mitigate the impact of biological threats to the warfighter by enabling rapid recovery and expediting return to the fight. This effort funds biomedical research focused on the early discovery and evaluation of therapeutic countermeasures against known and emerging biological warfare (BW) threats for which Food & Drug Administration (FDA)-approved therapeutics are limited or lacking. Effort supports transition of lead candidates from MT2 for further development before transitioning to advanced development.

FY 2024 Plans:

- Bacterial:
- Continue efforts to identify and advance bacterial therapeutic candidates, including non-traditional candidates. Therapeutic candidates that are shown to be both safe and efficacious against BW threats will advance for additional nonclinical and clinical evaluation or transition to other therapeutic efforts or an advanced developer. Two broad-spectrum therapeutic candidates will advance to the Department of Health and Human Services, Biomedical Advanced Research and Development Authority for continued development.
 - Continue to partner with interagency, international and industry partners to fund nonclinical BW therapeutic efficacy studies for therapeutic candidates already in advanced development for public and force health indications.
 - Continue to execute proof of concept efficacy studies for antibiotic therapy in combination with prophylaxis or complimentary treatments (layered medical defense). Advance layered combinations toward proof of concept in safety/efficacy models.

Viral:

- Continue efforts to identify and advance viral therapeutic candidates against new and existing BW viral threats, including host targeted and direct acting, broad-spectrum anti-virals and monoclonal antibodies. Therapeutic candidates that are shown to be both safe and efficacious against BW threats will advance for additional nonclinical and clinical evaluation or transition to other therapeutic efforts or an advanced developer. One broad-spectrum therapeutic candidate will advance to the Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense Antiviral Oral Therapeutic Program for continued development.
- Continue proof of concept viral therapeutic efficacy studies for combinations of therapeutics including, small molecule, monoclonal antibody and host-directed therapeutics.

FY 2025 Plans:

- Efforts focused on transitioning to advanced development partners
- Continue to execute proof of concept efficacy studies for therapy in combination with prophylaxis or complimentary treatments (layered medical defense).

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) MT3 / <i>Mitigate (ATD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>- Advance small molecules, monoclonal antibodies and host-directed therapeutics and layered combinations toward establishing proof of concept in large animal models and transition to advanced development</p> <p>- One broad-spectrum therapeutic candidate will transition to the Antiviral Oral Therapeutic Program for continued development.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to revised priorities to focus on emerging threats.</p>				
<p>Title: 3) Biological Warfare Defense Therapeutics - Enhanced Biological Defense (ENBD)</p> <p>Description: This effort focuses on repurposing FDA approved therapeutics against different biological threats to enable rapid response. These activities support the development of repurposing tools and processes for more efficient future responses against new and emerging threats.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue to repurpose broad-spectrum drugs against viral, bacterial and toxin threats. - Continue to create and sustain curated, searchable databases of molecules with toxicity, drug development and efficacy data for use in a response to emerging biological threats. - Continue to develop host-targeted technologies that can be used to stop progression of disease caused by viral threats. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue to repurpose 5-10 broad-spectrum capabilities against biological threats. - Continue to create and sustain curated, searchable databases of molecules with toxicity, drug development and efficacy data to decrease timeline in MCM fielding in future responses to emerging biological threats. - Continue to develop host-targeted technologies that can be used to reduce symptoms caused by biological threats and minimize impact to the warfighter. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to revised priorities to focus on emerging threats.</p>		22.945	23.000	21.000
<p>Title: 4) Discovery of Medical countermeasures Against New and Emerging threats (DOMANE)</p> <p>Description: This effort focuses on predicting disease origin of pathogens and toxins while using artificial intelligence (AI) and machine learning (ML) to identify targets for both host and pathogen while conducting high throughput screens using new structural models with AI to predict and recommend potential therapeutics. It supports DOMANE thrusts like Disease Origin and Toxicity forecasting using Multi-Organoid Systems (PATMOS) prototype, which develops an advanced-artificial intelligence (AI) assisted multi-organoid system capable of forecasting disease origin of viral threats and toxicity of biotoxin threats.</p>		2.834	7.469	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) MT3 / <i>Mitigate (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p><i>FY 2024 Plans:</i></p> <ul style="list-style-type: none"> - Continue prototype development of PATMOS platform for high resolution forecasting of pathogenesis that occurs during interaction of new and emerging biological threats and providing initial safety data on recommended medical countermeasures. - Continue development of prototype development of ambient ionization mass spectroscopy high-throughput screens (AIM-HITS) system to rapidly characterize MCMs by collecting and analyzing large amounts of structural data and use AI/ML to recommend new MCMs. <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Program/project funding transferred to another thrust area. Funding moved to the DOMANE-ENBD thrust area for better project alignment.</p>			
<p><i>Title:</i> 5) Discovery of Medical countermeasures Against New and Emerging threats (DOMANE) - Enhanced Biological Defense (ENBD)</p> <p><i>Description:</i> Provides innovative and rapid medical countermeasures (MCMs) development capabilities (Artificial Intelligence, machine learning, data science, and platform technologies) that reduce developmental risks, cost, and schedule associated with MCM fielding. Building upon previous investments in DOMANE (e.g. BA2 funded efforts), this program focuses on predictive and generative AI/ML capabilities to rapidly identify safe and effective MCMs against a broad range of new and emerging threats.</p> <p><i>FY 2024 Plans:</i></p> <ul style="list-style-type: none"> - Continue prototype development of PATMOS platform for high resolution forecasting of pathogenesis using organoid platforms that occurs during interaction of new and emerging biological threats. - Initiate 2nd PATMOS prototype to provide additional pathogenesis forecasting capability along with recommending MCMs for treatment. -Continued prototype development of ambient ionization mass spectroscopy high-throughput screens (AIM-HITS) system to rapidly characterize MCMs and continued development of cryo-electron microscopy (cyro-em) prototype with high throughput system to characterize MCMs at the atomic level combined with AI/ML to recommend MCMs for new and emerging threats. - Continue prototype development for MEDFIND platform to identify repurposed and new drugs using AI and ML using high throughput screens and micro-electron diffraction to deliver crystal structures on the atomic scale to enable accurate target and host characterization leading to designing new MCMs. <p><i>FY 2025 Plans:</i></p> <ul style="list-style-type: none"> - Continue development of organoid platform to predict and assess MCM safety - Continue to use organoid platform to characterize disease progression 	12.000	12.000	14.219

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) MT3 / <i>Mitigate (ATD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
- Continue to identify potential drug candidates utilizing various AI/ML-supported platforms				
<p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred from another thrust area. Decrease due to revised priorities from the DOMANE thrust area transfer to focus on enhanced biodefense and pandemic preparedness.</p>				
<p>Title: 6) Chemically Reactive Ocular, Wound and Dermal Therapeutics (CROWD)</p> <p>Description: While there exist multiple processes and reagents for cleaning physical surfaces that have been contaminated with chemical agents, there are limited options for human skin, and nothing that could be used for open wounds. This represents a source of continuing exposure for the warfighter and a hazard to medical personnel treating them. CROWD focuses on developing a ready-to-use product to remove Chemical Warfare Agent (CWA) contamination on skin, eyes and ultimately wounds. Removing or neutralizing CWA decreases the total exposure to the warfighter and allows optimal effectiveness of other medicines.</p> <p>FY 2024 Plans: - Perform advanced preclinical studies to validate safety and efficacy in support of clinical trials.</p> <p>FY 2025 Plans: - Perform preclinical studies to validate safety and efficacy in support of clinical trials and optimize processes for meeting the set of quality regulations established by the FDA. - Initiate preclinical studies for wounds in large animals.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to economic cost adjustments supporting CROWD efforts.</p>		-	2.500	2.407
<p>Title: 7) Emerging and Pharmaceutical-based Agent Threats (EMPATH)</p> <p>Description: As technology advances, the number of “easily available” threat chemicals increases. Some of these new chemicals pose threats to the warfighter and are therefore termed Emerging Chemical Threats (ECTs). In addition to ECTs, a subset of chemical threats includes legitimate medicines that are repurposed by those with malign intent as chemical threat agents, referred to collectively as Pharmaceutical Based Agents (PBAs). These compounds have genuine medical utility but can be abused (by level of exposure and/or delivery method) as general incapacitants (notably, large doses can easily become lethal). The warfighter requires effective MCMs that prevent or reverse the adverse effects of ECTs and PBAs, while still allowing for the use of U.S. Food & Drug Administration (FDA) approved drugs (e.g., morphine, fentanyl) by Joint Force Medical Staff for their labeled indications of pain management and sedation. EmPATH is evaluating approved medicines as well as developing new ones for use in the field to counteract these effects. The portfolio is working to develop MCMs that are effective against a wide range of ECT/PBA-induced symptoms which may be common across several different types of threat agents. Groups of symptoms caused</p>		0.387	4.361	4.496

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) MT3 / <i>Mitigate (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>by a family of threat agents that act similarly are called toxidromes; and medical countermeasures that address the symptoms of several different types of threat agents simultaneously are called cross-toxidromic medicines.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue cGMP production and non-GLP/GLP safety and/or efficacy assessment of a novel, multi-dose vial formulation. - IND filing and initiation of a human bioavailability/bioequivalence study to support a New Drug Application (NDA) filing for a novel, multi-dose vial formulation. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continues to further develop medicine candidates that treat key symptoms regardless of the specific agent that is causing them. This moves us away from “one risk, one remedy” solutions. This approach is called a “cross-toxidromic” approach and will be critical in addressing the rapidly expanding universe of chemical threat agents. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to economic cost adjustments supporting emerging and Pharmaceutical-based Agents.</p>			
<p>Title: 8) Reactivators of AChE as Therapeutics (ReACT)</p> <p>Description: Exposure to nerve agents is at worst catastrophic and at best disabling for an extended period – and in most cases the onset of symptoms is very fast. Nerve agents work by blocking the signal flow across nerve junctions, ultimately resulting in a loss of ability to control both voluntary and involuntary muscles and death by asphyxiation. Currently, there is only one FDA- approved post-exposure drug treatment that restores the activity of the human molecule deactivated by nerve agent, and it is essentially unchanged since the 1950s. The ReACT portfolio is developing a number of different candidate medicines that are effective against a broader range of nerve agents – including fourth generation agents - than had ever before been thought possible. Successful development of these medicines will greatly enhance the ability of the Warfighter to survive and potentially stay in the fight and move forward.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue to advance pre-clinical development of lead therapeutic candidates. - Complete IND-enabling studies on the current lead reactivator candidates. - Continue development efforts in preparation for IND/phase 1 clinical trials, including cGMP manufacturing. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue to perform preclinical studies for lead drug candidate and optimize processes for meeting the set of quality regulations established by the FDA. 	4.768	8.205	9.837

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) MT3 / <i>Mitigate (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
- Initiate investigative new drug (IND) package submission and Phase I clinical trials for one drug candidate. FY 2024 to FY 2025 Increase/Decrease Statement: Current planning calls for FY25 initiation of a Phase I clinical trial, which necessitates a large increase in cost/funding.			
Title: 9) Enhanced Survivability Coatings Description: Enhanced Survivability Coatings assesses existing technologies and develops new coatings to increase chemical agent resistance for equipment and individual protection gear. This will make it quicker and easier to decontaminate and restore assets for use in normal, unprotected operations. It will also allow the Joint Force to reduce individual protective gear more quickly. FY 2024 Plans: - Transition candidate temporary overcoats that are commercially-available, improve success of decontamination, have low impact on signature, and reduce logistics to the Tactical Temporary Coatings (TTC) program of record. - Continue to evaluate and demonstrate industry polymer coatings as potential temporary or permanent military equipment coatings to decrease logistical burden of decontamination. FY 2025 Plans: - Transition test method for temporary overcoat evaluation to the Tactical Temporary Coatings (TTC) program of record. FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to economic cost adjustments.	0.230	0.074	0.090
Title: 10) Equipment Decontamination Description: Equipment Decontamination provides reduced troop-to-task, logistics decontaminants, and decontamination methods with operationally-relevant test methods. FY 2024 Plans: - Demonstrate autonomous equipment decontamination platform to reduce troop-to-task and logistics requirements for operational decontamination. - Transition methodology for decontaminating chemically-contaminated sensitive equipment using hot, humid air. - Transition methodology for decontaminating bacterial spore-contaminated aircraft using hot, humid air. FY 2025 Plans: - Demonstrate autonomous equipment decontamination subsystems to reduce troop-to-task and logistics requirements for operational decontamination.	0.890	0.454	1.521

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) MT3 / <i>Mitigate (ATD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>- Conduct field demonstration of technologies and methods for chemical and biological tactical and thorough decontamination of aircraft (e.g., helicopter) interiors and exteriors.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase in FY25 to support user assessments of autonomous decontamination system.</p>				
<p>Title: 11) Multifunctional Materials for Protection</p> <p>Description: Multifunctional Materials for Protection (MMfP) develops new materials for decontaminants and coatings technologies that will absorb, neutralize, and repel chemical and biological warfare agents. This will make decontamination easier, reducing costs and the logistical burden on the Joint Force, supporting the Joint Force’s operational concepts in priority theaters. MMfP also develops new materials to replace PFAS-based finishes and surface coatings. MMfP matures technologies that transition to all hazard mitigation thrust areas.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Integrate reactive materials into decontamination systems for enhanced threat spectrum mitigation. - Continue ambient pressure characterization of reactive chemical decontamination mechanisms. - Scale materials manufacturing processes for cost-efficiency and characterize materials using operationally-relevant conditions. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Optimize scaled materials manufacturing processes for cost and process efficiency and transition to Protective Garments thrust. - Characterize materials using operationally relevant test methods. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to revised priorities supporting the characterization of materials using operationally relevant test methods.</p>		0.162	0.117	0.148
<p>Title: 12) Personnel Decontamination</p> <p>Description: Decontamination is critical to being able to fight through and recover quickly after CB threat usage. Personnel Decontamination provides new personnel decontamination kits with reduced costs and logistics (storage and shelf-life limitations) compared to the currently fielded product and provides new processes and methods for decontamination of unbroken skin.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Prepare a medical device package for FDA consideration for a new personnel decontamination form factor that reduces sustainment risk of Reactive Skin Decontamination Lotion cold storage and shelf-life concerns for the next generation Medical Decontamination Personnel Skin program of record. <p>FY 2025 Plans:</p>		0.485	2.339	3.572

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) MT3 / <i>Mitigate (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>- Continue Personnel Decontamination kit testing and demonstrations to support transition of technology to the Medical Decontamination Personnel Skin program of record.</p> <p>- Continue to seek FDA approval for a medical device 510K package for a powder/dry decontamination that reduces sustainment risk of RSDL cold storage and shelf-life concerns for general purpose warfighter personnel decontamination.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase in FY25 for scaled manufacturing of prototype personnel decontamination kit and safety and efficacy testing to support medical device 510K package submission to FDA.</p>			
<p>Title: 13) Wide Area Decontamination</p> <p>Description: Wide Area Decontamination develops autonomous systems and formulations for decontamination of mission-critical terrain.</p> <p>FY 2024 Plans: -Optimize chemical wide area decontamination methods and processes for using commercially-available packaged chemicals for decontaminating critical infrastructure area surfaces for effectiveness, availability, and sprayability/scalability. -Demonstrate chemical wide area decontamination methods, processes, and feasibility for using commercially-available packaged chemicals using operationally-relevant environments and simulants in support of autonomous decontamination.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred to another thrust area. Funding moved to the Critical Area Decontamination thrust area for better project alignment.</p>	-	0.585	-
<p>Title: 14) Critical Area Decontamination</p> <p>Description: Critical Area Decontamination mitigates hazards and contamination spread in mission-critical areas, such as airports and seaports, that are operationally essential for COCOM commanders to generate combat power within the theater of operations and enable normal, unprotected operations. This will enhance the Joint Force's ability to fight through and recover rapidly from adversary CB attacks on these mission-critical areas.</p> <p>FY 2025 Plans: - Demonstrate chemical and biological critical area decontamination formulations methods. - Validate processes for using commercially available packaged chemicals and operationally relevant environments and simulants. - Demonstrate formulation efficacy in operationally relevant field testing.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>	-	-	0.936

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) MT3 / <i>Mitigate (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Program/project funding transferred from another thrust area. Increase due to the Wide Area Decontamination thrust area transfer to demonstrate formulation efficacy in operationally relevant field testing.			
<p>Title: 15) Equipment Decontamination - Enhanced Biological Defense (ENBD)</p> <p>Description: Equipment Decontamination (Enhanced Biodefense) provides guidelines, standards, and methods for disinfection of DOD facility and large-platform interiors; provides biological contamination mapping capability for surfaces.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Complete and transition methods for field testing of surface decontamination methods for viruses using a safe, non-infectious surrogate to the Joint Biological Aircraft Decontamination Systems program of record. - Continue development of biological disinfection guidelines, procedures, and CONOPs, for DoD facility and large-platform interiors, including directed energy decontamination approaches. - Optimize and verify laboratory methods for biological agent disclosure sprays for sensitive, specific biological contamination mapping on surfaces to guide and reduce logistics of decontamination. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Demonstrate biological disinfection guidelines, procedures, and Concepts of Operations (CONOPs) for Department of Defense (DoD) facility and large-platform interiors, including development of directed energy disinfection methods including plasma and ultraviolet germicidal irradiation. - Continue to develop biological agent disclosure sprays for sensitive, specific biological contamination mapping on surfaces to guide and reduce logistics of decontamination. - Continue research, development, and demonstration of one or more functional prototype technologies in a phased approach for a biological agent disclosure sprays and down select designs for further development. 	4.000	5.000	5.000
<p>Title: 16) Wide Area Decontamination - Enhanced Biological Defense (ENBD)</p> <p>Description: Wide Area Decontamination develops autonomous systems and formulations for biological decontamination of mission-critical terrain.</p> <p>FY 2024 Plans:</p> <p>Develop concept platform and required subsystems for autonomous wide area biological decontamination, methods, processes, and feasibility and identify and optimize biological decontaminant formulations.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>	-	1.000	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) MT3 / <i>Mitigate (ATD)</i>
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B. Accomplishments/Planned Programs (\$ in Millions) **FY 2023** **FY 2024** **FY 2025**

Program/project funding transferred to another thrust area. Funding moved to the Critical Area Decontamination - Enhanced Biodefense thrust area for better project alignment.

Title: 17) Critical Area Decontamination - Enhanced Biological Defense (ENBD) 1.000 - 1.000

Description: Critical Area Decontamination mitigates hazards and contamination spread in mission-critical areas, such as airports and seaports, that are operationally essential for COCOM commanders to generate combat power within the theater of operations and enable normal, unprotected operations. This will enhance the Joint Force's ability to fight through and recover rapidly from adversary CB attacks on these mission-critical areas.

FY 2025 Plans:

- Demonstrate chemical and biological critical area decontamination formulations methods.
- Validate processes for using commercially available packaged chemicals and operationally-relevant environments and simulants.
- Demonstrate formulation efficacy in operationally relevant field testing.

FY 2024 to FY 2025 Increase/Decrease Statement:

Program/project funding transferred from another thrust area. Funding moved from the Wide Area Decontamination - Enhanced Biodefense thrust area for better project alignment.

Accomplishments/Planned Programs Subtotals 78.766 100.791 81.920

	FY 2023	FY 2024
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Congressional Add: Broad Spectrum Small Molecule Anti-viral Development 5.000 -

FY 2023 Accomplishments: Viral:

- Enhanced the viral therapeutic development pipeline by initiating two new efforts to identify and advance broad-spectrum viral therapeutic candidates against new and existing biological warfare (BW) viral threats.
- Therapeutic candidates that are shown to be both safe and efficacious against BW threats will advance for additional nonclinical and clinical evaluation under Advanced Component Development and Prototypes (PE 0603884BP) or transition to an advanced developer.

Congressional Adds Subtotals 5.000 -

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

<u>Line Item</u>	<u>FY 2023</u>		<u>FY 2024</u>		<u>FY 2025</u>		<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u>	
	<u>FY 2023</u>	<u>FY 2024</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>Complete</u>					<u>Total Cost</u>	
• MT4: <i>Mitigate (ACD&P)</i>	16.935	28.785	43.364	-	43.364	44.601	36.558	5.309	11.643	Continuing	Continuing	

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) MT3 / <i>Mitigate (ATD)</i>

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program										Date: March 2024		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>				Project (Number/Name) EN3 / <i>Enabling Investments (ATD)</i>			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
EN3: <i>Enabling Investments (ATD)</i>	-	38.164	43.196	16.967	0.000	16.967	19.040	19.040	19.040	19.040	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Enabling Investments Advanced Technology Development (ATD) Project focuses on early and continued involvement of the warfighter in the technology development process and has implemented a user community engagement process to align science and technology (S&T) activities with operational needs and ensure functional design. This process begins with the identification of an innovative technology concept, continues through the assessment of the prototype, and ends at the operational and utility demonstrations to enhance transition to an advanced developer. Enabling efforts in this area support dedicated infrastructure capabilities, demonstrations, and overarching development support functions as portfolio enablers responding to emerging threats. Project EN3 aligns revised CB incident preparedness and response priorities. In FY 2025, efforts supporting existing CB incident preparedness and response priorities transition to Project EN2 to continue resourcing for this portfolio.

Thrust Areas included in this Project are:

- (1) Biological Warfare Defense Prophylaxis
- (2) Advanced Technology Demonstration (ATD)
- (3) Technology Concepts
- (4) User Assessment
- (5) Battlefield Readiness
- (6) Diagnostic Building Blocks
- (7) Emerging Threats
- (8) Medical Countermeasures Initiative

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

	FY 2023	FY 2024	FY 2025
Title: 1) Biological Warfare Defense Prophylaxis - Enabling Science	-	-	7.500
Description: This effort will focus on the development of alternate animal models and validation of microphysiological models that mimic the human system. Investment includes efforts to advance multiple models for prototype pathogens and chemical agents and validation of models to replace, reduce, or refine animal use in MCM development in alignment with Congressional requirements (the FDA Modernization Act 2.0). This capability will decrease the time and resources necessary to mount an effective medical response against biological and chemical threats.			

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) EN3 / <i>Enabling Investments (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p><i>FY 2025 Plans:</i></p> <ul style="list-style-type: none"> - Advance developed alternate animal models for exemplar biological and chemical agents for model validation - Initiate validation of developed human and animal microphysiological model systems for direct comparison of animal models, Organ tissue equivalents, Immune system mimics, and human to bridge the data between animal models and humans <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Program/project funding transferred from another thrust area. Funding moved from the Medical Countermeasures Initiative thrust areas to support investments in alternatives to animal models supporting rapid response for new and emerging threats.</p>			
<p><i>Title:</i> 2) Advanced Technology Demonstration</p> <p><i>Description:</i> Advanced Technology Demonstrations (ATDs) are Joint Task Force (JTF) scenario-based experiments that demonstrate and evaluate groupings of integrated technologies or prototype systems, prioritized on warfighter operational needs in the context of the future fight, mitigate transition risk by assessing technologies for DOTMLPF-P considerations and demonstrating operational utility.</p> <p><i>FY 2024 Plans:</i></p> <ul style="list-style-type: none"> - Continue Tenacious Dragon Campaign ATD. - Demonstrate developmental technologies and gather warfighter feedback on capabilities that enable the effective employment and layering of CBRN awareness, understanding, protection and mitigation capabilities across medical and non-medical portfolios to provide rapid and effective reduction of the operational impact of CBRN hazards. - Demonstrate novel technologies from Defense Threat Reduction Agency (DTRA) Technology Divisions to accelerate and optimize their development, maturation, and transition coordinated with other technologies, enhancing capability development and DOTMLPF-P updates early in the Research & Development (R&D) cycle. - Coordinate an active pathway for developmental technologies from Technology Concepts and User Assessment (e.g. CBOA) thrust areas to ATDs, where appropriate, to demonstrate feedback-based progress in increasingly complex environments and facilitate technology transitions. - Continue the expansion of the service participation to include participation from the Services. <p><i>FY 2025 Plans:</i></p> <ul style="list-style-type: none"> - Continue the execution of Tenacious Dragon Campaign with an Integrated Layered Defense (ILD) construct and provide written knowledge products that analyze the integrated technology sets in the context of the operational baseline and DOTMLPF-P considerations, to inform the Services what is in early S&T R&D, to solicit Warfighter feedback on potential future capabilities, and identify opportunities to accelerate development, transition, and fielding, where possible. 	4.818	5.943	5.943
<p><i>Title:</i> 3) Technology Concepts</p>	0.300	1.496	1.673

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) EN3 / <i>Enabling Investments (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: Efforts in this area focus on exploring potential operational use of emerging technology concepts in order to explore potential applications for the Warfighter. These projects work directly with the Warfighter to help answer the question “If we build it, how might it be used?”</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Explore select technology concepts from an operational perspective across all capability areas. Tech Concepts explore the utility and application of technological approaches. These include autonomous operations; enhanced biothreat detection; CB threat diagnosis; improvements to sensitivity, specificity, and the limit of detection for CB sensors; features of biosensors to inform therapeutic or medical countermeasure decisions and treatment; next generation respiratory or physical protection; collective protection guidelines and techniques; and coating concepts for porous surfaces. - Continue to conduct User Feedback Tents for Tech Concepts (Concepts Tents) leveraging User community to identify potential areas for improvement and/or employment of emerging technologies. - Continue series of targeted questionnaires/surveys, facilitated focus groups, workshops and TTXs to define use cases, desired operational capabilities, key attributes and concepts of employment that inform tech development and investment strategies, Operating Concepts and materiel requirements. Concept Tent reports provide tech recommendations for more detailed Tech Concept studies/experiments. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue to conduct the annual Concept Tent at CBOA, leveraging User community to identify potential areas for improvement and/or employment of emerging technologies. - Continue a series of targeted questionnaires/surveys, facilitated focus groups, workshops and TTXs to define use cases, desired operational capabilities, key attributes and concepts of employment that inform tech development and investment strategies, Operating Concepts and materiel requirements. - Establish a Joint Battle Laboratory that will increase active information sharing and role playing with Futures teams to drive force design for CBRN Joint forces and DOTMLPFP actions to inform future investment and provide venue for technological innovation to drive force concept design from a CBRN lens. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding increased due to the new Joint Battle Lab initiation.</p>			
<p>Title: 4) User Assessment</p> <p>Description: User Assessments are designed to optimize individual technologies for the intended mission, explore how S&T prototypes and models might support future capability gaps and high priority mission deficiencies and identify candidates for rapid</p>	1.949	1.851	1.851

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) EN3 / <i>Enabling Investments (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>acquisition initiatives. These projects work directly with the Warfighter to help answer the question "What is the benefit to the mission?"</p> <p>FY 2024 Plans: - Continue the annual CBOA event.</p> <p>FY 2025 Plans: - Chemical and Biological Operational Analysis (CBOA): Continue the CBDP's signature User Assessment that assesses up to 35 S&T prototypes and models in scenario-based field experiments that view S&T from both the operator and adversary perspectives. To the extent possible, scenarios will align with and address gaps in Services/Joint Force future operating concepts. - Targeted User Assessments: Continue additional smaller-scaled assessment efforts based upon technology discovery, maturity, application to Warfighter needs and available resources focused on optimizing specific S&T for anticipated missions in future operating environments. - Technology Injects: Continue leveraging existing field experiments and Service-training exercises to conduct user assessments, mitigating redundancy of effort and saving cost"</p>			
<p>Title: 5) Battlefield Readiness</p> <p>Description: Provide innovative capabilities to the warfighter that increase the speed of relevancy, enhance troop preparedness, aid with triage support, and provide diagnosis at lower roles of care. Develop field forward medical diagnostics that allow for multiplexed detection of biological and toxin threats. Leverage immunodiagnostics to identify specific targets using current or novel approaches to enable broader and more accurate diagnosis for a range of targets and across a wider window following exposure.</p> <p>FY 2024 Plans: - Continue the development of additional panels for infectious disease diagnostic tests on the immunological diagnostic platform.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project is entering completion and all activities will be closed.</p>	5.094	4.658	-
<p>Title: 6) Diagnostic Building Blocks</p> <p>Description: Lays a foundation for the entire diagnostics portfolio by exploiting areas such as machine learning (ML), synthetic biology and chemistry to develop novel and rapid diagnostic tests for utilization in the event of an outbreak of an unknown threat.</p> <p>FY 2024 Plans:</p>	3.962	4.075	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) EN3 / <i>Enabling Investments (ATD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>- Continue novel efforts utilizing AI and ML for designing assays with high specificity against a broader range of chemical and biological agents to enable an agile response to emerging threats.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project is entering completion and all activities will be closed.</p>				
<p>Title: 7) Emerging Threats</p> <p>Description: Advance the diagnosis of emerging and/or low prevalence but high threat biological agents leveraging novel technologies. Develop threat agnostic tests based on host biomarkers that identify known or emerging bacterial or viral infections. Characterize markers for antibiotic resistance or susceptibility to identify challenging threats and inform treatment decisions. Improve capabilities to identify diverse biological agents that are not well characterized using molecular or immunodiagnostic approaches.</p> <p>FY 2024 Plans: - Continue efforts that establish multiple capabilities for Warfighters to combat new and emerging threats to include identifying novel platforms that are capable of identifying broad classes of threat agents in complex matrices.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project is entering completion and all activities will be closed.</p>		2.264	2.912	-
<p>Title: 8) Medical Countermeasures Initiative</p> <p>Description: Integrate advances in regulatory science, formulation and delivery technologies and processes. Also will develop animal models, drug discovery and evaluation of platforms as enablers of the advanced development of CBDP medical countermeasure products. These initiatives will lead to the establishment of multi-use platforms, novel formulations and animal models that can be leveraged during a CBRN response to accelerate medical product development and/or regulatory approval as well as reduce overall development costs.</p> <p>FY 2024 Plans: - Conduct evaluation of immune modulation strategies as stand alone, in layered defense and in formulation with vaccines. - Conduct test and evaluation of encapsulation technologies for vaccines that can co-deliver multiple antigens and adjuvants to specific host tissues and tune the immune response resulting in enhanced antigen efficacy and immediate protection with a single dose. - Conduct test and evaluation of mucosal delivery methods for delivery for vaccines that can fine-tune the immune response to vaccines with the goal being vaccines with neutralizing efficacy against a respiratory exposure to an emerging pathogen. Mucosal delivery has the ability to access unique compartments of immunity through intranasal or oral delivery and target that immunity specifically to the site of infection of a respiratory pathogen.</p>		19.777	22.261	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) EN3 / <i>Enabling Investments (ATD)</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
- Prepare for surprise by continuing to establish drug discovery and evaluation platform capability that can be leveraged during a CBRN response. - Continue to develop and advance animal models to accelerate medical countermeasure (MCM) delivery and the capacity to respond to emerging biological threats. <i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Program/project funding transferred to another thrust area. Funding moved to the Biological Warfare Defense Prophylaxis thrust areas in Project EN2 and EN3 for better project alignment.			
Accomplishments/Planned Programs Subtotals	38.164	43.196	16.967

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• EN4: <i>Enabling Investments (ACD&P)</i>	6.645	47.272	35.700	-	35.700	23.500	17.800	25.800	20.200	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) ET3 / <i>Emerging Threats (ATD)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
ET3: <i>Emerging Threats (ATD)</i>	-	0.000	10.000	9.000	0.000	9.000	9.000	9.000	9.000	9.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project ET3 aims to identify and develop scientific solutions, or to modernize capabilities, that allow for a more rapid response to emerging threats. This project supports the development of defense capabilities, collaborating across the Department of Defense (DoD) and specific interagency partners for doctrine, equipment, and training for the warfighter and civilian population for defense against emerging threats. Additionally, this project supports advanced development of defensive science and technology capabilities aimed at proactive characterization of threats and potentially disruptive technologies.

Individual efforts in this Project include:

- Developing new science and technology capabilities that allow for the rapid characterization of emerging threats to support operational decision making and requirements setting. Support an integrated approach to developing new or enhanced countermeasures against emerging threats through innovative science and technology solutions for detection, protection, decontamination, and medical countermeasures (MCMs).
- Efforts supply test methodologies and supporting science to verify capabilities, develop protection and hazard mitigation options, expand hazard assessment tools, and develop MCMs against emerging threats.

Chemical and Biological Emerging Threat Innovation Fund challenge DoD Labs and innovation cells to deliver transformational technologies against emerging threats that enables the force to compete, deter, and win in strategic environments described in the National Defense Strategy.

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

	FY 2023	FY 2024	FY 2025
<p>Title: 1) Emerging Threat Innovation</p> <p>Description: The Chemical and Biological Defense Emerging Threat Innovation Fund challenges DoD Labs and innovation cells to deliver transformational technologies against emerging threats that enables the force to compete, deter, and win in strategic environments described in the National Defense Strategy.</p> <p>FY 2024 Plans: Initiate enhanced capability to more rapidly characterize, and the development of medical countermeasures against, emerging chemical and biological threats through investment in high throughput technologies. Support development of challenges advancing concept and technology development.</p> <p>FY 2025 Plans:</p>	-	10.000	9.000

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603384BP / <i>Chemical and Biological Defense Program - Advanced Development</i>	Project (Number/Name) ET3 / <i>Emerging Threats (ATD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Continue enhanced capability to more rapidly characterize, and the development of medical countermeasures against, emerging chemical and biological threats through investment in high throughput technologies. Continue development of challenges advancing concept and technology development.			
FY 2024 to FY 2025 Increase/Decrease Statement: Funding decrease to support joint battle lab efforts in Project EN3.			
Accomplishments/Planned Programs Subtotals	-	10.000	9.000

C. Other Program Funding Summary (\$ in Millions)											
			<u>FY 2025</u>	<u>FY 2025</u>	<u>FY 2025</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Complete</u>	<u>Total Cost</u>
• UN4: <i>Understand (ACD&P)</i>	52.163	61.638	53.120	-	53.120	47.808	49.646	49.608	62.105	Continuing	Continuing
• PT4: <i>Protect (ACD&P)</i>	170.788	179.158	172.190	-	172.190	154.024	131.577	137.660	120.758	Continuing	Continuing
• MT4: <i>Mitigate (ACD&P)</i>	16.935	28.785	43.364	-	43.364	44.601	36.558	5.309	11.643	Continuing	Continuing

Remarks

D. Acquisition Strategy

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	0.000	246.531	316.853	304.374	0.000	304.374	269.933	235.581	218.377	214.706	Continuing	Continuing
UN4: <i>Understand (ACD&P)</i>	-	52.163	61.638	53.120	0.000	53.120	47.808	49.646	49.608	62.105	Continuing	Continuing
PT4: <i>Protect (ACD&P)</i>	-	170.788	179.158	172.190	0.000	172.190	154.024	131.577	137.660	120.758	Continuing	Continuing
MT4: <i>Mitigate (ACD&P)</i>	-	16.935	28.785	43.364	0.000	43.364	44.601	36.558	5.309	11.643	Continuing	Continuing
EN4: <i>Enabling Investments (ACD&P)</i>	-	6.645	47.272	35.700	0.000	35.700	23.500	17.800	25.800	20.200	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) resources Advanced Component Development and Prototypes across the Understand, Protect, Mitigate, and Enabling Investments portfolios. Program efforts validate high-risk/high-payoff technologies and their respective concepts of operations for significant improvement to Warfighter capabilities in preparation for the transition of mature technologies to advanced development programs requiring chemical and biological (CB) defense technologies. Chemical Biological Defense Program (CBDP) investments provide an integrated, layered capability to enable Countering Weapons of Mass Destruction (CWMD) missions ranging from combat operations to Department of Defense (DoD) support to domestic incident prevention and response. The Projects in this PE support component and subsystem maturity prior to integration in major, complex systems and may involve risk reduction initiatives and include technology demonstrations. This effort facilitates transitions of Integrated Early Warning and Integrated Layered Defense products. FY25 funding accelerates characterization and situational awareness of emerging biothreats and accelerates delivery of improved protection from and mitigation of biothreats, including rapid repurposing of available therapeutics and development of new vaccines.

Individual Projects include:

- Understand (UN4): Maintain effort in distinguishing between bacterial, viral, and toxin diagnostics. Update detector libraries for relevant detection and identification systems. Continue efforts to integrate detection capabilities into Service combat platforms. Develop detection and diagnostic technologies with compatibility to receive and transmit sensor data on Service networks. Identify Service concepts for Integrated Early Warning (IEW) and maintain cyber compliance of fielded Chemical Biological Radiological and Nuclear (CBRN) information systems.
- Protect (PT4): Continued efforts to unencumber the warfighter by delivering improved personal protection capabilities that incorporate inherent survivability into Service equipment and platforms and which offer protection against the diverse threat agents that near-peer adversaries are developing. Develop capability for next-generation individual protective equipment. In collaboration with Biomedical Advanced Research and Development Authority (BARDA), develops and tests monoclonal antibody medical countermeasures through Phase 1 clinical trials as an accelerated antibodies program. Develops a robust computational toolset/prototype database intended to decrease product development risk throughout the drug development life cycle, accelerate candidate development, and enable preemptive preparedness and rapid response. Leveraging the Advanced Development Manufacturing Network, delivers the ability to rapidly develop Medical Countermeasures (MCMs) against emerging or known chemical/biological threats by establishing mature platform technologies that allow for rapid response. Develops plague monoclonal antibody-based medical

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>
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countermeasure prototype through Phase 1 clinical testing. Continues work to deliver prototype nucleic acid-based vaccines for three CBRN and two potential pandemic threats through non-clinical and human Phase I clinical trials.

- Mitigate (MT4): Sustain efforts in antiviral therapeutics. Develop capabilities to incorporate the use of in silico and Machine Learning/Artificial Intelligence technologies for drug discovery and development. Increase efforts regarding platform technologies. Development of repurposing pharmaceuticals that enable a rapid response capability to combat emerging threats. Supports the development of robot decontamination platform systems. Completes prototype development for a sprayable slurry Science & Technology (S&T) transition to decontaminate hardened and sensitive equipment, such as weapon system optics, electronic equipment and spot decontamination on vehicles. Continues prototype development for S&T transitions for tactical temporary coatings that mitigate the effects of a CBRN attack by protecting assets from the effects of chemical warfare agents.

- Enabling Investments (EN4): Development of efforts to evaluate integrated technologies or prototype systems in high fidelity and realistic operating environment, including system-specific efforts that help expedite technology transition from the laboratory to operational use. Increase efforts to improve integration of collective protection into Service major combat platforms.

The projects in this PE support the advanced component technology development phase of the DoD acquisition system and are therefore correctly placed in Budget Activity 4.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	252.010	316.853	271.959	-	271.959
Current President's Budget	246.531	316.853	304.374	-	304.374
Total Adjustments	-5.479	0.000	32.415	-	32.415
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-5.479	-			
• Other Adjustments	-	-	32.415	-	32.415

Change Summary Explanation

Funding: FY 2023 (-\$5.479 Million): Transfer of funding to support Small Business Innovative Research/Small Business Technology Transfer efforts.

FY 2025 (\$32.415 Million): (+\$31.519 Million) Increase supports enhanced biodefense efforts supporting accelerated medical countermeasure (MCM) development and efforts to reduce risk to the regulatory path for FDA approval for Antiviral Oral Therapeutics and Botulinum Toxin Therapeutics, and inflation rate adjustments (+\$0.896 Million).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> / BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	

Schedule: N/A

Technical: Provides for critical new start programs Agent-Directed Therapeutics (AD TX) and the Medical Decontamination Personnel Skin (MED DECON PS).

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) UN4 / <i>Understand (ACD&P)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
UN4: <i>Understand (ACD&P)</i>	-	52.163	61.638	53.120	0.000	53.120	47.808	49.646	49.608	62.105	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Understand Advanced Component Development and Prototypes (ACD&P) Project provides the Joint Force the ability to continually receive information about the Chemical Biological Radiological and Nuclear (CBRN) situation at a desired time and place by detecting, identifying, and quantifying CBRN hazards in air, water, or on land, and on personnel, equipment or facilities. Efforts also develop a clear understanding of the current and predicted CBRN situation; collect, query, and assimilate information from sensors in real time to inform decisions and provide impacts of CBRN hazards.

Efforts included in this Project are:

- (1) Advanced Differential Diagnostics (ADD)
- (2) Advanced Emerging Threat Defense (AET DEFENSE)
- (3) Biological Defense Improvement Program (BDIP)
- (4) Non-Targeted Sequencing Identification System (NSIS)
- (5) Physiological Monitoring Sensor Suite (PM2S)
- (6) Colorimetric Indicator (C-IND)
- (7) Chemical Biological Radiological Nuclear Support to Command and Control (CSC2)
- (8) Compact Vapor Chemical Agent Detector (CVCAD)
- (9) Proximate Chemical Agent Detector (PCAD)
- (10) Surveillance and Pathogen Characterization-Enhanced Biological Defense (SPCHAR-ENBD)

The Advanced Differential Diagnostics (ADD) is a new start program in FY24 and will determine if an individual has likely been infected and the nature of that infection, during early stages of illness for unknown threats, including biological warfare agents and emerging infectious diseases. ADD will provide timely feedback for disease prevention in operational environments, by quickly identifying warfighters who may have contracted illness. In FY25, the ADD program will continue Technology Maturation and Risk reduction for ADD candidate technologies.

The Advanced and Emerging Threat Defense (AET Defense) program continues to address the highest priority CBRN gaps and supports the CBDP Strategic Line of Effort to meet current and emerging threats by anticipating chemical and biological hazards and identifying capabilities to counter emerging and future threats. The AET Defense program collaborates with the Joint Services and interagency to align RDT&E resources to determine readiness against emerging threats as they are identified across the entire CBDP enterprise portfolio. In FY25 and beyond, AET Defense activities continue to focus on demonstrating and evaluating technologies to assess performance against emerging threats.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) UN4 / <i>Understand (ACD&P)</i>
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The Biological Defense Improvement Program (BDIP) will enhance the set of biodefense capabilities to significantly improve its ability to rapidly understand, prevent, prepare for, respond to, and recover from a vast array of future biological threats. BDIP will support the Department of Defense (DoD) CBDP mission with rapid prototyping capabilities to understand, and protect against threats. BDIP will address joint and service gaps and priorities related to biodefense, and will develop and execute a biodefense strategy. It considers the Biological Warfare threat and vulnerabilities to give biodefense the agility and speed necessary to provide relevant, effective, affordable, and sustainable capabilities that can be ubiquitously deployed on the battlefield against current, emerging and future biological threats. The DoD with academia, industry and other interagency departments will partner to gain opportunities to accelerate technology, adopt surge capacity, and advance consumable and alternative solution across the entire Biodefense portfolio. BDIP transitions efforts to the Non-Targeted Sequencing Identification System (NSIS), Wearable All Hazard Remote Monitoring Program (WARP), Far Forward Biological Sequencing (FFBS), and the Physiological Monitoring Sensor Suite (PM2S) programs in FY24.

The Non-targeted Sequencing Identification System (NSIS) provides a commercially available, rapid biological sequencing capability with the potential to identify an unlimited number of biological warfare agents (BWA), including emerging, engineered, or enhanced organisms. NSIS reduces identification time from days to hours, enabling decision support to all Command echelons. The NSIS is a small, portable device equipped with consumable flow cells that are small, electronic chips for processing the biological sample. NSIS identifies biological anomalies and translates the data on a laptop computer, enabling fast and effective mitigation and protection for the force. This capability can determine whether the enemy is using synthetic biology for the purpose of thwarting traditional medical countermeasures or current detection/identification devices. FY25 funding will award contracts for prototyping, conduct developmental tests, and complete soldier touchpoints.

The Physiological Monitoring Sensor Suite (PM2S) is a new start program in FY24. It develops CBRN exposure software algorithms that analyze physiological data collected from wearable sensors. These algorithms provide commanders with actionable information to maximize warfighter readiness, performance, and enhance resiliency before, during, and after CBRN operations. FY25 BA4 efforts finish development of a joint service algorithm software environment that enables the integration, packaging, and DoD-wide deployment of algorithms transitioned from DTRA JSTO and service wearables S&T partners. This software environment will install on the hardware-focused Chemical and Biological Wearables - Enhanced Biodefense (CB WEARABLES-ENBD) solution set, which will provide an additional layer of sensing to rapidly detect CBRN threats across the joint forces, decrease risk to mission, and risk to force.

The Colorimetric Indicator Kit (C-IND) is a new start program in FY24 and will provide improved hazard detection and classification performance with reduced false alarm rate, and potential for integration onto unmanned platforms. The intent of this package is to provide the General Forces a low-cost, easy to use, higher confidence liquid, solid and vapor hazard detection capabilities for traditional and emerging chemical hazards. These improved decisions will reduce casualties and improve the combat effectiveness of troops engaged in conflicts involving the use of chemical hazards. C-IND will ease the warfighter from current training and operational burden. FY25 funding will fund program development, technology readiness assessment, and program management support. This will include coordination with Defense Threat Reduction Agency (DTRA) on awarding contracts for C-IND in the Science and Technology (S&T) efforts that will transition to technology maturation risk reduction (TMRR) in the future. FY25 will also support the development of a draft capability development document (CDD) for C-IND.

The CBRN Support to Command and Control (CSC2) is the overarching System of Systems (SoS) software that provides for the interoperability and integration of CBRN and non-CBRN sensors to achieve needed situational awareness and understanding to accomplish CBRN integrated layered defense, interdependent with Service Computing Environments. CSC2 will establish Service and Joint All Domain Command and Control (JADC2) compatible CBRN Common Operating Environment (COE)

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) UN4 / <i>Understand (ACD&P)</i>
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architecture and deployment environments. FY25 maintains the continuous engineering of the currently fielded CBRN information systems and synchronization for the sunset of these capabilities with the deployment of CSC2.

Compact Vapor Chemical Agent Detector (CVCAD) is an unobtrusive, low-profile chemical detection capability that will continuously, and autonomously, monitor and alert general and specialized units to an unsafe environment without further burdening the warfighters payload or interfering with the primary mission. The CVCAD will warn CBRN and non-CBRN forces of Chemical Weapon Agent (CWA), Toxic Industrial Chemical (TIC), or confined space hazards to inform immediate force protection decisions. The small form factor (less than 2 pounds) is amenable to both man-worn and unmanned aerial or ground system operations to enable timely personnel protective action and other force protection decisions.

The Proximate Chemical Agent Detector (PCAD) is developing a Non-Trace and Trace capabilities. Non-Trace will provide the services with a handheld point and interrogate device that identifies visible liquid and solid chemical threats on surfaces at standoff (non-contact) distances. The PCAD Trace will provide the services with a handheld device that will rapidly scan an area to locate, detect and identify non-visible solid and liquid threats on surfaces at standoff (non-contact) distances.

The Surveillance and Pathogen Characterization-Enhanced Biodefense (SPCHAR-ENBD) will utilize Pathogenicity Studies to investigate development of disease of CBRN threat agents and verify usefulness of these disease models. Results from these studies will be utilized to identify targets for MCM (Medical Countermeasures) development, testing, and identify groups of CBRN threat agents that can be treated by broad-spectrum MCMs. The program will complete work on Botulinum Neurotoxin and pivot to address Henipavirus in FY25.

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

	FY 2023	FY 2024	FY 2025
<p>Title: 1) ADD</p> <p>Description: Product development and product management.</p> <p>FY 2024 Plans: Issue Request for Project Proposals, award Other Transaction Authority project agreements, and initiate development and evaluation of prototype solutions.</p> <p>FY 2025 Plans: Continue to develop and evaluate prototype diagnostic candidates.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to product management cost efficiencies following contract award and acquisition milestones.</p>	-	9.987	9.747
<p>Title: 2) AET DEFENSE</p> <p>Description: AET Defense activities will focus on demonstrating and evaluating technologies to assess performance against emerging threats.</p> <p>FY 2024 Plans:</p>	2.736	6.629	7.183

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) UN4 / <i>Understand (ACD&P)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Continue efforts to address emerging biological threats. Begin evaluation and assessment of ability to detect and mitigate three additional threat classes. Update spectral libraries and hazard data management tools to incorporate emerging threat information. Produce additional data to better assess detection and defensive capabilities against new requirements and inform rapid fielding decisions. Conduct three tabletop exercises on three additional threat materials to support Joint Service and interagency tactics, techniques, and procedures (TTP) development and gap analysis for materiel solutions. Monitor market surveys and assessments of technologies for rapid fielding by the CBDP to mitigate defensive capability gaps as emerging threats are identified.</p> <p>FY 2025 Plans: Continue efforts to produce additional data to better assess detection and decontamination capabilities against toxins, bioregulators, and other advanced threats. Conduct workshops on understanding advanced and emerging threat priorities to align with the CBDP. Conduct market surveys and assessments of technologies for rapid fielding by Chemical Biological Defense Program to mitigate emerging threat gaps as threats are identified.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to significant increase in quantity of emerging threats being assessed for impacts simultaneously. Increase also due to a more thorough understanding of all defensive capabilities, not just sensors, against emerging threats.</p>			
<p>Title: 3) BDIP</p> <p>Description: Genomic sequencing in support of Non-Targeted Sequencing Identification System (NSIS) and Far-Forward Biological Sequencing (FFBS) Programs of Record.</p>	2.350	-	-
<p>Title: 4) NSIS</p> <p>Description: Product development, test and evaluation, support costs, and Program Office management.</p> <p>FY 2024 Plans: Conduct initial verification and validation of commercial-off-the-shelf genomic sequencing devices, purchase Oxford Nanopore Technologies MinION Mk1C genomic sequencing devices, and assess military utility for the National Guard Bureau, US Navy, and US Marine Corps. Continue user feedback trials with the National Guard Bureau Civil Support Teams. Funds will pay for program labor, office management, and administrative processes to include (but not limited to) program oversight, resource justification, budgeting and programming, milestone and schedule tracking.</p> <p>FY 2025 Plans:</p>	-	0.653	1.760

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) UN4 / <i>Understand (ACD&P)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Funding supports contract awards for prototyping, conducting developmental tests, and completing soldier touchpoints. Funds will also support program labor, office management, and administrative processes to include (but not limited to) program oversight, resource justification, budgeting and programming, milestone and schedule tracking.				
FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to support contract awards and required test activities to inform a Milestone B decision in 1QFY26.				
Title: 5) PM2S Description: Algorithm Deployment Environment FY 2024 Plans: PM2S will develop and conduct software hardening on chemical and biological defense physiological monitoring algorithms to enable capabilities to be deployed on a number of service-sponsored hardware architectures. FY 2025 Plans: Continue to develop and conduct software hardening on chemical and biological defense physiological monitoring algorithms, after completion of the technical data package, to enable capabilities to be deployed on a number of service-sponsored hardware architectures. FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to completing the plan to build a joint service algorithm software environment.		-	1.200	5.100
Title: 6) C-IND Description: Program Development, technology readiness, and program management support. FY 2024 Plans: Initiate and conduct table top exercises to inform stakeholder's of requirements and fund technology maturation risk reduction (TMRR) testing activities. FY 2025 Plans: Plan and prepare technology readiness experiment, and program management support services. Coordinate with Defense Thread Reduction Agency (DTRA) on science and technology (S&T) efforts for C-IND. FY 2024 to FY 2025 Increase/Decrease Statement: Increase in line with program schedule requirements to conduct activities supporting technology readiness.		-	1.043	1.638
Title: 7) CSC2		32.677	28.039	26.092

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) UN4 / <i>Understand (ACD&P)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: CSC2 Execution Phase of Software Acquisition pathway, and Continuous Software Development, Integration, and Delivery</p> <p>FY 2024 Plans: Continue to develop CBRN applications to support: CBRN hazard warning, reporting, analysis, and prediction; CBRN impact modeling; and Decision Support Tools. Continue the development of a Cloud-Native Software architecture for the interoperability between CBRN sensors, CBRN applications, and Service computing environments. Start a software development pipeline using Development, Security, Operations (DevSecOps) leveraging existing DoD DevSecOps infrastructure. Continue cybersecurity testing and operational testing in support of verifying the iterative, agile software to deliver Minimal Viable Capability Releases (MVCR).</p> <p>FY 2025 Plans: Complete initial Minimum Viable Capability Release (MVCR) for CSC2. Continue agile Test & Evaluation and continuous engineering for follow-on capability releases.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to reduction of software development activities.</p>			
<p>Title: 8) CVCAD</p> <p>Description: Prototype Advanced Development, Testing & Program Management</p> <p>FY 2024 Plans: Finalization of system design to complete Milestone B. Activities will include milestone documentation, developmental testing and program office management and administration processes to include program oversight, resource justification, budgeting and programming, milestone and schedule tracking.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project transitioned to Engineering and Manufacturing Development Phase.</p>	12.985	3.600	-
<p>Title: 9) PCAD</p> <p>Description: PCAD developmental testing, program management and contract support for Non-Trace.</p> <p>FY 2024 Plans: Transition breadboard prototypes from DTRA/Joint Science Technology Office to continue in the Technology Maturation Risk Reduction phase. Conduct advanced developmental testing of prototypes to execute an early user feedback assessment to</p>	0.900	8.487	-

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
include development testing with troops to support Milestone B plan in FY25. Continue program management and support activities to transition technologies from Science and Technology development to acquisition.			
FY 2024 to FY 2025 Increase/Decrease Statement: Decrease in FY25 due to PCAD Non-Trace transitioning to engineering and manufacturing development.			
Title: 10) SPCHAR-ENBD Description: Pathogenicity Studies.	0.515	2.000	1.600
FY 2024 Plans: Initiate studies to investigate CBRN threat pathogenesis and/or pathogenicity models.			
FY 2025 Plans: Continue studies to investigate CBRN threat pathogenesis and/or pathogenicity models.			
FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to alignment with program acquisition strategy.			
Accomplishments/Planned Programs Subtotals	52.163	61.638	53.120

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025 Base</u>	<u>FY 2025 OCO</u>	<u>FY 2025 Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• UN5: <i>Understand (SDD)</i>	128.837	182.726	154.658	-	154.658	124.463	90.423	63.185	55.658	Continuing	Continuing
• UN7: <i>Understand (Op Sys Dev)</i>	39.602	50.603	59.296	-	59.296	71.995	70.339	64.131	59.948	Continuing	Continuing
• SA0054: <i>Advanced Differential Diagnostics (ADD)</i>	-	-	-	-	-	-	-	0.687	-	Continuing	Continuing
• SA0053: <i>Bio Defense Improvement Program (BDIP)</i>	-	-	-	-	-	4.458	17.200	32.944	31.293	Continuing	Continuing
• SA0050: <i>Chemical Biological Radiological Nuclear Support to Command and Control (CSC2)</i>	11.803	2.186	2.257	-	2.257	2.366	2.451	2.549	2.603	Continuing	Continuing
• SA0024: <i>Compact Vapor Chemical Agent Detector (CVCAD)</i>	-	-	-	-	-	8.200	13.687	22.144	22.144	Continuing	Continuing

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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D. Acquisition Strategy

Advanced Differential Diagnostics (ADD)

The Advanced Differential Diagnostics (ADD) program will utilize Other Transaction Authorization (OTA) project agreements to identify, competitively prototype, and mature commercial solutions deemed technologically viable, and evaluate them in as realistic an operational environment as possible. Successful candidate systems will transition to the Engineering and Manufacturing Development phase to be further developed under the OTA agreement, in order to satisfy military and U.S. Food & Drug Administration (FDA) regulatory requirements for subsequent production and fielding to the Services.

Advanced and Emerging Threat Defense (AET DEFENSE)

The AET DEFENSE program will use a variety of acquisition approaches to survey, assess, and rapidly field technologies to inform and fill advanced and emerging threat defense capability gaps. The program will use existing Multiple Award Indefinite Delivery Indefinite Quantity Task Order Contracts to provide technical support to studies and assessments of performance against emerging threats. For Program of Record (PoR) systems currently in development that will be assessed for performance against emerging threats, those PoR's existing contracts will be modified to incorporate development engineering and test support for emerging threat capability. The AET Defense program will utilize OTAs for system development and prototyping activities and Government Agencies and Federally Funded Research and Development Centers to provide development, testing, and technical support.

Non-targeted Sequencing Identification System (NSIS)

Non-targeted Sequencing Identification System (NSIS) will leverage commercial technology using the existing General Services Administration (GSA) Urgent Commercial-Off-the-Shelf (COTS) and Sustainment Contract. NSIS will purchase test articles during developmental phases, and production-representative articles during Production and Deployment phase (Low Rate Initial Production and Full Rate Production). The program will leverage existing validated Joint Capabilities Integration and Development System (JCIDS) documents to streamline the acquisition process. The NSIS program is approved to be an Acquisition Category (ACAT) IV program and is anticipated to enter at Milestone A.

Physiological Monitoring Sensor Suite (PM2S)

PM2S will leverage a rapid acquisition strategy (such as the software acquisition pathway) to develop, integrate, and field software algorithms into hardware-focused decision support tools developed under the CB WEARABLES-ENBD program. These capabilities will help to address knowledge gaps identified under the FY23 OSD-sponsored wearables Pilot program related to integrated physiological threat-based decision support.

Colorimetric Indicator (C-IND)

The C-IND program is an approved Acquisition Category (ACAT) IV program anticipated to enter into acquisition following receipt of draft Service requirements and the transition of the Defense Threat Reduction Agency (DTRA) science and technology development. The acquisition strategy is still being refined; however the program will

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<p>work with DTRA and will use the Combating Weapons of Mass Destruction Other Transactional Authority (CWMD-OTA) contract to transition technologies from Science and Technology to Acquisition. The systems will be developed with the intent to be consumable item that would be ordered through the government supply system with an issued National Stock Number.</p> <p>Chemical Biological Radiological Nuclear Support to Command and Control (CSC2)</p> <p>CSC2 is executed through the Software Acquisition Pathway, leveraging existing Information Technology Box requirements and Capability Needs Statements (CNS) furnished through the Services and Combatant Commands. CSC2 is executing a modular contracting approach, where the use of Other Transaction Authorities (OTAs), and Indefinite Delivery/Indefinite Quantity (IDIQ) will be used to meet agile software objectives of continuous development, integration, delivery, and engineering. CSC2 will establish a Service and Joint All-Domain Command and Control (JADC2) compatible CBRN Common Operating Environment (COE) architecture and leverage existing enterprise Develop Security Operations (DevSecOps) efforts to facilitate continuous and iterative delivery of capability to the Joint Force through the development of a unified software solution.</p> <p>Compact Vapor Chemical Agent Detector (CVCAD)</p> <p>The CVCAD program will use the Combating Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) contract vehicle to transition four technologies from Science & Technology (S&T) into the program of record. This streamlined acquisition approach is broken into four phases; Phase I S&T advanced development, Phase II technology transition maturation evaluation, Phase III competitive prototyping down select, Engineering decision, manufacturing and development. Phase IV will execute Production and Development for low rate initial production (LRIP) systems. CVCAD will procure full rate production (FRP) items through a follow-on Federal Acquisition Regulation based contract.</p> <p>Proximate Chemical Agent Detector (PCAD)</p> <p>Proximate Chemical Agent Detector (PCAD) Non-Trace effort will leverage the existing Science & Technology (S&T) Chemical Weapons of Mass Destruction (CWMD) Other Transaction Authority (OTA) contract in FY24 to procure prototypes for Technology Maturation Risk Reduction (TMRR) phase. This streamlined approach will use one contracting mechanism to transition technology from S&T to acquisition and allow follow-on acquisitions up through Low Rate Initial Production (LRIP). PCAD Non-Trace will procure Full Rate Production (FRP) items through a follow-on Federal Acquisition Regulation based contract. PCAD Trace is a future effort that will leverage the existing S&T CWMD OTA's to evaluate and transition the technologies in accordance with the Technology Transition Agreement (TTA) with the Defense Threat Reduction Agency in FY27. PCAD Non-Trace intends to enter in at a Milestone B (MS B) 1QFY25 utilizing the existing Next Generation Chemical Detector (NGCD) Milestone A (MS A) Acquisition Decision Memorandum (ADM).</p> <p>Surveillance and Pathogen Characterization - Enhanced Biological Defense (SPCHAR-ENBD)</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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SPCHAR ENBD is an investment program that will leverage interagency partners and existing contracts to investigate disease progression and measure biomarkers of selected CBRN threat agents to inform medical defense against biological warfare threats. The tailored acquisition pathway will allow flexibility to counter new and emerging biothreats.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / Chemical and Biological Defense Program - Dem/Val	Project (Number/Name) UN4 / Understand (ACD&P)
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
ADD - HW C - Product Management	Various	Various : N/A	-	0.000		1.938	Dec 2023	1.878	Dec 2024	-		1.878	Continuing	Continuing	0.000
ADD - HW C - Product Development	C/CPFF	TBD : N/A	-	0.000		6.950	Mar 2024	6.954	Dec 2024	-		6.954	Continuing	Continuing	0.000
AET DEFENSE - HW C - Emerging threat detection/ decontamination/protection capability prototyping	MIPR	Various : N/A	-	0.444	Feb 2023	0.888	Jan 2024	1.066	Feb 2025	-		1.066	Continuing	Continuing	0.000
AET DEFENSE - HW C - Detection/Decon/ Protection	MIPR	Various : N/A	-	0.844	May 2023	0.750	Feb 2024	0.000		-		0.000	0.000	1.594	0.000
AET DEFENSE - SW C - Hazard awareness tool updates	MIPR	Various : N/A	-	0.500	Apr 2023	0.000		0.000		-		0.000	0.000	0.500	0.000
AET DEFENSE - HW C - Emerging Threat Detection	C/CPFF	Johns Hopkins University - Applied Physics Laboratory : Laurel, MD	-	0.000		0.600	Apr 2024	0.000		-		0.000	0.000	0.600	0.000
BDIP - HW S - Government Labor and SME Support	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Rock Island, IL	-	0.895	Apr 2023	0.000		0.000		-		0.000	0.000	0.895	0.000
BDIP - HW S - Genomic Sequencing - NGB	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	-	0.655	Apr 2023	0.000		0.000		-		0.000	0.000	0.655	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) UN4 / <i>Understand (ACD&P)</i>
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NSIS - HW C - COTS Oxford Nanopore MinION Genomic Sequencers and Flow Cells	MIPR	TBD : N/A	-	0.000		0.215	Dec 2023	0.000		-		0.000	0.000	0.215	0.000
NSIS - ES C - OGA Matrix Labor	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	-	0.000		0.108	Dec 2023	0.150	Dec 2024	-		0.150	Continuing	Continuing	0.000
NSIS - HW C - Advanced Prototype Development	Various	Various : N/A	-	0.000		0.000		0.947	Dec 2024	-		0.947	Continuing	Continuing	0.000
PM2S - SW C - Algorithm Deployment Environment (Analytics Engine)	FFRDC	Various : N/A	-	0.000		1.000	Dec 2023	4.017	Dec 2024	-		4.017	Continuing	Continuing	0.000
C-IND - ES C - Program Support Costs	Various	Various : N/A	-	0.000		0.075	Nov 2023	0.000		-		0.000	0.000	0.075	0.000
C-IND - HW S - Initial Product Planning	Various	Various : N/A	-	0.000		0.664	Nov 2023	0.642	Nov 2024	-		0.642	Continuing	Continuing	0.000
C-IND - HW C - Product Development Team Labor	Various	Various : N/A	-	0.000		0.000		0.642	Nov 2024	-		0.642	Continuing	Continuing	0.000
CSC2 - SW S - Product Development Team Labor	Various	Various : N/A	-	7.285	Mar 2023	2.028	Dec 2023	5.245	Nov 2024	-		5.245	Continuing	Continuing	0.000
CSC2 - SW S - Operational Capability	C/CPAF	Various : N/A	-	19.725	May 2023	11.869	Dec 2023	10.728	Apr 2025	-		10.728	Continuing	Continuing	0.000
CSC2 - SW S - Contractor Product Development Team Labor	Various	Various : N/A	-	0.000		1.846	Dec 2023	0.000		-		0.000	0.000	1.846	0.000
CSC2 - SW S - Service CoE and CE Convergence	MIPR	Various : N/A	-	0.000		1.200	Dec 2023	0.000		-		0.000	0.000	1.200	0.000

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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CVCAD - HW S - Advanced Prototype Development	C/FFP	Advanced Technologies International : Summerville, SC	-	8.477	Sep 2023	1.620	Jan 2024	0.000		-		0.000	0.000	10.097	0.000
PCAD - ES S - Advanced Prototype Development	C/FFP	Advanced Technologies International : Summerville, SC	-	0.000		4.808	Nov 2023	0.000		-		0.000	0.000	4.808	0.000
PCAD - HW S - Government Team Labor	Various	Various : N/A	-	0.301	Mar 2023	0.581	Nov 2023	0.000		-		0.000	0.000	0.882	0.000
SPCHAR-ENBD - SW GFPP - Pathogenicity Studies	Various	Various : N/A	-	0.515	Apr 2023	1.678	Dec 2023	1.290	Dec 2024	-		1.290	Continuing	Continuing	0.000
SPCHAR-ENBD - SW GFPP - Direct Product Support	Various	Various : N/A	-	0.000		0.147	Dec 2023	0.139	Dec 2024	-		0.139	Continuing	Continuing	0.000
Subtotal			-	39.641		38.965		33.698		-		33.698	Continuing	Continuing	N/A

Remarks
CSC2: Service CE Convergence is part of Operational Capability and was combined in FY25

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AET DEFENSE - ES C - Engineering support to evaluating, assessing, and designing capabilities	MIPR	Various : N/A	-	0.000		0.465	Jan 2024	1.460	Dec 2024	-		1.460	Continuing	Continuing	0.000
BDIP - TD/D SB - Genomic Sequencing Research Study	MIPR	MRIGlobal : Kansas City, MO	-	0.566	Dec 2023	0.000		0.000		-		0.000	0.000	0.566	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

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Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
PM2S - ES S - Software/ Systems Engineer	MIPR	Various : N/A	-	0.000		0.000		0.341	Dec 2024	-		0.341	Continuing	Continuing	0.000
CSC2 - ES C - Contractor Support	C/CPFF	Various : N/A	-	0.000		0.768	Nov 2023	0.000		-		0.000	0.000	0.768	0.000
CSC2 - ES C - Support	Various	Various : N/A	-	1.661	Mar 2023	4.551	Mar 2024	5.039	Feb 2025	-		5.039	Continuing	Continuing	0.000
CVCAD - ES S - OGA Support	MIPR	Various : N/A	-	0.771	Jul 2023	1.000	Jan 2024	0.000		-		0.000	0.000	1.771	0.000
PCAD - ES S - OGA Support	MIPR	Various : N/A	-	0.042	Aug 2023	0.750	Nov 2023	0.000		-		0.000	0.000	0.792	0.000
Subtotal			-	3.040		7.534		6.840		-		6.840	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
AET DEFENSE - DTE S - Technology Assessments	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	-	0.517	Feb 2023	1.750	Jan 2024	1.132	Feb 2025	-		1.132	Continuing	Continuing	0.000
AET DEFENSE - DTE C - Technology Assessments	MIPR	Various : N/A	-	0.000		0.651	Mar 2024	0.000		-		0.000	0.000	0.651	0.000
AET DEFENSE - DTE S - Technology Assessments	C/CPFF	Johns Hopkins University - Applied Physics Laboratory : Laurel, MD	-	0.000		0.650	Apr 2024	1.750	Feb 2025	-		1.750	Continuing	Continuing	0.000
AET DEFENSE - DTE C - Market Research	MIPR	Various : N/A	-	0.000		0.000		1.325	Feb 2025	-		1.325	Continuing	Continuing	0.000
NSIS - DTE C - Prototype Testing	MIPR	Various : N/A	-	0.000		0.265	Dec 2023	0.425	Dec 2024	-		0.425	Continuing	Continuing	0.000

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Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
PM2S - DTE S - System DT&E	MIPR	Various : N/A	-	0.000		0.000		0.163	Jan 2025	-		0.163	Continuing	Continuing	0.000
C-IND - DTE S - Experimental Testing/ Requirement Refinement	Various	Various : N/A	-	0.000		0.200	Nov 2023	0.000	Nov 2024	-		0.000	0.000	0.200	0.000
CSC2 - OTE S - Technical/ Operational Demo	MIPR	Various : N/A	-	1.775	Mar 2023	2.801	Dec 2023	2.117	Nov 2024	-		2.117	Continuing	Continuing	0.000
CVCAD - DTE S - MIL STD/Surety Testing	MIPR	Various : N/A	-	0.981	Jan 2023	0.620	Jan 2024	0.000		-		0.000	0.000	1.601	0.000
CVCAD - DTE S - Vapor Testing	MIPR	MRIGlobal : Kansas City, MO	-	1.100	Jun 2023	0.000		0.000		-		0.000	0.000	1.100	0.000
PCAD - DTE S - Testing	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	-	0.461	May 2023	1.500	Nov 2023	0.000		-		0.000	0.000	1.961	0.000
Subtotal			-	4.834		8.437		6.912		-		6.912	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
ADD - PM/MS S - Management Services	Various	Various : N/A	-	0.000		1.099	Dec 2023	0.915	Dec 2024	-		0.915	Continuing	Continuing	0.000
AET DEFENSE - PM/MS S - IPT Support/Program Management	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center	-	0.431	Dec 2022	0.875	Dec 2023	0.450	Nov 2024	-		0.450	Continuing	Continuing	0.000

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Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
		(CBC) : Aberdeen Proving Ground, MD													
BDIP - PM/MS S - Program Management Support	MIPR	Various : N/A	-	0.234	Mar 2023	0.000		0.000		-		0.000	0.000	0.234	0.000
NSIS - PM/MS S - Program Management Support	MIPR	Various : N/A	-	0.000		0.065	Dec 2023	0.238	Jan 2025	-		0.238	Continuing	Continuing	0.000
PM2S - PM/MS C - Management for Algorithm Development	MIPR	Various : N/A	-	0.000		0.200	Nov 2023	0.579	Nov 2024	-		0.579	Continuing	Continuing	0.000
C-IND - PM/MS C - Program Management Support	Various	Various : N/A	-	0.000		0.104	Nov 2023	0.354	Nov 2024	-		0.354	Continuing	Continuing	0.000
CSC2 - PM/MS C - Program Management Support	MIPR	Various : N/A	-	2.231	Feb 2023	2.976	Nov 2023	2.963	Nov 2024	-		2.963	Continuing	Continuing	0.000
CVCAD - PM/MS S - Program Management Support	MIPR	Various : N/A	-	1.656	Mar 2023	0.360	Jan 2024	0.000		-		0.000	0.000	2.016	0.000
PCAD - PM/MS S - Program Management	MIPR	Various : N/A	-	0.096	Jul 2023	0.848	Nov 2023	0.000		-		0.000	0.000	0.944	0.000
SPCHAR-ENBD - PM/MS SB - Management Support	Various	Various : N/A	-	0.000		0.175	Dec 2023	0.171	Dec 2024	-		0.171	Continuing	Continuing	0.000
Subtotal			-	4.648		6.702		5.670		-		5.670	Continuing	Continuing	N/A

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		-	52.163	61.638	53.120	-	53.120	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) UN4 / <i>Understand (ACD&P)</i>
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
ADD - Materiel Development Decision					■																							
ADD - Milestone A						■																						
ADD - Technology Maturation and Risk Reduction (TMRR)									■	■	■	■	■	■	■	■												
ADD - Milestone B															■													
ADD - Engineering & Manufacturing Development (EMD)															■	■	■	■	■	■								
AET DEFENSE - Technology Assessments/ Systems Engineering																												
BDIP - Pathogen Characterization (Genomic Sequencing)																												
BDIP - clinical Studies - Genomic Sequencing Research Study																												
NSIS - Milestone A																												
NSIS - Developmental Test and Evaluation																												
NSIS - Milestone B																												
NSIS - Milestone C																												
NSIS - Low Rate Initial Production																												
NSIS - Full Rate Production Decision																												
NSIS - Initial Operational Capability																												
NSIS - Full Operational Capability																												
PM2S - Capability Development Document Validation - USD A&S Approval Memo to Execute Pilot																												
PM2S - Materiel Development Decision - Approval to Execute Post Pilot Experimentation Program																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) UN4 / <i>Understand (ACD&P)</i>
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
PM2S - Capability Drop - Systems Engineering/ Program Management																												
PM2S - Capability Drop - Software Development & Integration																												
C-IND - Materiel Development Decision																												
C-IND - Milestone A - Materiel Solution Analysis																												
C-IND - Milestone A																												
C-IND - Capability Development Document Validation - Draft CDD																												
C-IND - Milestone B																												
C-IND - Milestone C																												
CSC2 - SWP Execution Phase Decision Approval																												
CSC2 - MVP																												
CSC2 - Capability Drop - MVCR/ Capability Release 1																												
CSC2 - Capability Drop - Continuous Capability Releases (every 3 months)																												
CSC2 - Continuous Engineering & Software Updates																												
CSC2 - Continuous Software DT/OT																												
CSC2 - Cyber Security Compliance																												
CSC2 - Service Computing Environment Integration																												
CVCAD - Capability Development Document Validation																												
CVCAD - Milestone B																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) UN4 / <i>Understand (ACD&P)</i>
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
CVCAD - Critical Design Review													■															
CVCAD - Capability Development Document Update															■													
CVCAD - Milestone C																												
CVCAD - Low Rate Initial Production																												
CVCAD - Full Rate Production Decision																												
PCAD - Trace Draft CDD																												
PCAD - Milestone A - Trace capability																												
PCAD - Milestone B - Trace capability																												
PCAD - Capability Development Document Validation - Non-Trace Validated CDD																												
PCAD - Milestone B - Non-Trace capability																												
PCAD - Milestone C - Non-Trace capability																												
PCAD - Low Rate Initial Production - Non-Trace capability																												
PCAD - Full Rate Production Decision - Non-Trace capability																												
SPCHAR-ENBD - Pathogenicity Studies																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) UN4 / <i>Understand (ACD&P)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ADD - Materiel Development Decision	1	2024	1	2024
ADD - Milestone A	2	2024	2	2024
ADD - Technology Maturation and Risk Reduction (TMRR)	2	2024	4	2026
ADD - Milestone B	2	2026	2	2026
ADD - Engineering & Manufacturing Development (EMD)	2	2026	4	2029
AET DEFENSE - Technology Assessments/Systems Engineering	1	2023	4	2029
BDIP - Pathogen Characterization (Genomic Sequencing)	3	2023	4	2024
BDIP - clinical Studies - Genomic Sequencing Research Study	4	2023	2	2024
NSIS - Milestone A	1	2025	1	2025
NSIS - Developmental Test and Evaluation	1	2025	4	2027
NSIS - Milestone B	1	2026	1	2026
NSIS - Milestone C	4	2027	4	2027
NSIS - Low Rate Initial Production	4	2027	4	2027
NSIS - Full Rate Production Decision	1	2029	1	2029
NSIS - Initial Operational Capability	4	2029	4	2029
NSIS - Full Operational Capability	4	2029	4	2029
PM2S - Capability Development Document Validation - USD A&S Approval Memo to Execute Pilot	2	2023	2	2023
PM2S - Materiel Development Decision - Approval to Execute Post Pilot Experimentation Program	2	2024	2	2024
PM2S - Capability Drop - Systems Engineering/Program Management	2	2024	4	2028
PM2S - Capability Drop - Software Development & Integration	2	2024	4	2029
C-IND - Materiel Development Decision	1	2024	1	2024

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) UN4 / <i>Understand (ACD&P)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
C-IND - Milestone A - Materiel Solution Analysis	1	2024	2	2025
C-IND - Milestone A	3	2025	3	2025
C-IND - Capability Development Document Validation - Draft CDD	4	2025	4	2025
C-IND - Milestone B	1	2027	1	2027
C-IND - Milestone C	1	2029	1	2029
CSC2 - SWP Execution Phase Decision Approval	3	2023	3	2023
CSC2 - MVP	1	2024	1	2024
CSC2 - Capability Drop - MVCR/ Capability Release 1	3	2024	3	2024
CSC2 - Capability Drop - Continuous Capability Releases (every 3 months)	4	2024	4	2028
CSC2 - Continuous Engineering & Software Updates	1	2025	4	2028
CSC2 - Continuous Software DT/OT	2	2024	4	2028
CSC2 - Cyber Security Compliance	2	2024	4	2028
CSC2 - Service Computing Environment Integration	2	2024	4	2028
CVCAD - Capability Development Document Validation	4	2024	4	2024
CVCAD - Milestone B	4	2024	4	2024
CVCAD - Critical Design Review	1	2026	1	2026
CVCAD - Capability Development Document Update	2	2026	2	2026
CVCAD - Milestone C	4	2026	4	2026
CVCAD - Low Rate Initial Production	2	2027	1	2028
CVCAD - Full Rate Production Decision	2	2028	2	2028
PCAD - Trace Draft CDD	4	2027	4	2027
PCAD - Milestone A - Trace capability	1	2028	1	2028
PCAD - Milestone B - Trace capability	3	2029	3	2029
PCAD - Capability Development Document Validation - Non-Trace Validated CDD	1	2025	1	2025
PCAD - Milestone B - Non-Trace capability	1	2025	1	2025

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program			Date: March 2024	
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) UN4 / <i>Understand (ACD&P)</i>		

Events	Start		End	
	Quarter	Year	Quarter	Year
PCAD - Milestone C - Non-Trace capability	4	2026	4	2026
PCAD - Low Rate Initial Production - Non-Trace capability	4	2026	4	2026
PCAD - Full Rate Production Decision - Non-Trace capability	4	2029	4	2029
SPCHAR-ENBD - Pathogenicity Studies	1	2023	4	2029

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) PT4 / <i>Protect (ACD&P)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To	Total
											Complete	Cost
PT4: <i>Protect (ACD&P)</i>	-	170.788	179.158	172.190	0.000	172.190	154.024	131.577	137.660	120.758	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Protect Advanced Component Development and Prototypes (ACD&P) Project provides the ability to shield the Joint Force from harm caused by Chemical Biological Radiological and Nuclear (CBRN) hazards by preventing or reducing individual and collective exposures, applying prophylaxis to prevent or mitigate negative physiological effects, and protecting critical equipment.

Efforts included in this Project are:

- (1) Advanced System for Protection and Integration Reduction of Encumbrances (ASPIRE)
- (2) Accelerated Antibodies-Enhanced Biological Defense (AA-ENBD)
- (3) Biological Containment Isolation System - Enhanced Biological Defense (BCIS-ENBD)
- (4) Generative Unconstrained Intelligent Drug Engineering-Enhanced Biological Defense (GUIDE-ENBD)
- (5) Medical Countermeasures Platform Technologies (MCMPT)
- (6) Plague Monoclonal Antibodies (PLG MAB)
- (7) Portable Patient Transport System - Enhanced Biological Defense (PPTS-ENBD)
- (8) Shipboard Isolation System (SIS)
- (9) Vaccine Acceleration by Modular Progression-Enhanced Biological Defense (VAMP-ENBD)
- (10) Uniform Integrated Protective Ensemble Family of Systems Footwear (UIPE FoS Footwear)
- (11) Biological Warfare Defense Medical Countermeasures Prototype (BIOPROTO)

The Advanced System for Protection and Integrated Reduction of Encumbrances (ASPIRE) Next Generation Respirator effort provides respiratory and ocular protection against CBRN threats that allows near normal operations in a CBRN environment by minimizing or eliminating physical and psychological burden and increasing warfighter lethality. This program, in conjunction with work by Joint Science and Technology Office (JSTO), will lay out the strategy and path forward required to minimize the burden to the warfighter while still providing respiratory and ocular protection against CBRN agents. In FY25, funding will be utilized to develop prototypes on a Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA).

The Accelerated Antibodies - Enhanced Biodefense (AA-ENBD) will develop prophylactic and therapeutic monoclonal antibody (mAb) Medical Countermeasure (MCM) against a broad range of biological threats. AA-ENBD will target the discovery, identification and small-scale manufacture of mAbs with sufficient material to support non-clinical and clinical testing. Sufficient doses will be produced and maintained for potential use in emergency response situations. AA-ENBD was formerly known as Monoclonal Antibodies Therapeutics-Enhanced Biodefense (MAB TX-ENBD). In FY25 AA-ENBD will complete phase 1 clinical studies for mAb product number 1 and initiate phase 1 trials for mAb products number 2 and number 3.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) PT4 / <i>Protect (ACD&P)</i>

The Biological Containment Isolation System - Enhanced Biological Defense (BCIS-ENBD) will provide a negative pressure shelter system for medical treatment of biologically contaminated patients in an Army field hospital environment. BCIS-ENBD will provide a ground-based isolation area for personnel infected or suspected of infection from a biological threat and allows medical staff to monitor and/or treat while decreasing the risk of infecting other patients and staff. This project was funded in FY24 under the Collective Protection CONEX-Enhanced Biological Defense (COL PRO CONEX-ENBD) effort, and was renamed BCIS-ENBD to accurately reflect the capability and applicability of the system. In FY25, BCIS-ENBD will complete concept design, system planning and conduct an initial concept demonstration.

The Generative Unconstrained Intelligent Drug Engineering - Enhanced Biodefense (GUIDE-ENBD) is an intelligent drug design and engineering system intended to decrease product development risk throughout the medical countermeasure development life cycle, accelerate candidate development, and enable preemptive preparedness and rapid response. GUIDE impacts the discovery and design of biologics products (e.g., monoclonal antibodies and vaccines) and small molecule drugs through a multi-faceted optimization process capturing critical quality attributes of safety, efficacy, manufacturability, and pharmacokinetics/pharmacodynamics (PK/PI). Furthermore, GUIDE incorporates computational and experimental approaches to manufacturing controls and preclinical/clinical testing. GUIDE is a collaboration between interagency, academia, and industry partners and is integrated with the Accelerated Antibodies and RNA Vaccine Acceleration by Modular Progression (VAMP) programs. In FY25 GUIDE will continue to develop a fully integrated computational approach to accelerating medical countermeasure development.

The Medical Countermeasure Platform Technologies (MCMPT) program streamlines and accelerates delivery of medical countermeasure to the Warfighter against known and emerging biological threats by establishing mature platform technologies that allow for rapid response and by reducing developmental risks. MCMPT is establishing enabling technologies and prepositioning platform systems within the Department of Defense (DoD)'s Advanced Development Manufacturing (ADM) network using standardized discovery, design, manufacturing, and testing processes to reduce the medical countermeasure (MCM) development risks. In FY25 MCMPT will continue to deliver enduring capabilities from which future candidates can be manufactured.

The Plague Monoclonal Antibodies (PLG MAB) program was transitioned in FY2023 from Medical Countermeasure Platform Technologies (MCMPT) Advanced Development and Manufacturing of Antibody Technology (ADAMANT) effort. PLG MAB will provide a pre-exposure monoclonal antibody product to protect the warfighter from aerosolized plague and is intended for intramuscular route of administration. This capability is complementary to plague therapeutics and will provide a continuum of protection against plague bacteria. In FY25 PLG MAB continues monoclonal antibody discovery and half-life extensions to produce product to support a Phase 1 clinical study.

The Portable Biocontainment Patient Transport System-Enhanced Biodefense (PPTS-ENBD) effort will provide a biocontainment isolation system to safely transport personnel infected or suspected of infection from a biological threat. In FY25, PPTS ENBD will begin system test and evaluation and develop logistics products.

The Shipboard Isolation System (SIS) project will provide the capability to temporarily isolate or quarantine personnel to prevent the spread of a biological threat and safely evacuate patients for transfer off the ship. SIS will be used on multiple Navy ship types to contain and medically monitor/treat patients while protecting embarked crew and personnel. In FY25, SIS will release Request for Proposals (RFP), award contract for prototypes, and delivery of prototypes.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) PT4 / <i>Protect (ACD&P)</i>
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The Vaccine Acceleration by Modular Progression - Enhanced Biodefense (VAMP-ENBD) will leverage lessons learned to shorten future emergency response timelines, mitigate impacts of biological threat outbreaks, and create interim capabilities to protect the Warfighter. Leveraging interagency, industry, and academia partnership, VAMP will continue to build the Warfighter's bio-armor to protect against biological threat families. VAMP will continue to develop alternative vaccine platform technologies and manage awards utilizing go/no-go checkpoints along the development pathway.

The Uniform Integrated Protective Ensemble Family of Systems Footwear (UIPE FoS Footwear) will provide the warfighter with percutaneous protection against liquid, vapor, dust, particulate, or sporulated toxic material, chemical and biological warfare agents and radiological fallout particles when worn as part of the Uniform Individual Protection Ensemble (UIPE). UIPE FOS Footwear funding discontinues after FY24 due to higher priorities within the Chemical Biological Defense Program (CBDP).

BIOPROTO supports early-phase clinical development and supporting non-clinical safety, tolerability and toxicity data for candidate vaccines and therapeutic drugs prior to transition to System Development & Demonstration. This work provides safe and effective medical defense against validated biological threat agents and emerging infectious disease biothreats including bacteria, toxins, and viruses. This work also involves the evaluation of Food and Drug Administration (FDA)-approved therapeutics for operational use, as well as generation of novel drug products and formulations, to enhance level of protection and/or operational utility for the Warfighter. This effort reduces programmatic risk of failure in the advanced development phase.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Title: 1) ASPIRE</p> <p>Description: Next Generation Respirator Development</p> <p>FY 2025 Plans: Award initial Other Transaction Authority (OTA) contract to develop prototypes. Down-select of S&T concepts will occur in FY25 with additional technological insertions executed between FY25 and FY28.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase of funds will be used to award prototype OTA</p>	-	-	1.500
<p>Title: 2) AA-ENBD</p> <p>Description: Accelerated Antibody Development and Production</p> <p>FY 2024 Plans: Initiate phase 1 clinical studies for the first 2 mAb products and complete large-scale manufacturing of 5-10K phase 2 compliant doses to transfer into the Rapid Access to Products In Development (RAPID) program for the first 2 mAb products. Initiate manufacturing scale up and nonclinical testing for mAb product #3. Initiate mAb product #4 in conjunction with GUIDE Live Fire Exercise.</p> <p>FY 2025 Plans:</p>	57.813	67.664	42.270

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) PT4 / <i>Protect (ACD&P)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Accelerate the development, and manufacture of multiple monoclonal antibody medical countermeasures. FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to completion of activities for mAb product #1.				
Title: 3) BCIS-ENBD Description: Prototype, test and evaluate ground based biocontainment isolation systems. FY 2025 Plans: Complete closeout activities from concept development demonstration. FY 2024 to FY 2025 Increase/Decrease Statement: Funds were moved from Project PT5 BCIS-ENBD to better align requirements with budget activity.		-	-	0.300
Title: 4) GUIDE-ENBD Description: Develop and implement a fully integrated computational approach to accelerating medical countermeasure development. FY 2024 Plans: Execute medical countermeasure design campaigns to discover prototypes for up to 3 distinct threat families. Iterate the planning, coding, building, and testing of up to 17 new and existing digital tools and algorithms to increase speed and accuracy of computational MCM discovery efforts and rapid response capability; Conduct Live Fire Exercise against an unknown target, countermeasure will be transferred to Accelerated Antibodies program for development and testing. FY 2025 Plans: Plan, code, build, and test new and existing digital tools and algorithms and corresponding experimental capabilities to increase the speed and accuracy of computational MCM discovery efforts for mAbs, vaccines and small molecules. FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to establishing vaccine specific computational tools and laboratory testing capabilities to support live fire exercise.		53.894	49.633	58.291
Title: 5) MCMPT Description: Manufacturing FY 2024 Plans:		-	1.200	1.522

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) PT4 / <i>Protect (ACD&P)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Continue refining Digital Twin Artificial Intelligence models for manufacturing process controls to reduce human interventions and increase process efficiency.</p> <p>FY 2025 Plans: Initiate DARPA Nucleic acids on demand Worldwide (NOW), a small-scale manufacturing platform that will enable rapid production of nucleic acid MCM (DNA or RNA) prototypes for initial screening activities, to eliminate need for outsourcing critical prototype manufacturing.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to starting new manufacturing effort.</p>				
<p>Title: 6) MCMPT</p> <p>Description: Rapid Response</p> <p>FY 2024 Plans: Continue refining Pandemic Prevention Platform (P3) capability to discover/optimize antigens against known and emerging threats to be further developed under AA-ENBD or GUIDE-ENBD programs for monoclonal and vaccine countermeasures and stored within the Rapid Access to Products in Development (RAPID) program.</p> <p>FY 2025 Plans: Continue P3 development to improve efficiency and response time of the platform in discovering medical countermeasures against novel threats.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to alignment with development activities and increased efficiencies in each technology.</p>		10.355	5.076	4.988
<p>Title: 7) MCMPT</p> <p>Description: Nucleic Acid</p> <p>FY 2024 Plans: Initiate the transfer of DARPA gene-encoded Deoxyribonucleic Acid (DNA) or Ribonucleic Acid (RNA) based medical countermeasure platform. This new technology will enhance both the onset of protection and duration of protection for a pre-exposure countermeasure against chemical/biological threats. Initiate transition of DARPA Nucleic Acid on Demand (NOW) manufacturing capability. This capability eliminates outsourcing of lengthy prototype manufacturing to allow programs such as GUIDE to test and evaluate more candidates real time.</p> <p>FY 2025 Plans:</p>		-	4.200	7.700

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) PT4 / <i>Protect (ACD&P)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Continue development of Gene Encoded DNA/RNA MCM program and improve delivery system to provide instant and long-lasting protection against viral, bacterial and/or toxin threats. Initiate the transfer of the Alpha prototype from the DARPA Nucleic Acids on Demand Worldwide (NOW) manufacturing effort, a small-scale manufacturing platform to enable rapid production of nucleic acid MCM (DNA/RNA) prototypes for initial screening activities. Initiate Proof of Concept broad spectrum MCM platform technology.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to increased manufacturing activities.</p>				
<p>Title: 8) PLG MAB</p> <p>Description: Manufacturing, Non-Clinical and Clinical Development</p> <p>FY 2024 Plans: Continue large scale manufacturing to support the Phase I clinical study and delivery of 5-10K doses of Phase 2 compliant material to Rapid Access to Products in Development (RAPID) program for an Interim Fielding Capability. Complete Pharmacokinetics (PK)/Efficacy studies, small animal model toxicology studies and initiate Phase 1 clinical study to support Milestone B in FY25.</p> <p>FY 2025 Plans: Complete and deliver 5,000-10,000 doses of PLG MAB product for Phase 2. Continue Phase 1 Study in humans for initial safety evaluation.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to completion of Phase 2 manufacturing efforts.</p>		12.815	14.700	9.350
<p>Title: 9) PPTS-ENBD</p> <p>Description: Prototype, test and evaluate Portable Patient Transport Systems for biocontainment and isolation.</p> <p>FY 2025 Plans: Complete closeout activities from concept development demonstration</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funds were moved from Project PT5 PPTS-ENBD to better align requirements with budget activity.</p>		-	-	0.300
<p>Title: 10) SIS</p> <p>Description: Prototype Development and Testing</p>		-	-	0.300

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) PT4 / <i>Protect (ACD&P)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>FY 2025 Plans: Complete closeout activities from concept development demonstration</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funds were moved from Project PT4 SIS to better align requirements with budget activity.</p>			
<p>Title: 11) VAMP-ENBD</p> <p>Description: Manufacturing, non-clinical studies, and clinical trials</p> <p>FY 2024 Plans: Continue development and manufacturing of vaccine candidates against multiple viral biothreats. Continue test and evaluation efforts in animals and human clinical trials.</p> <p>FY 2025 Plans: Continue development and manufacturing of vaccine candidates against multiple biothreats. Continue test and evaluation efforts in animals and human clinical trials. Initiate plague vaccine/biological response modifier effort.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase to support additional work for plague vaccine/biological response modifier effort.</p>	33.781	34.299	45.669
<p>Title: 12) UIPE FoS Footwear</p> <p>Description: Development of the UIPE FoS Footwear System</p> <p>FY 2024 Plans: Initiate prototype Other Transaction Authority (OTA) to evaluate up to ten footwear alternatives, conduct chemical agent swatch testing to inform initial down select of alternatives, conduct limited early user testing to garner feedback on service preferred alternatives.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: UIPE FOS FOOTWEAR funding discontinues after FY24 due to higher priorities within the Chemical Biological Defense Program (CBDP).</p>	-	2.386	-
<p>Title: 13) BIOPROTO</p> <p>Description: Funds biomedical research focused on the nonclinical and early clinical development of therapeutic countermeasures against known and emerging viral, bacterial, and toxin biological warfare (BW) threats for which Food and Drug Administration (FDA)-approved therapeutics are limited or lacking. Research is focused on preclinical evaluation (e.g., in large animal models) of broad-spectrum therapeutic candidates that target pathogen directly, enhance the host response and/or relieve</p>	2.130	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) PT4 / <i>Protect (ACD&P)</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
BW disease symptoms. Candidates that are shown to be both safe and efficacious against BW threats will advance for further clinical evaluation under RDT&E budget activity 5, and can be accelerated for use against emerging infectious diseases during an outbreak.			
Accomplishments/Planned Programs Subtotals	170.788	179.158	172.190

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

Line Item	FY 2023	FY 2024	FY 2025	FY 2025	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Cost To	
			Base	OCO	Total					Complete	Total Cost
• PT3: <i>Protect (ATD)</i>	29.631	29.261	46.050	-	46.050	46.703	46.159	54.536	54.535	Continuing	Continuing
• PT5: <i>Protect (SDD)</i>	86.221	97.975	41.664	-	41.664	25.670	15.951	34.836	58.658	Continuing	Continuing
• MT4: <i>Mitigate (ACD&P)</i>	16.935	28.785	43.364	-	43.364	44.601	36.558	5.309	11.643	Continuing	Continuing

Remarks

D. Acquisition Strategy

Advanced System for Protection and Integration Reduction of Encumbrances (ASPIRE)

The ASPIRE Next Generation Respirator efforts will be accomplished by awarding an agreement through the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) to procure multiple prototypes for further development and evaluation to select a final solution.

Accelerated Antibodies - Enhanced Biological Defense (AA-ENBD)

AA-ENBD, in collaboration with interagency partners at Biomedical Advanced Research and Development Authority (BARDA) & Defense Advanced Research Projects Agency (DARPA), will address multiple high-priority threats by developing antibody solutions and advancing them through Phase 1 clinical trials. Additionally, all necessary studies will be completed to enable advanced development, as desired. AA-ENBD will provide a stockpile of 5-10K doses that will remain on a stability program as a potential rapid response capability for deployment via the Rapid Access to Products in Development (RAPID) program. Furthermore, a commercial manufacturing process will be leveraged and developed that can be rapidly implemented for a larger response if needed. The intention is to work each candidate to the appropriate regulatory level (e.g., through Phase 1) within a codified timeframe (e.g., 2 years) from initiation. These efforts will leverage the Other Transactions Authority (OTA) through the medical OTA consortium.

Biological Containment Isolation System - Enhanced Biological Defense (BCIS-ENBD)

The BCIS-ENBD approach will fund prototype system design and development through the Countering Weapons of Mass Destruction Other Transaction Agreement (CWMD OTA) contract. Prototypes will undergo evaluation and further refinement to optimize performance and minimize total ownership cost.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) PT4 / <i>Protect (ACD&P)</i>

Generative Unconstrained Intelligent Drug Engineering - Enhanced Biological Defense (GUIDE-ENBD)

GUIDE experimental and advanced computational tools, to include artificial intelligence and machine learning, are tailored specifically to Warfighter threats and needs through a preemptive approach that broadly addresses a diverse and dynamic threat space. GUIDE’s intelligent drug design enables medical countermeasures (MCM) candidates to be developed across a wider aperture of threat space thereby reducing early development time. MCM candidates, particularly in the case of high priority threats, can be advanced preemptively. The GUIDE program offers a revolutionary approach to addressing unanticipated endemic and engineered threats through rapid retargeting and optimization. GUIDE is a collaboration between the Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense (CBRND) (JPEO-CBRND), Defense Advanced Research Projects Agency (DARPA), and the Department of Energy (DOE). The GUIDE program is utilizing Interagency Agreements (IAA) with the DOE National Labs as well as an Other Transaction Authority (OTA) agreement for high throughput testing and data library requirements.

Medical Countermeasures Platform Technologies (MCMPT)

The goal of the MCMPT is to rapidly counter a broad-spectrum of threat agents using standardized discovery, design, manufacturing, and testing processes to reduce medical countermeasure (MCM) development risks. Efforts will focus on transitioning S&T programs from other DoD agencies, such as the Defense Threat Reduction Agency (DTRA)-Joint Science and Technology Office (JSTO) or Defense Advanced Research Projects Agency (DARPA) and establishing advanced platform technologies within the Department of Defense (DoD)'s Advanced Development Manufacturing (ADM) network and evaluating that capability through nonclinical and clinical testing. A subset of these technologies, such as the DARPA Pandemic Prevention Platform (P3), will be adapted to deliver a rapid response capability to novel and emerging threats. Once established, future programs will be able to leverage these platforms for the development of future MCMs. It is anticipated that these efforts will leverage the Other Transactions Authority (OTA), through the medical OTA consortium, or Army Contracting Command-Edgewood.

Plague Monoclonal Antibodies (PLG MAB)

The Plague Monoclonal Antibodies (PLG MAB) program was initiated under the MCMPT program and continued using the Accelerated Antibodies contracting mechanism Medical CBRN Defense Consortium Other Transaction Agreement (MCDC OTA). The program’s Milestone Development Decision (MDD) was approved 26 OCT 2022. The program will remain pre-Milestone B and conduct the necessary non-clinical testing, and large-scale manufacturing needed to conduct a Phase 1 clinical trial. This data will be used to provide the warfighter an interim fielding capability via the Rapid Access to Products in Development program (RAPID).

Portable Patient Transport System - Enhanced Biological Defense (PPTS-ENBD)

The PPTS-ENBD effort will resource prototype system design and development through the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA). Leverage lessons learned from previous efforts to optimize performance and minimize total ownership cost.

Shipboard Isolation System (SIS)

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

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The SIS program will utilize the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) to design, procure, and test iterative prototypes to meet the shipboard isolation requirements. Once a final prototype design is selected and successfully completes testing and user evaluations, a technical data package (TDP) and logistics package will be developed. The program will culminate in the procurement and fielding of systems for ship use that will be stored at fleet concentration areas on both CONUS and OCONUS locations.

Vaccine Acceleration By Modular Progression - Enhanced Biological Defense (VAMP-ENBD)

The Vaccine Acceleration by Modular Progression (VAMP) program is an investment program that leverages lessons learned, industrial leaders, established manufacturing processes, and interagency partners (including Biomedical Advanced Research and Development Authority (BARDA), Defense Innovation Unit (DIU)) to develop prototype vaccine candidates utilizing matured platforms from established commercial manufacturing that target biothreats while utilizing a modular approach to ensure flexibility. These prototype vaccines (including, but not limited to, Messenger Ribonucleic Acid (mRNA) vaccines) will use a tailored acquisition pathway and will create a strategic reserve to counter the biothreats against the Warfighter and shorten the development time when an emergency occurs. Data generated from these efforts may be used to support an interim fielding capability (U.S. Food & Drug Administration (FDA) pre-Emergency Use Authorizations (EUA)/EUA and Expanded Access protocols) that could be used to achieve FDA licensure as appropriate. These efforts will leverage the Other Transactions Authority (OTA) through the Medical CBRN Defense consortium, Broad Agency Announcements, and Commercial Solutions Opening. Data on VAMP products will be captured within Rapid Acquisition of Products in Development (RAPID) defense system to aid in identification of MCMs to counter threats.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / Chemical and Biological Defense Program - Dem/Val	Project (Number/Name) PT4 / Protect (ACD&P)
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
ASPIRE - HW C - Prototypes	MIPR	U.S. Army Contracting Command (ACC-NJ) : Picatinny, NJ	-	0.000		0.000		1.125	May 2025	-		1.125	Continuing	Continuing	0.000
AA-ENBD - HW C - Development	Various	Various : N/A	-	53.690	Dec 2022	62.544	Dec 2023	39.072	Dec 2024	-		39.072	Continuing	Continuing	0.000
GUIDE-ENBD - SW S - Development	Various	Various : N/A	-	50.050	Dec 2022	45.713	Dec 2023	53.045	Dec 2024	-		53.045	Continuing	Continuing	0.000
MCMPT - HW S - Rapid Response	C/CPFF	TBD : N/A	-	4.282	Dec 2022	4.782	Dec 2023	4.646	Dec 2024	-		4.646	Continuing	Continuing	0.000
MCMPT - HW S - P3/ Nucleic Acid	C/CPFF	TBD : N/A,	-	5.247	Dec 2022	3.930	Dec 2023	7.172	Dec 2024	-		7.172	Continuing	Continuing	0.000
MCMPT - HW S - Manufacturing	C/CPFF	TBD : N/A	-	0.000		0.993	Dec 2023	1.385	Dec 2024	-		1.385	Continuing	Continuing	0.000
PLG MAB - HW S - Manufacturing, Non-Clinical and Clinical Development	Various	Various : N/A	-	11.970	Mar 2023	13.546	Dec 2023	8.676	Dec 2024	-		8.676	Continuing	Continuing	0.000
VAMP-ENBD - HW C - Vaccine - Development	Various	Various : N/A	-	28.587	Dec 2022	28.254	Dec 2023	36.809	Dec 2024	-		36.809	Continuing	Continuing	0.000
UIPE FoS Footwear - HW S - Footwear Prototype	C/FFP	TBD : N/A	-	0.000		0.100	Jan 2024	0.000		-		0.000	0.000	0.100	0.000
Subtotal			-	153.826		159.862		151.930		-		151.930	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
ASPIRE - ES SB - Engineering Support	MIPR	Various : N/A	-	0.000		0.000		0.225	Jan 2025	-		0.225	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / Chemical and Biological Defense Program - Dem/Val	Project (Number/Name) PT4 / Protect (ACD&P)
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Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			Target Value of Contract
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	
BCIS-ENBD - ES S - Concept Demo Closeout Activities	Various	Various : N/A	-	0.000		0.000		0.300	Nov 2024	-		0.300	Continuing	Continuing	0.000
PPTS-ENBD - ES S - Concept Demo Closeout Activities	Various	Various : N/A	-	0.000		0.000		0.300	Nov 2024	-		0.300	Continuing	Continuing	0.000
SIS - ES S - Concept Demo Closeout Activities	Various	Various : N/A	-	0.000		0.000		0.300	Nov 2024	-		0.300	Continuing	Continuing	0.000
VAMP-ENBD - HW C - Direct Program Support	Various	Various : N/A	-	3.295	Nov 2022	2.745	Dec 2023	3.978	Dec 2024	-		3.978	Continuing	Continuing	0.000
UIPE FoS Footwear - ES S - Logistics/Engineering Support	Various	Various : N/A	-	0.000		0.358	Jan 2024	0.000		-		0.000	0.000	0.358	0.000
BIOPROTO - TD/D S - OTA	MIPR	U.S. Army Contracting Command (ACC-NJ) : Picatinny, NJ	-	2.130	Oct 2022	0.000		0.000		-		0.000	0.000	2.130	0.000
Subtotal			-	5.425		3.103		5.103		-		5.103	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			Target Value of Contract
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	
UIPE FoS Footwear - OTHS - Infrastructure	MIPR	TBD : N/A	-	0.000		0.282	Jan 2024	0.000		-		0.000	0.000	0.282	0.000
UIPE FoS Footwear - OTHS - Swatch Testing (new/worn)	TBD	TBD : N/A	-	0.000		0.500	Apr 2024	0.000		-		0.000	0.000	0.500	0.000
UIPE FoS Footwear - OTHS - Early User Testing	TBD	TBD : N/A	-	0.000		1.000	Jun 2024	0.000		-		0.000	0.000	1.000	0.000
Subtotal			-	0.000		1.782		0.000		-		0.000	0.000	1.782	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) PT4 / <i>Protect (ACD&P)</i>
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Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ASPIRE - PM/MS SB - Program Management Support	MIPR	Various : N/A	-	0.000		0.000		0.150	Jan 2025	-		0.150	Continuing	Continuing	0.000
AA-ENBD - PM/MS S - Program Management	Various	Various : N/A	-	4.123	Dec 2022	5.120	Dec 2023	3.198	Dec 2024	-		3.198	Continuing	Continuing	0.000
GUIDE-ENBD - PM/MS S - Program Management	Various	Various : N/A	-	3.844	Dec 2022	3.920	Dec 2023	5.246	Dec 2024	-		5.246	Continuing	Continuing	0.000
MCMPT - PM/MS S - PM Support	Various	JPL CBRND Enabling Biotechnologies, JPEO-CBRND : Fort Detrick, MD	-	0.826	Dec 2022	0.771	Dec 2023	1.007	Dec 2024	-		1.007	Continuing	Continuing	0.000
PLG MAB - PM/MS S - Program Management	Various	Various : N/A	-	0.845	Dec 2022	1.154	Dec 2023	0.674	Dec 2024	-		0.674	Continuing	Continuing	0.000
VAMP-ENBD - PM/MS S - Management Support	Various	Various : N/A	-	1.899	Oct 2022	3.300	Dec 2023	4.882	Dec 2024	-		4.882	Continuing	Continuing	0.000
UIPE FoS Footwear - PM/MS S - Management Services	Various	Various : N/A	-	0.000		0.146	Jan 2024	0.000		-		0.000	0.000	0.146	0.000
Subtotal			-	11.537		14.411		15.157		-		15.157	Continuing	Continuing	N/A

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	170.788	179.158	172.190	-	172.190	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) PT4 / <i>Protect (ACD&P)</i>
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
ASPIRE - Prototype Contract Award (Next Generation Respirator)											■																	
ASPIRE - Materiel Development Decision - MDD (Next Generation Respirator)															■													
ASPIRE - Milestone B - MS B (Next Generation Respirator)															■													
ASPIRE - Developmental Test and Evaluation - DT&E (Next Generation Respirator)															■	■												
ASPIRE - Prototype Down Select (Next Generation Respirator)																												
ASPIRE - Full Rate Production Decision - FRP (Next Generation Respirator)																												
ASPIRE - Milestone C - MS C (Next Generation Respirator)																												
AA-ENBD - Discovery, identification and small scale manufacture of mAbs																												
BCIS-ENBD - Iterative Prototyping																												
GUIDE-ENBD - Integrated computational approach development																												
MCMPT - Plague Clinical Studies																												
MCMPT - Rapid Response Design, Manufacturing, Testing																												
MCMPT - MCM Optimization Phase Design, Manufacturing, Testing																												
MCMPT - Plague Nonclinical Studies																												
MCMPT - Plague Manufacturing																												
MCMPT - P3/Nucleic Acid																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) PT4 / <i>Protect (ACD&P)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ASPIRE - Prototype Contract Award (Next Generation Respirator)	3	2025	3	2025
ASPIRE - Materiel Development Decision - MDD (Next Generation Respirator)	1	2026	1	2026
ASPIRE - Milestone B - MS B (Next Generation Respirator)	1	2026	1	2026
ASPIRE - Developmental Test and Evaluation - DT&E (Next Generation Respirator)	2	2026	1	2028
ASPIRE - Prototype Down Select (Next Generation Respirator)	1	2027	1	2027
ASPIRE - Full Rate Production Decision - FRP (Next Generation Respirator)	2	2027	2	2027
ASPIRE - Milestone C - MS C (Next Generation Respirator)	2	2027	2	2027
AA-ENBD - Discovery, identification and small scale manufacture of mAbs	1	2023	4	2029
BCIS-ENBD - Iterative Prototyping	1	2025	3	2026
GUIDE-ENBD - Integrated computational approach development	1	2023	4	2029
MCMPT - Plague Clinical Studies	1	2024	2	2024
MCMPT - Rapid Response Design, Manufacturing, Testing	1	2023	4	2029
MCMPT - MCM Optimization Phase Design, Manufacturing, Testing	1	2023	4	2023
MCMPT - Plague Nonclinical Studies	1	2023	2	2024
MCMPT - Plague Manufacturing	1	2023	1	2026
MCMPT - P3/Nucleic Acid	1	2024	4	2026
PLG MAB - clinical Studies	1	2024	4	2024
PLG MAB - Manufacturing Development	2	2023	4	2026
PLG MAB - Phase 1 Clinical Trials	1	2025	4	2027
PPTS-ENBD - Concept Development and System Planning	1	2024	1	2025
SIS - Requirements Definition Package - Requirements Definition	1	2024	2	2024
SIS - Concept Development and System Planning	2	2024	1	2025

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) PT4 / <i>Protect (ACD&P)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
VAMP-ENBD - Vaccine Development	1	2023	4	2029
UIPE FoS Footwear - Prototype Development	2	2024	3	2024
BIOPROTO - Capability Development Document Validation	1	2023	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
MT4: <i>Mitigate (ACD&P)</i>	-	16.935	28.785	43.364	0.000	43.364	44.601	36.558	5.309	11.643	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Mitigate Advanced Component Development and Prototypes (ACD&P) Project provides the Joint Force the ability to conduct decontamination and medical actions that enable the quick restoration of combat power; maintain/recover essential functions that are free from the effects of Chemical Biological Radiological and Nuclear (CBRN) hazards; and facilitate the return to pre-incident operational capability as soon as possible.

Efforts included in this Project are:

- (1) Autonomous Decontamination System (ADS)
- (2) Agent-Directed Therapeutics (AD TX)
- (3) Antiviral Oral Therapeutic (AVO TX)
- (4) Botulinum Toxin Therapeutic (BOT TX)
- (5) Consolidated Nerve Agent Treatment System (CNATS)
- (6) Medical Decontamination Personnel Skin (MED DECON PS)
- (7) Reactivating Nerve Agent Treatment System (RNATS)
- (8) Tactical Contamination Mitigation System (TCMS)
- (9) Biological Warfare Defense Medical Countermeasures Prototype (BIOPROTO)
- (10) Discovery of Medical countermeasures Against New and Emerging threats (DOMANE)
- (11) Service Equipment Decontamination System (SEDS)

The Autonomous Decontamination System (ADS) is a new start program in FY24 and provides a semi-autonomous supported capability that relies on precision detection capabilities, modernized decontaminants, and robotics to allow a chemical, biological, radiological and nuclear (CBRN) decontamination squad to provide platoon level thorough decontamination on critical mission equipment. In FY25, ADS will complete prototype assessment(s) for robotic/automated technologies that are applicable to contamination mapping and decontamination operations. Additionally, the program will prepare documentation in support of the Milestone A/Technology Maturity and Risk Reduction Phase (Simplified Acquisition Management Plan (SAMP), Life Cycle Sustainment Plan (LCSP), Test and Evaluation Master Plan (TEMP)) and conduct Systems Requirements Review (SRR).

The FY25 new start Agent-Directed Therapeutics (AD TX) will go after multiple virus families to develop and deliver Food and Drug Administration (FDA) approved broad-spectrum antiviral therapeutics drugs against highly contagious emerging threats to the warfighter. Initial drug products will be developed targeting viral hemorrhagic diseases of the Arenavirus and Paramyxovirus viral families. Developed agent directed broad spectrum antivirals therapeutics will be employed after

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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suspected or confirmed exposure to known or potential threat agents to include natural occurring outbreaks providing a rapid treatment response to the warfighter. In FY25, funding initiates the Natural History Study (NHS) and procurement of long lead items.

The Antiviral Oral Therapeutics (AVO TX) is a new start program in FY24 and will provide the Joint Force the ability to recover from exposure to biological hazards. Efforts include development of Food and Drug Administration (FDA) approved Medical Countermeasure (MCM) to protect the lives and maintain the battle readiness of the warfighter. In FY25, AVO TX funding supports Natural History Study (NHS) and procurement of long lead items.

The Botulinum Toxin Therapeutic (BOT TX) is a new start program in FY24 and will develop and deliver a U.S. Food and Drug Administration (FDA) approved treatment for the warfighter to treat respiratory depression caused by botulinum intoxication. This intravenous injectable treatment will be developed by reformulating an oral drug product already approved by the FDA. FY25 funding will continue Natural History Study (NHS) and initiate Dose Determination.

The Consolidated Nerve Agent Treatment System (CNATS) is a new start program in FY24 and will deliver an FDA-approved autoinjector that combines anticholinergics, atropine and scopolamine, and a new improved oxime. The proposed oxime will have efficacy against emerging threats including Fourth Generation Agents (FGAs). Combining nerve agent treatments into fewer autoinjectors will reduce basic load for service members and increase the survivability for the warfighter in the United States European Command (EUCOM) and United States Indo-Pacific Command (INDOPACOM) arenas. In FY25, the program will release a solicitation and select a performer and initiate device development.

Medical Decontamination Personnel Skin (MED DECON PS) is a new start in FY25, and will provide a dry/powder personnel decontamination capability to lessen the effects of chemical warfare nerve agents on the skin. MED DECON PS will provide a broad spectrum chemical skin decontamination capability with low logistics footprint (e.g., shelf life and storage conditions) and reduced sustainment costs in comparison to the currently fielded skin decontaminant Reactive Skin Decontamination Lotion (RSDL). In FY25, MED DECON PS will initiate advanced development of the dry powder decontamination technology.

The Reactivator Nerve Agent Treatment System (RNATS) is a new start program in FY24 and will provide the services an FDA-approved improved oxime to address emerging chemical threats and fourth generation agents (FGAs). The program will field a vial formulation as an additional capability and increase the survivability for the warfighter in the United States European Command (EUCOM) and United States Indo-Pacific Command (INDOPACOM) arenas. In FY25, the program will develop and validate the API manufacturing procedures, assays to evaluate the API, and assays to evaluate non-clinical samples, and initiate non-clinical studies.

The Tactical Contamination Mitigation System (TCMS) will address gaps related to the decontamination of critical equipment and vehicles and reduce the time and logistics associated with decontamination. TCMS will limit the spread and mitigate the effects of Chemical, Biological, and Radiological (CBR) contamination to allow warfighters to continue their mission for an extended period of time in a high threat, CBR contaminated environment. The effort will mitigate risk to personnel by limiting the potential spread of CBR contamination and eliminate the need for subsequent decontamination to mitigate contamination on military equipment. TCMS, when combined with weathering, may reduce Mission Oriented Protective Posture (MOPP) level requirements. In FY25, TCMS will complete iterative prototype testing, Test and Evaluation Master Plan (TEMP), Simplified Acquisition Management Plan (SAMP), and Capability Development Document (CDD) in support of Milestone B.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) MT4 / <i>Mitigate (ACD&P)</i>
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The Biological Warfare Defense Prototype (BIOPROTO) supports early-phase clinical development and supporting non-clinical safety, tolerability and toxicity data for candidate vaccines and therapeutic drugs prior to transition to System Development & Demonstration. This work provides safe and effective medical defense against validated biological threat agents and emerging infectious disease biothreats including bacteria, toxins, and viruses. This work also involves the evaluation of Food and Drug Administration (FDA) approved therapeutics for operational use, as well as generation of novel drug products and formulations, to enhance level of protection and/or operational utility for the warfighter. This effort reduces programmatic risk of failure in the advanced development phase.

The Discovery of Medical Countermeasures Against New and Emerging threats (DOMANE) supports prototype development of emerging technology platforms and technologies to identify medical countermeasures (MCMs), MCM targets, and disease origin and toxicity using the combination of Artificial Intelligence/Machine Learning, organs-on-a-chip, high-throughput screening as well as novel imaging platforms. Additionally, MT4 supports early-phase clinical development of prophylaxis treatments and therapeutic drugs through the use of adaptive clinical trials to provide safe and effective medical defense against validated biological threat agents and emerging infectious disease biothreats including bacteria, toxins, and viruses. This effort reduces programmatic risk of failure in the advanced development phase by developing validated prototypes and generating clinical and supporting non-clinical safety, tolerability and toxicity data for candidate prophylaxis treatments and therapeutic drugs prior to transition to System Development & Demonstration.

The Service Equipment Decontamination System (SEDS) program consists of two efforts, Joint SEDS and Special Operations Forces (SOF) Critical Equipment Decontamination (CEDS), which will develop a capability for use by the warfighter during decontamination operations that will provide a quantifiable reduction in the number of personnel experiencing adverse health effects by reducing contamination on equipment, individual combat equipment, and sensitive platform interiors (SEDS). This capability is needed to reduce logistical burdens in order to increase tactical agility and sustain a resilient force posture and align with the National Defense Strategy (NDS). SEDS and CEDS will provide contamination mitigation capabilities for critical equipment exposed to chemical and biological contamination and achieve efficacy levels that allow unprotected post-decontamination exposures for long periods with less than negligible severity effects. FY23 is last year of BA4 funding, program is transitioning to Engineering & Manufacturing Development (EMD).

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

	FY 2023	FY 2024	FY 2025
<p>Title: 1) ADS - Prototype Development</p> <p>Description: Development of Robotic Decontamination Systems</p> <p>FY 2024 Plans: Begin prototype development, conduct alternative systems review.</p> <p>FY 2025 Plans: Complete prototype assessment(s) for robotic/automated technologies that are applicable to contamination mapping and decontamination operations. Prepare documentation in support of the MS A/Technology Maturity and Risk Reduction Phase (Simplified Acquisition Management Plan (SAMP), life cycle sustainment plan (LCSP), Test and Evaluation Master Plan (TEMP)) and conduct Systems Requirements Review (SRR).</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>	-	1.500	2.975

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) MT4 / <i>Mitigate (ACD&P)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Increase supports programmatic activities to achieve Milestone A.				
Title: 2) AD TX Description: Nonclinical FY 2025 Plans: Produce Active Pharmaceutical Ingredients (API) for drug product scale up (Arenavirus) to support execution of the Phase 2 clinical trial. Natural History Study (NHS) and procurement of long lead items (Paramyxovirus). FY 2024 to FY 2025 Increase/Decrease Statement: Program/project is new start effort in FY 2025.		-	-	7.898
Title: 3) AVO TX Description: Advanced drug development FY 2024 Plans: Initiate Natural History Study (NHS). FY 2025 Plans: Continue Natural History Study and initiate efficacy and dose ranging studies, with procurement of long lead items. FY 2024 to FY 2025 Increase/Decrease Statement: Increase supports programmatic activities including FDA engagements to achieve Milestone B.		-	3.740	7.307
Title: 4) BOT TX Description: Nonclinical Studies FY 2024 Plans: Initiate non-clinical study for Dose Determination following FDA animal rule guidance. FY 2025 Plans: Continue Natural History Study (NHS) and Dose Determination following FDA animal rule guidance. FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to cost efficiencies realized in the Natural History Study (NHS).		-	2.847	2.196
Title: 5) BOT TX Description: Manufacturing		-	5.000	9.428

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) MT4 / <i>Mitigate (ACD&P)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>FY 2024 Plans: Initiate scale-up manufacturing for intermuscular injection product.</p> <p>FY 2025 Plans: Continue scale-up manufacturing for intravenous injection product.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to additional testing requirements and technical readiness associated with the pilot efficacy study.</p>			
<p>Title: 6) CNATS</p> <p>Description: Acquisition and Prototype Manufacturing</p> <p>FY 2024 Plans: Assess feasibility of drug combination.</p> <p>FY 2025 Plans: Initiate activities to support Milestone A and B. Initiate prototype design and formulation/process development. Continue Affordability Analysis to support the development of Program goals. Continue Technology Readiness Assessment for potential candidate materiel solutions.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: CNATS Acquisition Activities funding consolidated with the CNATS Acquisition and Prototype Manufacturing efforts. Overall CNATS decrease due to technical maturation activities.</p>	-	1.500	3.690
<p>Title: 7) CNATS</p> <p>Description: Acquisition Activities</p> <p>FY 2024 Plans: Initiate activities to support the Milestone Development Decision (MDD) and Milestone B. 1. Perform Market Research and develop AoA study guidance and plan as required. 2. Perform Affordability Analysis to support the development of Program goals. 3. Perform Technology Readiness Assessment for potential candidate materiel solutions.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: CNATS Acquisition Activities consolidated under one CNATS funding line to support Milestone B activities.</p>	-	2.388	-
<p>Title: 8) MED DECON PS</p>	-	-	1.751

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) MT4 / <i>Mitigate (ACD&P)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Description: Initiate Business Case Analysis (BCA)</p> <p>FY 2025 Plans: Initiate and complete Business Case Analysis (BCA) of the dry/powder technology to determine if it lowers the lifecycle sustainment risk of Reactive Skin Decontamination Lotion (RSDL).</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project is new start effort in FY 2025.</p>				
<p>Title: 9) RNATS</p> <p>Description: FDA approved oxime in a vial</p> <p>FY 2024 Plans: Initiate development of broad spectrum oxime for FDA approval. Initiate Natural History Studies for alternative large animal model development. Initiate API procurement and compounding development.</p> <p>FY 2025 Plans: Initiate drug development, initiate manufacturing and systems engineering.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program activities begin their apex in FY25, which accounts for the increased costs, bulk of activities continue into FY27.</p>		-	5.270	7.119
<p>Title: 10) TCMS</p> <p>Description: Milestone (MS) A support and Prototype Development</p> <p>FY 2024 Plans: Continue iterative prototype testing and complete technical reviews and documentation in support of the Milestone (MS) B/ Engineering Manufacturing & Development (EMD) Phase.</p> <p>FY 2025 Plans: Complete iterative prototype testing, Test and Evaluation Master Plan (TEMP), Simplified Acquisition Management Plan (SAMP), and Capability Development Document (CDD) in support of Milestone B. Upon Milestone B approval, will conduct a Critical Design Review (CDR) and initiate Developmental and Operation testing (DT/OT).</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY25 funding decrease due to the program's transition to Engineering and Manufacturing Development (EMD) phase in Q2FY25.</p>		4.177	6.540	1.000
<p>Title: 11) BIOPROTO</p>		2.444	-	-

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Description: Funds biomedical research focused on the nonclinical and early clinical development of therapeutic countermeasures against known and emerging viral, bacterial, and toxin biological warfare (BW) threats for which Food and Drug Administration (FDA)-approved therapeutics are limited or lacking. Program is ending FY24 to align to higher priority activities			
Title: 12) DOMANE Description: Prototype Development and Early-Phase Clinical Development	0.890	-	-
Title: 13) SEDS Description: Milestone (MS) B support and Prototype Development: Technology Maturation and Risk Reduction (TMRR) Phased Activities to support MS-B and Prototype Development	9.424	-	-
Accomplishments/Planned Programs Subtotals	16.935	28.785	43.364

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• PT4: <i>Protect (ACD&P)</i>	170.788	179.158	172.190	-	172.190	154.024	131.577	137.660	120.758	Continuing	Continuing
• MT3: <i>Mitigate (ATD)</i>	83.766	100.791	81.920	-	81.920	90.704	84.795	86.434	86.435	Continuing	Continuing
• MT5: <i>Mitigate (SDD)</i>	66.596	88.441	65.958	-	65.958	68.516	80.822	100.320	97.781	Continuing	Continuing
• PHM045: <i>Botulinum Therapeutic (BOT TX)</i>	-	-	-	-	-	-	-	-	-	0.000	0.000
• PHM007: <i>Service Equipment Decontamination System (SEDS)</i>	-	-	14.028	-	14.028	22.531	24.920	13.050	11.258	Continuing	Continuing
• PHM042: <i>Tactical Contamination Mitigation System (TCMS)</i>	-	-	-	-	-	-	4.072	5.000	5.000	Continuing	Continuing

Remarks

D. Acquisition Strategy
Autonomous Decontamination System (ADS)

The ADS acquisition approach will focus on the integration of hardware and software components to deliver a capability that performs decontamination procedures autonomously. It will use developmental, government off the shelf (GOTS), and commercial off the shelf (COTS) products using a system of systems approach and

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) MT4 / <i>Mitigate (ACD&P)</i>
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prototyping. The program will conduct developmental, operational, and integration testing to understand how an autonomous decontamination system will be employed, operated, and supported considering the current military operational framework.

Agent-Directed Therapeutics (AD TX)

The Agent-Directed Therapeutics (AD TX) mechanisms of action will go after multiple virus families. The acquisition strategy supports the development of broad-spectrum therapeutics against highly contagious bio-warfare threats. The regulatory approach of the program is to pursue development for Food & Drug Administration (FDA) approval and leverage Animal Rule when unethical to conduct human clinical trials. The acquisition strategy is for viral hemorrhagic diseases and Paramyxoviruses viruses that will leverage safety and proof of concept studies from Science and Technology (S&T) partners. AD TX will utilize multiple contracting and management strategies (Broad Agency Announcements, Other Transaction Authority (OTA), Indefinite Delivery Indefinite Quantity (IDIQ) FAR-based contracting to provide accelerated response capability to the warfighter.

Antiviral Oral Therapeutic (AVO TX)

The Antiviral Oral Therapeutic Program (AVO TX) program acquisition strategy supports the development through the Engineering, Manufacturing and Development (EMD) phase for a U.S. Food and Drug Administration (FDA) approved oral broad spectrum antiviral therapeutic for the warfighter. Initial drug product will be developed targeting Eastern Equine Encephalitis Virus (EEEV), with potential for other indications as a broad spectrum oral antiviral. The operational concept is to provide an oral broad-spectrum therapeutic Medical Countermeasures (MCM) to the Joint Force following a “trigger event” relating to a virus exposure (e.g., a credible intelligence report of use or potential use, a positive outcome of an environmental sample analysis, or a clinical specimen diagnostic test). This program will leverage safety and large scale manufacturing from COVID.

Botulinum Toxin Therapeutic (BOT TX)

The Botulinum Toxin Therapeutic (BOT TX) program will transition from the Joint Science and Technology Office for Chemical and Biological Defense (JSTO-CBD) to the Joint Program Executive Office for Chemical, Biological, Radiological, and Nuclear Defense (JPEO-CBRND). The Botulinum Toxin Therapeutic (BOT TX) program acquisition strategy supports the Technology Maturity and Risk Reduction (TMRR) phase for a US Food and Drug Administration (FDA) approved broad spectrum treatment for the Warfighter against respiratory depression caused by botulinum intoxication. Initial drug product will be developed targeting Botulinum Neurotoxin (BoNT) A, with potential for other indications as a broad-spectrum treatment. BOT TX is part of the layered defense against (BoNT) covering treatment that may be combined with additional FDA-regulated Medical Countermeasures (MCMs) to prevent casualties and minimize the impact of BoNT intoxication. This product will produce a continuous intravenous capability that is based on an oral drug already approved for human use by the FDA. This program will leverage manufacturing from the FDA approved oral product.

Consolidated Nerve Agent Treatment System (CNATS)

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) MT4 / <i>Mitigate (ACD&P)</i>
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In the CNATS acquisition strategy, a contractor will sponsor and conduct activities to achieve Food and Drug Administration (FDA) approval. CNATS will be leveraging current scopolamine development effort and leveraging improved oximes currently in the development pipeline as well as leveraging and optimizing partnerships for assessment/development of the autoinjector. The government contemplates utilizing an Other Transaction Authority (OTA) agreement. Upon FDA approval, a follow-on procurement contract will acquire quantities of product to meet Full Operational Capability (FOC). Sustainment will be the responsibility of the Defense Logistics Agency Troop Support. Post marketing commitments and requirements are anticipated as a result of the FDA approval and will be the responsibility of the contractor and the government.

Medical Decontamination Personnel Skin (MED DECON PS)

Medical Decontamination Personnel Skin is the recipient advanced development program of record at the Joint Project Manager for Chemical, Biological, Radiological, and Nuclear Medical (JPM CBRN Medical). MED DECON PS will evaluate and develop options to replace or enhance the fielded Reactive Skin Decontamination Lotion (RSDL). MED DECON PS will conduct extensive market surveillance and support an analysis of alternatives for suitable replacement technologies to address affordability and storage limitations of the legacy RSDL product. MED DECON PS will develop a regulatory strategy as the technology is anticipated to require U.S. Food and Drug Administration (FDA) licensure as a medical device, or a combination product.

Reactivating Nerve Agent Treatment System (RNATS)

The Reactivator Nerve Agent Treatment System (RNATS) acquisition strategy will leverage prior investments in prior oxime developments by Canada and the United Kingdom. A contractor shall be responsible for conducting activities associated with drug development to obtain U.S. Food and Drug Administration (FDA) approval via a government Other Transaction Authority (OTA) agreement. The contractor shall sponsor the drug. Subsequent purchases for product sustainment will be made by the Defense Logistics Agency (DLA) Troop Support. Post marketing commitments and requirements are anticipated as a result of the FDA approval and will be the responsibility of the contractor and the government.

Tactical Contamination Mitigation System (TCMS)

The TCMS will utilize the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) to conduct market research through Requests for Information (RFIs) and a call for White Papers. The OTA vehicle will also be used to request prototypes, which will undergo technology demonstrations and Early Field testing, followed by an analysis to determine the most suitable candidate. Results of Prototyping will inform Milestone B and Request for Proposals (RFPs) followed by developmental and operational testing and Milestone C/Full Rate Production Approval.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / Chemical and Biological Defense Program - Dem/Val	Project (Number/Name) MT4 / Mitigate (ACD&P)
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
ADS - HW S - Prototype Modification	TBD	TBD : N/A	-	0.000		0.356	Jan 2024	0.786	Jan 2025	-		0.786	Continuing	Continuing	0.000
AD TX - HW GFPP - Product Development	TBD	Various : N/A	-	0.000		0.000		7.020	Dec 2024	-		7.020	Continuing	Continuing	0.000
BOT TX - HW GFPP - Nonclinical/Manufacturing	Various	Various : N/A	-	0.000		6.590	Dec 2023	10.971	Dec 2024	-		10.971	Continuing	Continuing	0.000
CNATS - HW C - Acq Activities/ M/S A&B	Various	TBD : N/A	-	0.000		2.925	Mar 2024	2.974	Apr 2025	-		2.974	Continuing	Continuing	0.000
CNATS - HW SB - Direct Product Support	Various	JPM CBRN Medical, JPEO-CBRND : Fort Detrick, MD	-	0.000		0.535	Nov 2023	0.321	Dec 2024	-		0.321	Continuing	Continuing	0.000
MED DECON PS - HW C - Business Case Analysis (BCA)	TBD	TBD : N/A	-	0.000		0.000		1.033	Dec 2024	-		1.033	Continuing	Continuing	0.000
MED DECON PS - HW C - Direct Product	Various	JPM CBRN Medical, JPEO-CBRND : Fort Detrick, MD	-	0.000		0.000		0.273	Dec 2024	-		0.273	Continuing	Continuing	0.000
MED DECON PS - HW C - Program Mgmt Labor	Various	JPM CBRN Medical, JPEO-CBRND : Fort Detrick, MD	-	0.000		0.000		0.270	Dec 2024	-		0.270	Continuing	Continuing	0.000
RNATS - HW C - Development	TBD	Various : N/A	-	0.000		4.208	Jun 2024	5.738	Dec 2024	-		5.738	Continuing	Continuing	0.000
RNATS - HW SB - Direct Product Support	Various	JPM CBRN Medical, JPEO-CBRND : Fort Detrick, MD	-	0.000		0.482	Jan 2024	0.619	Dec 2024	-		0.619	Continuing	Continuing	0.000
TCMS - HW S - Product Development	C/FFP	TBD : N/A	-	0.681	Nov 2022	1.800	Jan 2024	0.000	Jan 2025	-		0.000	0.000	2.481	0.000
SEDS - HW S - Product Development	SS/FFP	TBD : N/A	-	0.281	Nov 2022	0.000		0.000		-		0.000	0.000	0.281	0.000
SEDS - HW C - CEDS Product Development	C/FFP	Integrated Solutions for Systems (IS4S) : Huntsville, AL	-	0.442	Aug 2023	0.000		0.000		-		0.000	0.000	0.442	0.000
Subtotal			-	1.404		16.896		30.005		-		30.005	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / Chemical and Biological Defense Program - Dem/Val	Project (Number/Name) MT4 / Mitigate (ACD&P)
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Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
ADS - ES S - Engineering Support	MIPR	TBD : N/A	-	0.000		0.225	Nov 2023	0.950	Nov 2024	-		0.950	Continuing	Continuing	0.000
TCMS - ES S - Logistics, Engineering and IPT Support	MIPR	Various : N/A	-	0.833	Nov 2022	0.981	Nov 2023	0.303	Nov 2024	-		0.303	Continuing	Continuing	0.000
BIOPROTO - TD/D S - Clinical/Non-clinical studies for Broad Spectrum antibacterial/ antiviral candidates	MIPR	Aceragen : Cambridge, MA	-	2.444	Oct 2022	0.000		0.000		-		0.000	0.000	2.444	0.000
DOMANE - TD/D S - Hardware/Software	MIPR	Wake Forest University Health Sciences : Winston Salem, NC	-	0.890	Oct 2022	0.000		0.000		-		0.000	0.000	0.890	0.000
SEDS - ILS S - Logistics, Engineering and IPT Support	MIPR	Various : N/A	-	1.722	Nov 2022	0.000		0.000		-		0.000	0.000	1.722	0.000
SEDS - ES S - CEDS Support	C/CPPF	Various : N/A	-	0.126	Mar 2023	0.000		0.000		-		0.000	0.000	0.126	0.000
Subtotal			-	6.015		1.206		1.253		-		1.253	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
ADS - DTE S - Prototype System Testing	MIPR	TBD : N/A	-	0.000		0.827	Nov 2023	0.889	Nov 2024	-		0.889	Continuing	Continuing	0.000
AVO TX - DTE C - Non Clinical Studies	Various	Various : N/A	-	0.000		2.940	Dec 2023	6.387	Mar 2025	-		6.387	Continuing	Continuing	0.000
TCMS - OTHT S - Prototype T&E IPR Test Planning	MIPR	Various : N/A	-	2.399	Jan 2023	3.358	Nov 2023	0.598	Nov 2024	-		0.598	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program												Date: March 2024		
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603884BP / Chemical and Biological Defense Program - Dem/Val						Project (Number/Name) MT4 / Mitigate (ACD&P)		

Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SEDS - OTHT S - T&E IPR Test Planning	MIPR	Various : N/A	-	4.153	Nov 2022	0.000		0.000		-		0.000	0.000	4.153	0.000
SEDS - DTE C - CEDS T&E	C/CPFF	MRIGlobal : Kansas City, MO	-	1.590	Nov 2022	0.000		0.000		-		0.000	0.000	1.590	0.000
Subtotal			-	8.142		7.125		7.874		-		7.874	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ADS - PM/MS S - Program Management	MIPR	TBD : N/A	-	0.000		0.092	Nov 2023	0.350	Nov 2024	-		0.350	Continuing	Continuing	0.000
AD TX - PM/MS S - Management Services	TBD	Various : N/A	-	0.000		0.000		0.878	Dec 2024	-		0.878	Continuing	Continuing	0.000
AVO TX - PM/MS S - Management Support	Various	Various : N/A	-	0.000		0.800	Dec 2023	0.920	Dec 2024	-		0.920	Continuing	Continuing	0.000
BOT TX - PM/MS C - Management Support	Various	Various : N/A	-	0.000		1.257	Dec 2023	0.653	Dec 2024	-		0.653	Continuing	Continuing	0.000
CNATS - PM/MS S - Management Services	Various	JPM CBRN Medical, JPEO-CBRND : Fort Detrick, MD	-	0.000		0.428	Nov 2023	0.395	Dec 2024	-		0.395	Continuing	Continuing	0.000
MED DECON PS - PM/MS S - Management Services	Various	JPM CBRN Medical, JPEO-CBRND : Fort Detrick, MD	-	0.000		0.000		0.175	Dec 2024	-		0.175	Continuing	Continuing	0.000
RNATS - PM/MS S - Management Support	Various	JPM CBRN Medical, JPEO-CBRND : Fort Detrick, MD	-	0.000		0.580	Dec 2023	0.762	Dec 2024	-		0.762	Continuing	Continuing	0.000
TCMS - PM/MS S - Program Management Support	Various	Various : N/A	-	0.264	Nov 2022	0.401	Jan 2024	0.099	Nov 2024	-		0.099	Continuing	Continuing	0.000

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) MT4 / <i>Mitigate (ACD&P)</i>
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029							
	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				
SEDS - Capability Development Document Validation - Other Services	████████																															
SEDS - Early Developmental Testing (Other Services)	████████																															
SEDS - Milestone B - Other Services																																
SEDS - Developmental Test and Evaluation - Other Services	████████████████████																															
SEDS - Operational Test and Evaluation - Other Services																																
SEDS - Milestone C - Other Services																																
SEDS - Full Rate Production Decision - Other Services																																
SEDS - Preliminary Design Review - CEDS SOF	██████																															
SEDS - Developmental Test and Evaluation - CEDS SOF	████████████████████																															
SEDS - Milestone B - CEDS SOF																																
SEDS - Operational Test and Evaluation - CEDS SOF	████████████████████																															
SEDS - Milestone C - CEDS SOF																																
SEDS - Initial Operational Capability - CEDS SOF																																
SEDS - Full Operational Capability - CEDS SOF																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) MT4 / <i>Mitigate (ACD&P)</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ADS - Initial Concept Prototype	3	2024	3	2027
ADS - Materiel Development Decision	3	2024	3	2024
ADS - Developmental Test and Evaluation - Prototyping Demonstration	3	2024	3	2026
ADS - Milestone A	1	2025	1	2025
ADS - Milestone B	1	2027	1	2027
ADS - Milestone C	1	2029	1	2029
ADS - Operational Test and Evaluation	3	2029	3	2029
AD TX - Phase 2 Clinical Trial	2	2025	1	2027
AD TX - Non-Clinical Natural History Study (NHS)	3	2025	3	2027
AD TX - Manufacturing	3	2025	4	2029
AVO TX - Developmental Test and Evaluation - Non-Clinical Trials	2	2024	2	2028
AVO TX - Milestone B	4	2025	4	2025
BOT TX - Non-Clinical Studies	3	2024	4	2028
BOT TX - Manufacturing Scale-up	4	2024	1	2030
BOT TX - Material Development Decision	2	2025	2	2025
BOT TX - Milestone A	4	2025	4	2025
CNATS - Pre Milestone B	1	2024	2	2027
CNATS - Materiel Development Decision	2	2024	2	2024
CNATS - Acquisition activities	1	2025	4	2029
CNATS - Milestone A	2	2025	2	2025
CNATS - Milestone B	2	2027	2	2027
MED DECON PS - Materiel Development Decision - Business Case Analysis (BCA)	1	2025	4	2029

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) MT4 / <i>Mitigate (ACD&P)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
RNATS - Milestone A	2	2024	2	2024
RNATS - Materiel Development Decision	2	2024	2	2024
RNATS - Developmental Test and Evaluation - Initiate natural history studies	3	2024	3	2025
RNATS - Milestone B	2	2026	2	2026
TCMS - Test and Evaluation Master Plan (TEMP)	2	2023	2	2023
TCMS - System Readiness Review (SRR)	2	2023	2	2023
TCMS - Life Cycle Sustainment Plan (LCSP)	2	2023	2	2023
TCMS - Test Readiness Review (TRR)	3	2023	3	2023
TCMS - Simplified Acquisition Management Plan (SAMP)	3	2023	3	2023
TCMS - Milestone A	3	2023	3	2023
TCMS - Prototype Testing	3	2023	2	2024
TCMS - Early User Evaluation (EUE)	4	2024	4	2024
TCMS - SAMP	1	2025	1	2025
TCMS - TEMP	1	2025	1	2025
TCMS - Capability Development Document Validation	2	2025	2	2025
TCMS - Milestone B	2	2025	2	2025
BIOPROTO - Capability Development Document Validation	1	2023	4	2023
DOMANE - Capability Development Document Validation	1	2023	4	2023
SEDS - Capability Development Document Validation - Other Services	1	2023	2	2023
SEDS - Early Developmental Testing (Other Services)	1	2023	3	2023
SEDS - Milestone B - Other Services	4	2023	4	2023
SEDS - Developmental Test and Evaluation - Other Services	1	2024	3	2025
SEDS - Operational Test and Evaluation - Other Services	4	2025	4	2025
SEDS - Milestone C - Other Services	3	2026	3	2026
SEDS - Full Rate Production Decision - Other Services	4	2027	4	2027

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) MT4 / <i>Mitigate (ACD&P)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
SEDS - Preliminary Design Review - CEDS SOF	1	2023	1	2023
SEDS - Developmental Test and Evaluation - CEDS SOF	2	2023	4	2024
SEDS - Milestone B - CEDS SOF	4	2023	4	2023
SEDS - Operational Test and Evaluation - CEDS SOF	4	2024	4	2025
SEDS - Milestone C - CEDS SOF	4	2025	4	2025
SEDS - Initial Operational Capability - CEDS SOF	2	2027	2	2027
SEDS - Full Operational Capability - CEDS SOF	4	2028	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program										Date: March 2024		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>			Project (Number/Name) EN4 / <i>Enabling Investments (ACD&P)</i>				
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
EN4: <i>Enabling Investments (ACD&P)</i>	-	6.645	47.272	35.700	0.000	35.700	23.500	17.800	25.800	20.200	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Enabling Investments Advanced Component Development and Prototypes (ACD&P) Project maintains the Department of Defense (DoD) advanced development manufacturing facility to rapidly develop, manufacture, and approve medical countermeasures. Enabling efforts in this area support dedicated infrastructure capabilities, demonstrations, and overarching development support functions as portfolio enablers responding to emerging threats. Priority access to the facility provides an on demand manufacturing capability not only for the DoD but for the entire United States Government enterprise.

Efforts included in this Project are:

- (1) Chemical Biological Incident Preparedness and Response - Advanced Development and Manufacturing (CBIPR-ADM)
- (2) Chemical Biological Incident Preparedness and Response - Model Development (CBIPR-MODEL)
- (3) Medical Countermeasures Manufacturing Optimization (MCM MFRO)

The CBIPR-ADM ensures prioritization to domestic biopharmaceutical manufacturing capacities, capabilities, and infrastructure (e.g. the DoD-ADM Facility and other strategic partners) that are operationally ready to rapidly develop and manufacture medical countermeasures (MCMs) against current and emerging chemical and biological threats including pandemic response. Prioritization is achieved by establishing and enhancing proven biopharmaceutical manufacturing platform technologies and infrastructure at these facilities. Thus, these facilities will have the capability to accelerate development of MCMs at all stages of development, enhance preparedness for existing threats, and rapidly respond to emerging threats as part of a medical integrated layered defense. MCMs that benefit from these efforts include: Vaccines for Viral Agents, Vaccines for Bacterial Agents and Toxins, monoclonal antibodies, antibody fragments and conjugates for therapeutic and prophylactic use across all agent classes. In FY25, CBIPR-ADM transitions to CBIPR-MODEL based on current incident preparedness and response requirements.

The Chemical Biological Incident Preparedness and Response - Model Development (CBIPR-MODEL) effort will seek to purchase nonclinical models and/or purchase future nonclinical models in advance of CDBP program (S&T and Advanced Development) study needs. In FY25, this effort supports the purchase of nonclinical models.

The Medical Countermeasure Manufacturing Optimization (MCM MFRO) postures the DoD to rapidly respond to biological incidents by leveraging partners across Industrial Base, Chemical and Biological Defense Program, and Defense Health Program to reduce time required to onshore materials critical to the rapid production of medical countermeasures. Furthermore, MCM MFRO will increase the use of computational tools and manufacturing controls to optimize development of MCMs for accelerated delivery to the Warfighter, initiate development of starting materials and conduct a process efficiency study. In FY25, MCM MFRO will continue to optimize manufacturing platforms and continue development of critical reagents, and a rapid sourcing database for starting materials and critical reagents.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) EN4 / <i>Enabling Investments (ACD&P)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Title: 1) CBIPR-ADM</p> <p>Description: Establish proven enabling manufacturing technologies at the Department of Defense (DoD) ADM Capability Building.</p> <p>FY 2024 Plans: Continue activities to technology-transfer and establish new manufacturing technologies and infrastructure that support the development and manufacturing of medical countermeasures (MCMs) at the DoD-ADM Facility and strategic partners. This approach ensures that the DoD's efforts are not limited to a single facility. New manufacturing technologies can come from any government sources (including JSTO, WRAIR, BARDA, etc. when mature enough for BA4 funding) and/or other external sources and targets of opportunity from industry.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred to another funding line. Decrease due to funding transition for current incident preparedness and response requirements under CBIPR-MODEL.</p>	6.645	9.172	-
<p>Title: 2) CBIPR-MODEL</p> <p>Description: Nonclinical Model</p> <p>FY 2025 Plans: Initiate contract to support the purchase of nonclinical models at staggered intervals.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred from another funding line. Increase from the CBIPR-ADM transfer is due to revised priorities within the CBIPR portfolio to initiate modeling efforts.</p>	-	-	12.000
<p>Title: 3) MCM MFRO</p> <p>Description: Biologics Optimization</p> <p>FY 2024 Plans: Initiate optimization of computational tools and manufacturing tools to reduce the cost per dose and time to field for medical countermeasures through optimization of cell productivity and control, in order to improve product quality, consistency, and stability.</p> <p>FY 2025 Plans:</p>	-	27.000	19.000

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / Chemical and Biological Defense Program - Dem/Val	Project (Number/Name) EN4 / Enabling Investments (ACD&P)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Continue to develop innovative approaches that span the drug development lifecycle for optimization of the current manufacturing platforms/techniques for the seamless integration into an emergency response system. FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to transition to test and evaluation portion.			
Title: 4) MCM MFRO Description: Small Molecule Synthesis FY 2024 Plans: Initiate development of critical reagents (such as catalysts), repository stockpile of starting materials, and a database for rapid sourcing of starting materials and critical reagents from stockpile or from other sources during a manufacturing surge. FY 2025 Plans: Continue development of critical reagents, starting materials, and Active Pharmaceutical Ingredients (API) for stockpile to meet future need for programs. FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to continuation of Active Pharmaceutical Ingredients (API) development for stockpile.	-	10.800	4.700
Title: 5) MCM MFRO Description: Process Improvement/Quality FY 2024 Plans: Initiate quality release process efficiency study to reduce delays in the manufacturing batch release process. FY 2024 to FY 2025 Increase/Decrease Statement: Study concludes in FY24.	-	0.300	-
Accomplishments/Planned Programs Subtotals	6.645	47.272	35.700

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• EN5: Enabling Investments (SDD)	13.120	13.835	7.985	-	7.985	13.436	11.811	18.542	16.527	Continuing	Continuing
Remarks											

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) EN4 / <i>Enabling Investments (ACD&P)</i>

D. Acquisition Strategy

Chemical Biological Incident Preparedness and Response Advanced Design Manufacturing (CBIPR-ADM)

CBIPR-ADM establishes new capability-building efforts such as manufacturing platforms using U.S. Food & Drug Administration (FDA) known technologies and infrastructure improvements that will enable new additional medical countermeasure (MCM) product development. This ensures the DOD ADM will continue to be an enduring domestic MCM manufacturing capability that provides the DoD with priority access. CBIPR-ADM will tech transfer and enhance new manufacturing technologies and infrastructure to support the development and manufacturing of MCMs to provide rapid response to known and unknown chemical/biological threats. New manufacturing technologies can come from any government sources (including JSTO, WRAIR, BARDA, etc. when mature enough for BA4 funding) and other external sources and targets of opportunity from industry.

Chemical Biological Incident Preparedness and Response - Model Development (CBIPR-MODEL)

The Chemical Biological Incident Preparedness and Response - Model Development (CBIPR-MODEL) program acquisition strategy will create a process to purchase nonclinical models in advance of the need. It will establish vendor relationships and prevent negative impacts to S&T and Advanced Development program cost and schedules. It will provide a multi-year agreement with the vendor for a regular supply of nonclinical models over the FYDP.

Medical Countermeasures Manufacturing Optimization (MCM MFRO)

MCM MFRO will increase use of computational tools and manufacturing controls to reduce the risk associated with cost per dose and time to field, as well as enhance FDA regulatory compliance. Additionally leverage industrial base partnerships and buy down risks to manufacturing by prioritizing onshoring of key chemicals (active pharmaceutical ingredients (API) and key starting materials (KSMs)) critical to produce DoD-unique enhanced biodefense medical countermeasure needs.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program												Date: March 2024				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
0400 / 4				PE 0603884BP / Chemical and Biological Defense Program - Dem/Val				EN4 / Enabling Investments (ACD&P)								
Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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	
CBIPR-ADM - HW S - Capabilities Establishment	C/CPFF	Resilience Government Services, Inc. : Alachua, Florida	-	6.337	Dec 2022	8.830	Dec 2023	0.000		-		0.000	0.000	15.167	0.000	
CBIPR-ADM - HW S - Product Management Support	C/CPFF	Various : N/A	-	0.308	Dec 2022	0.342	Jan 2024	0.000		-		0.000	0.000	0.650	0.000	
MCM MFRO - HW S - Development	Various	TBD : N/A	-	0.000		35.052	Dec 2024	22.159	Dec 2024	-		22.159	Continuing	Continuing	0.000	
Subtotal			-	6.645		44.224		22.159		-		22.159	Continuing	Continuing	N/A	
Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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	
CBIPR-MODEL - TD/D C - Contract award safety/ efficacy models purchase & rearing	TBD	TBD : N/A	-	0.000		0.000		12.000	Apr 2025	-		12.000	Continuing	Continuing	0.000	
Subtotal			-	0.000		0.000		12.000		-		12.000	Continuing	Continuing	N/A	
Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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	
MCM MFRO - PM/MS S - Program Management	Various	Various : N/A	-	0.000		3.048	Dec 2024	1.541	Dec 2024	-		1.541	Continuing	Continuing	0.000	
Subtotal			-	0.000		3.048		1.541		-		1.541	Continuing	Continuing	N/A	

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) EN4 / <i>Enabling Investments (ACD&P)</i>
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029							
	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				
CBIPR-ADM - MCM Enabling Manufacturing Technologies																																
CBIPR-ADM - MCM Development and Manufacturing Support (Infrastructure)																																
CBIPR-MODEL - Purchase and Rear safety/ efficacy models																																
MCM MFRO - Biologics Molecular Optimization																																
MCM MFRO - Process Efficiency Study																																
MCM MFRO - Small molecule synthesis and scale up																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / <i>Chemical and Biological Defense Program - Dem/Val</i>	Project (Number/Name) EN4 / <i>Enabling Investments (ACD&P)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CBIPR-ADM - MCM Enabling Manufacturing Technologies	1	2023	4	2024
CBIPR-ADM - MCM Development and Manufacturing Support (Infrastructure)	1	2023	4	2024
CBIPR-MODEL - Purchase and Rear safety/efficacy models	3	2025	4	2029
MCM MFRO - Biologics Molecular Optimization	1	2024	4	2029
MCM MFRO - Process Efficiency Study	1	2024	4	2024
MCM MFRO - Small molecule synthesis and scale up	1	2024	4	2029

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	0.000	294.774	382.977	270.265	0.000	270.265	232.085	199.007	216.883	228.624	Continuing	Continuing
UN5: <i>Understand (SDD)</i>	-	128.837	182.726	154.658	0.000	154.658	124.463	90.423	63.185	55.658	Continuing	Continuing
PT5: <i>Protect (SDD)</i>	-	86.221	97.975	41.664	0.000	41.664	25.670	15.951	34.836	58.658	Continuing	Continuing
MT5: <i>Mitigate (SDD)</i>	-	66.596	88.441	65.958	0.000	65.958	68.516	80.822	100.320	97.781	Continuing	Continuing
EN5: <i>Enabling Investments (SDD)</i>	-	13.120	13.835	7.985	0.000	7.985	13.436	11.811	18.542	16.527	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) resources System Development & Demonstration across the Understand, Protect, Mitigate, and Enabling Investments portfolios. The Chemical Biological Defense Programs (CBDP) investments provide an integrated, layered capability to enable Countering Weapons of Mass Destruction (CWMD) missions ranging from combat operations to Department of Defense (DoD) support to domestic incident prevention and response. The projects in this PE support the development, build, and test of products to verify that all operational and derived requirements have been met and to support production or deployment decisions. The activities include mature system development, integration, and demonstration to support Milestone C decisions, and conducting operational tests and evaluation of production representative articles. FY25 funding accelerates characterization and situational awareness of emerging biothreats and accelerates delivery of improved protection from and mitigation of biothreats, including rapid repurposing of available therapeutics and development of new vaccines.

Individual Projects include:

- Understand (UN5): Provides the Joint Force the ability to detect and identify hazards from traditional and emerging chemical and biological threats to improve the timeliness and confidence of information for decision-makers. Supports freedom of maneuver and informs commanders' decisions by predicting, locating, identifying, analyzing, and warning of chemical and biological (CB) hazards.

- Protect (PT5): Provides the Joint Force the ability to prevent the effects of exposure to chemical and biological hazards. Protects personnel against chemical, biological, and radiological (CBR) liquid, vapor, and aerosol hazards through next-generation prototypes of masks, filters, and ensembles to reduce physiological, psychological, and logistical burdens to the warfighter. Medical countermeasure efforts conducted during this phase include the development of a large-scale manufacturing process and validation of that process, nonclinical studies, demonstration of manufacturing consistency, and expanded clinical human safety studies. Focuses on platform-based approaches to accelerate the development of prophylactic medical countermeasures that rapidly and durably protect against Biological Warfare Agents (BWAs), toxins, non-traditional and emerging chemical threats with minimal doses. The results of these efforts will be used to submit a Biologics License Application (BLA) to the U.S. Food & Drug Administration (FDA) for product licensure.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>
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- Mitigate (MT5): Preserves combat power by mitigating exposure to CB hazards and restoring combat readiness of critical personnel and platforms. Enables Joint Force lethality by providing capabilities for Warfighters to rapidly respond to and mitigate the adverse effects of CB hazards. Fields mitigation capabilities against engineered biological agents, opioids and other Pharmaceutical-Based Agents, and Fourth Generation Agents (FGAs).

- Enabling Investments (EN5): Provides fundamental knowledge and technology demonstrations as key portfolio enablers integral to responding to emerging threats. Dedicated funding for this Project supports National and Departmental incident response and preparedness regarding CB threats.

Middle Tier Acquisition programs:

The total cost of the Uniform Integrated Protective Ensemble Family of Systems Gloves (UIPE FOS GLOVES) Middle Tier of Acquisition effort is \$58.924 Million, including RDT&E (Project PT5) and procurement of prototype units (CBDP BLIN Protection & Hazard Mitigation). The UIPE FOS GLOVES is fully funded across the Future Years Defense Program.

The projects in this PE support the engineering and manufacturing development phase of the Department of Defense (DoD) acquisition system and are, therefore, correctly placed in Budget Activity 5.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	301.611	382.977	314.012	-	314.012
Current President's Budget	294.774	382.977	270.265	-	270.265
Total Adjustments	-6.837	0.000	-43.747	-	-43.747
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-6.209	-			
• Other Adjustments	-0.628	-	-43.747	-	-43.747

Change Summary Explanation

Funding: FY 2023 (-\$6.209 Million): Transfer of funding to support Small Business Innovative Research/Small Business Technology Transfer efforts.

FY 2023 (-\$0.628 Million): CBDP funding transferred to Under Secretary of Defense (Acquisition & Sustainment) high priority efforts.

FY 2025 (-\$43.747 Million) The overall decrease of (-\$43.747 Million) primarily includes a decrease to the Antiviral Oral Therapeutic (AVO TX) program Budget Activity 5 (BA5) by transitioning funding to BA4 to support AVO TX FDA engagements needed for a successful Milestone B decision and transition of medical

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> / BA 5: <i>System Development & Demonstration (SDD)</i>	PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>

countermeasure development activities to the Rapid Access to Products in Development (RAPID) program (-\$25.825 Million), a System Development & Demonstration (SDD) adjustment to support DoD high priority efforts (-\$18.696 Million), and a inflation rate adjustment increase (+\$0.774 Million).

Schedule: N/A

Technical: N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
UN5: <i>Understand (SDD)</i>	-	128.837	182.726	154.658	0.000	154.658	124.463	90.423	63.185	55.658	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Understand System Development & Demonstration (SDD) Project provides the Joint Force the ability to continually receive information about the Chemical, Biological, Radiological and Nuclear (CBRN) situation at a desired time and place by detecting, identifying, and quantifying CBRN hazards in air, water, or on land, and on personnel, equipment or facilities. These efforts support the ability to conduct early warning (informing protective posture) and employment of rapid detection, identification, and analysis tools needed to address emerging biological threats. Efforts also keep the Joint Force ahead of emerging chemical threats with portable, reduced size, weight, and power, cost detectors to protect general and specialized forces and to enhance operations on the battlefield by providing early warning and field analytics. Medical diagnostic activities develop U.S. Food & Drug Administration (FDA) approved products for the warfighter at the point of care to inform far-forward medical and protection decisions.

Efforts included in this Project are:

- (1) Advanced and Emerging Threat Defense (AET DEFENSE)
- (2) Aerosol Vapor Chemical Agent Detector (AVCAD)
- (3) Chemical and Biological Wearables - Enhanced Biological Defense (CB Wearables - ENBD)
- (4) Chemical Biological Radiological Nuclear Sensor Integration on Robotics Platforms (CSIRP)
- (5) Compact Vapor Chemical Agent Detector (CVCAD)
- (6) Defense Biological Products Assurance Program (DBPAP)
- (7) Defense Biological Products Assurance Program - Enhanced Biological Defense (DBPAP-ENBD)
- (8) Far Forward Biological Sequencing (FFBS)
- (9) Joint Biological Tactical Detection System (JBTDSD)
- (10) Mobile Field Kit (MFK)
- (11) Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite Upgrade (NBCRV SSU)
- (12) Next Generation Diagnostics 2 Chemical Diagnostics (NGDS 2 CHEMDX)
- (13) Next Generation Diagnostics 2 Man Portable Diagnostic System (NGDS 2 MPDS)
- (14) Proximate Chemical Agent Detector (PCAD)
- (15) Physiological Monitoring Sensor Suite (PM2S)
- (16) Special Purpose Unit Rapid Capability Development and Deployment (SPU RCDD)
- (17) Wearable All Hazard Remote Monitoring Program (WARP)
- (18) Multi-Phase Chemical Agent Detector (MPCAD)
- (19) Surveillance and Pathogen Characterization - Enhanced Biological Defense (SPCHAR-ENBD)

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>

The Advanced and Emerging Threat Defense (AET DEFENSE) program continues to address the highest priority CBRN gaps and supports the Chemical Biological Defense Program (CBDP) Strategic Line of Effort to meet current and emerging threats by anticipating CB hazards and identifying capabilities to counter emerging and future threats. The AET DEFENSE program collaborates with the Joint Services and interagency to align RDT&E resources to determine readiness against emerging threats as they are identified across the entire CBDP enterprise portfolio. In FY25 and beyond, AET DEFENSE continues to broaden the data set for emerging threats to better assess detection and decontamination capabilities.

Aerosol Vapor Chemical Agent Detector (AVCAD) is a Man-Portable system to detect aerosol and vapor chemical agents. AVCAD fills critical gaps in current Joint Force chemical sensor capabilities, in the areas of liquid, solid and dusty aerosol Chemical Warfare Agent detection, and detection of specific advanced threats/Non-Traditional Agents. The AVCAD will also detect low-level off-gassing, or residual vapors, to prevent/mitigate health effects associated with low concentration exposures, and perform remote alarm warning and reporting. AVCAD will support chemical and biological defense missions, including monitoring, collective protection, base defense, decontamination, unmasking, and reconnaissance. AVCAD will be integrated on the Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV). AVCAD also has a fixed site variant that will be integrated onto ships. In FY25, funding is utilized to finalize MOT&E activities in support of the Full Rate Production (FRP) anticipated in March 2025.

CB WEARABLES-ENBD continues to develop interfaces needed to integrate wearable physiological monitoring capabilities directly into service-sponsored decision support and mission command systems. These capabilities detect and alert for CBRN anomalies that may indicate exposure to biological warfare agents (BWA) or other emerging threats across the force. This enables the services to conduct force-wide monitoring to detect the presence or initial onset of CBRN threats and human physiological stressors. Wearables provides commanders with the ability to understand, address, and provide solutions against emerging threats encountered under many operational scenarios, which could deter maneuver and ability to project force. CB Wearables-ENBD will continue to directly interface and integrate with existing joint force computing environments and directly supports the strategic goals of the CBDP's Enhanced Biodefense effort.

The Chemical Biological Radiological and Nuclear (CBRN) Sensor Integration on Robotics Platforms (CSIRP) is a prototyping and fielding effort that will focus on repackaging and integrating modular CBRN sensor solutions to enhance Unmanned Aircraft Systems (UAS) and Unmanned Ground Vehicles (UGV) Programs of Record (PORs). CSIRP will provide situational awareness across the echelons of command in order to enable freedom of maneuver and action on the battlefield. An integrated CSIRP capability will exploit advances in artificial intelligence, machine learning and autonomy, sensing and communication capabilities that enable timely and accurate detection, warning and reporting of CBRN hazards. CSIRP will reduce risk at tactical and operational echelons in mounted and dismounted configurations. CSIRP gives the Joint Force an opportunity to enhance capabilities and maintain operational advantage in a lethal and complex operating environment. In FY25, CSIRP will integrate standoff detection and provide upgrades to CBRN autonomy, mapping and obstacle avoidance for denied global positioning system (GPS) operations on UAS's.

Compact Vapor Chemical Agent Detector (CVCAD) is an unobtrusive, low-profile chemical detection capability that will continuously, and autonomously, monitor and alert general and specialized units to an unsafe environment without further burdening the warfighters payload or interfering with the primary mission. The CVCAD will warn CBRN and non-CBRN forces of Chemical Weapon Agent (CWA), Toxic Industrial Chemical (TIC), or confined space hazards to inform immediate force protection decisions. The small form factor (less than 2 pounds) is amenable to both man-worn and unmanned aerial or ground system operations to enable timely personnel

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
<p>protective action and other force protection decisions. FY25 funding supports engineering and development tasks to include military standard environmental and false alarm testing, as well as conduct an operational assessment to measure system performance and assess risk to support Milestone C (MS C) Decision in 4QFY26.</p> <p>The Defense Biological Product Assurance Program (DBPAP) serves as the principal resource of high quality, validated, and standardized biological detection assays and reagents that meet the requirements of the warfighter and Joint biological defense systems. The DBPAP pursues an array of analytical tools to verify assay performance and predict effective medical countermeasure solutions that are critical to preparedness. The DBPAP enables online ordering system for assays, reagents, and biological reference materials , where multiple government agencies and customers can place orders, track order status, and monitor ordering history. In FY25 DBPAP will continue to support optimization and expansion of biological threat agents reference materials and assays to known and emerging threats.</p> <p>The Defense Biological Product Assurance Program - Enhanced Biodefense (DBPAP-ENBD) efforts increase the capabilities above DBPAP baseline levels specifically through enhancements to biological threat agent reference materials, analytical tools portfolios, increased sequencing capabilities, expanded analytical tool capabilities, increased repository of collected biothreat genomic information, and additional biorepository of targeted biothreats and toxins against emerging diseases and potential pandemics. In FY25 DBPAP-ENBD continues to support expanded enhancements to biological threat agent reference materials, and analytical tools portfolios, increased sequencing capabilities, expanding on analytical tools, additional repository of collected biothreat genomic information, and increased biorepository of targeted biothreats and toxins against emerging diseases and potential pandemics.</p> <p>Far Forward Biological Sequencing (FFBS) system is a rapid handheld biological sequencing device that will provide far-forward Special Operations Forces (SOF) the detect-to-inform capability on or near the objective, with a reduction in Commanders' tactical decision timeline from weeks to hours, increasing tactical flexibility and fighting strength, and it will save lives. FY25 funds will focus on the completion of prototype testing and preparations to enter the Production & Deployment (P&D) phase.</p> <p>The Joint Biological Tactical Detection System (JBTDS) is the first tactical lightweight, low-cost biological surveillance system to detect, collect, and identify Biological Warfare Agent (BWA) aerosols. JBTDS components are man-portable, battery operable and easy to employ by any military user. JBTDS provides notification of a hazard and enhances battle-space awareness to protect and preserve the forces and can archive a sample for follow up analysis. When networked, JBTDS augments existing biological detection systems providing a theater-wide array capable of biological detection, identification and warning to support time sensitive force protection decisions. The JBTDS provides surface sampling capability which interfaces with the JBTDS identifier to support sensitive site exploitation missions. In FY25, JBTDS will conduct testing on the full JBTDS system (Detector/Collector, Identifier, Base Station). The production lead time for Identifiers is much shorter than the Detector/Collector/Base Station. The Program Manager is leveraging this as an opportunity to conduct testing on the Identifier in one of its intended use cases to identify biological material present in environmental surface samples. FY25 testing will involve the full system interrogating aerosol samples for the presence of biological agents of concern.</p> <p>MFK effort is the modernization, development, and continuous engineering of Mobile Field Kit (MFK), which is the National Guard Bureau's (NGBs) interim CBRN Awareness & Understanding capability for the Homeland Defense Mission. MFK is a suite of software applications, platforms, and architecture residing on the National Guard CBRN Response Enterprise (CRE) Information Management System (NG-CIMS) operationally deployed in support of NGB missions. MFK provides the NGB real-time visualization and mapping of CBRN threats, personnel location and health, and other sensor data to support the Homeland mission. FY25 funds will begin the time-phased transition of specific capabilities from MFK to CSC2.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>

Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite Upgrade (NBCRV SSU) provides maneuver formations the ability to conduct mounted Chemical Biological Radiological and Nuclear (CBRN) reconnaissance and surveillance. The NBCRV SSU will answer the commander's priority intelligence requirements & facilitate proactive risk-based decisions, to ensure freedom of action and maintain maneuver momentum in Large Scale Combat Operations. NBCRV SSU is an Acquisition Category (ACAT) II modification work order (MWO) effort to modernize the current NBCRV Sensor Suite to increase maintainability, reliability, maneuverability of the force, and standoff distance from the threat, via enhanced CBRN standoff capabilities & integrating onto robotics for Human-Machine Integration (HMI). In FY25, plans include completing CBRN sensor integration for the next capability set (CS2.2) and begin test and evaluation activities.

The NGDS 2 ChemDx program will provide a rapid, hand-held, point-of-care device, for the quantitative detection of acetyl cholinesterase (AChE) levels in blood samples, an indicator of possible Nerve Agent exposure in individuals. NGDS 2 ChemDx will be employed by Services at multiple echelons of healthcare. NGDS 2 ChemDx test results are to be used to aid in the diagnosis and treatment of individuals suspected of having exposure to chemical nerve agents. In FY25, the NGDS 2 ChemDx program will finish clinical trials and submit application for FDA clearance, to complete EMD, achieve MS C and award a production contract.

The Next Generation Diagnostics System 2 - Man Portable Diagnostics System (NGDS 2 - MPDS) program will provide a simple-to-use, portable diagnostic device capability that can be used in austere battlefield environments to assist in the diagnosis of infectious diseases and biological warfare agents. The MPDS will enable earlier patient diagnosis improve decision support for treatment, evacuation, and command situational awareness, and mitigate the effects of exposure to unknown infectious disease and biological agents. In FY25, NGDS 2 MPDS will continue testing required for FDA clearance of two assays, initiate testing required for FDA clearance of a third assay, and conduct Developmental Testing.

The Proximate Chemical Agent Detector (PCAD) is developing a Non-Trace and Trace capabilities. Non-Trace will provide the services with a handheld point and interrogate device that identifies visible liquid and solid chemical threats on surfaces at standoff (non-contact) distances. The PCAD Trace will provide the services with a handheld device that will rapidly scan an area to locate, detect, and identify non-visible solid and liquid threats on surfaces at standoff (non-contact) distances. In FY25 Non-Trace capability transitions to BA5 and the PCAD program will be conducting Early Manufacturing Development (EMD) testing, operational testing, user events and acquisition documentation in support of a Milestone C (MS C) decision in FY26.

The Physiological Monitoring Sensor Suite (PM2S) is a new start program in FY24. It develops CBRN exposure software algorithms that analyze physiological data collected from wearable sensors. These algorithms provide commanders with actionable information to maximize warfighter readiness, performance, and enhance resiliency before, during, and after CBRN operations. BA5 efforts conduct software hardening, verification/validation, and integration on algorithms transitioned from DTRA JSTO and service wearables S&T partners. Capabilities developed will integrate with the hardware-focused Chemical and Biological Wearables - Enhanced Biodefense (CB WEARABLES-ENBD) solution set, which will provide an additional layer of sensing to rapidly detect CBRN threats across the joint forces, decrease risk to mission, and risk to force.

Special Purpose Unit Rapid Capability Development and Deployment (SPU RCDD) facilitates United States Special Operations Command (USSOCOM) rapid response requirements, through the classified special category (SPECAT) process, for near-term and emergent chemical-biological defensive capabilities. SPU RCDD mitigates risk across the Enterprise by creating a portfolio of operationally relevant CBRND capabilities that can be quickly transitioned in response to the articulated, developing

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
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capability needs of the geographic combatant commanders. These objectives are met by the early transitioning of promising S&T; the focused conduct of combat evaluations and mission-oriented operational assessments to assess technological and mission suitability; and leveraging existing Commercial-Off-The-Shelf (COTS) and Government-Off-The-Shelf (GOTS) products along with novel redesign approaches to optimize existing solutions to new challenges supported by adaptive acquisition strategies.

Wearable All-hazard Remote-monitoring Project (WARP) is a family of wearable and attachable sensors to collect, transmit, and integrate information about the CBRND operational environment, disposition of warfighters, and key mission equipment status to optimize actions on the objective, provide real-time tactical data for decision makers, and facilitate unit readiness post mission. This network of sensors may be accessed by ground-force command for operational decisions for more timely and accurate situational awareness resulting in increased force protection. WARP has gone through the classified special category (SPECAT) requirements validation via United States Special Operations Command (USSOCOM) and Assistant Secretary of Defense for Nuclear, Chemical & Biological Defense Programs (ASD(NCB)).

Multi-Phase Chemical Agent Detector (MPCAD) is a two-person portable system that will conduct near real-time, near-laboratory grade analysis of solid, liquid, and vapor samples collected by the operator in a presumptively contaminated area. The MPCAD results will support the Commander's tactical and operational decisions regarding maneuver, protection, decontamination, and treatment measures. The Army will employ MPCAD in Dismounted Reconnaissance and Site Assessment missions to substantiate presumptive detector results. The Air Force will employ the MPCAD to support Post-Event Reconnaissance in support of Reconnaissance and Surveillance missions by monitoring the environment at airbases after a chemical release. The Air Force will continuously monitor contaminated areas for chronic health effects levels through analysis of samples from collectors deployed at the contamination site and brought back to the analyzer for identification and quantification. This information will support commander decisions to determine Mission Oriented Protective Posture (MOPP) levels and eventual termination of cordon restrictions.

SPCHAR-ENBD (contact tracing) integrates innovative and emerging contact tracing capabilities into the pre-symptomatic exposure wearable system outlined in CB Wearables-ENBD. This effort will leverage on-going COVID-19 investments in contact tracing stemming from the joint service response to Joint Emergent Operational Needs Statement (JEONS) JS-0003. It will include person-worn digital proximity tools for logging close contacts with the infected. SPCHAR-ENBD directly supports the strategic goals of the Chemical Biological Defense Program's (CBDP's) Enhanced Biodefense effort.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Title: 1) AET DEFENSE</p> <p>Description: This effort will focus on expanding capabilities of data libraries and CBDP information systems and will focus on understanding advanced capability against emerging threats. This effort includes Program Management, Support, and Testing of technologies that have been demonstrated to be at Technology Readiness Level (TRL) 6 or higher in order to rapidly field solutions to combat emerging threats.</p> <p>FY 2024 Plans: Continue efforts to leverage expanded requirements to broaden data set for emerging biological threats and Pharmaceutical Based Agents (PBAs). Expand efforts to include data for defensive capabilities against three additional emerging threat materials. Produce additional data to better assess detection and defensive capabilities against new requirements and inform rapid fielding</p>	1.223	2.692	1.842

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>decisions. Produce new data to understand decontamination capabilities against multiple emerging threat materials. Conduct exercises to support Joint Service and interagency tactics, techniques, and procedures (TTP) development and gap analysis for materiel solutions. Assess potential upgrades to systems in the Engineering and Manufacturing Development (EMD) phase of acquisitions to add emerging threat defensive capability prior to or shortly after fielding.</p> <p>FY 2025 Plans: Continue efforts to produce additional data to better assess detection and decontamination capabilities against toxins, bioregulators, and other advanced threats. Conduct protocol development to improve CBDP ability to respond to advanced threats. Conduct market surveys and assessments of technologies for rapid fielding by Chemical Biological Defense Program to mitigate emerging threat gaps as threats are identified.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to the PBA testing reduction and prioritized testing for other advanced threats.</p>				
<p>Title: 2) AVCAD</p> <p>Description: Product Development, Testing, Support Cost, Program Management Support.</p> <p>FY 2024 Plans: Executing and completing product development and testing. Preparing for Full Rate Production (FRP) to include type classification / material release (TCMR). Continue Systems Engineering and other IPTs for product development and materiel release. Complete Multi-Service Operational Test and Evaluation (MOT&E) in support of a Full Rate Production decision. Continue Program management and administration processes to include but not limited to program oversight, resource justification, budgeting and programming, milestone and schedule tracking. Continue Other Government Agency (OGA) Support for logistics and test evaluation results in support of a Full Rate Production decision.</p> <p>FY 2025 Plans: Complete product development, Systems Engineering, and multi-service operation test and evaluation (MOT&E). Complete program management and administrative processes and Other Government Agency (OGA) support for logistics and test evaluation results in support of a Full Rate Production (FRP) decision.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program/project transitioned to Production and Deployment Phase. Decrease in funding to close out necessary activities for MOT&E supporting the FRP decision in 2QFY25.</p>		16.603	11.290	3.000
<p>Title: 3) CB WEARABLES-ENBD</p> <p>Description: This effort will develop and field wearable sensor capabilities and architectures for use across the joint services.</p>		37.922	39.201	27.299

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
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<p>FY 2024 Plans: Continues to develop, test, and evaluate a series of interfaces that connect a family of wearable devices to service-operated combat networks and architectures operating within all phases of multi-domain operations. Conducts advanced development on algorithmic tools used to monitor and predict joint warfighter exposure to emerging threats and CBRN hazards. Develops architectures and standards to support integrating existing Government and industry solutions into system level capabilities.</p> <p>FY 2025 Plans: Combines software algorithms developed under the Physiological Monitoring Sensor Suite (PM2S) program with additional tactical, readiness, and performance monitoring functions. Integrates these capabilities onto joint force data movement networks across multiple domains and echelons. Develops and integrates decision support tools to enable operational and medical commanders of all levels to monitor and predict warfighter readiness, performance, and health before, during, and after operations in CBRN environments.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to integration of previously developed common hardware and software capabilities into other service network architectures.</p>			
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<p>Title: 4) CSIRP</p> <p>Description: Product Development, Program Management, Test and Evaluation and Support.</p> <p>FY 2024 Plans: Completion of chemical sensor integration on an Unmanned Air Systems (UAS) to support the Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite Upgrade (NBCRV SSU) program and integration work on Unmanned Surface Vessels (USV). Initiate repackaging and integration of standoff detection, cross platform teaming, and upgrades to autonomous CBRN mapping in denied GPS operations for UASs, as part of the Development Objective Strategy #2. Continue coordination of demonstrations and test events for additional service end users. Continue program office management and administration processes to include, but not limited to, program oversight, resource justification, budgeting and programming, milestone and schedule tracking. Continue evaluation of capability and development of Concept of Operations (CONOPS).</p> <p>FY 2025 Plans: Completion of repackaging and integration of Standoff detection, cross platform teaming and upgrades to autonomous CBRN mapping in denied GPS operations for UASs, at part of Capability Set 3.0. Initiate command and control integration, sensor integration for backpack portable UASs, and integration of preliminary biological identification on unmanned platforms at part of Capability Set 4.0. Continue coordination of demonstrations and test events for additional services and end users. Continue program office management and administration process to include, but not limited to, program oversight, resource justification,</p>	12.474	18.505	19.468
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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
budgeting and programming, milestone, and schedule tracking. Continue evaluation of capability and development of Concept of Operations (CONOPS). FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to expanded modernization and development efforts.				
Title: 5) CVCAD Description: Prototype Advanced Development, Testing & Program Management FY 2024 Plans: Conduct Engineering and Development tasks to include military standard environmental and false alarm testing, as well as conduct a soldier touch point to assess and measure system performance and assess risk. Continue Program management and administration processes to include but not limited to program oversight, resource justification, budgeting and programming, milestone and schedule tracking. FY 2025 Plans: Continue Engineering and Development tasks and procure test articles (~30) to support military standard, environmental and false alarm testing, as well as conduct an operational assessment to assess and measure system performance and assess risk. Initiate documentation and staffing to support Milestone C (MS C) Decision in 4QFY26. Continue Program management and administration processes to include but not limited to program oversight, resource justification, budgeting and programming, milestone and schedule tracking. FY 2024 to FY 2025 Increase/Decrease Statement: Decrease in FY25 BA5 due to decrease in performers and reduction in number of system required for engineering and manufacturing developmental testing.		0.597	16.834	8.376
Title: 6) DBPAP Description: Advanced Development FY 2024 Plans: Continue development/expansion of biological threat agents reference materials to known and emerging threats. Continue development of assays and nucleic acid based genomic assays to support fielded and developmental systems. Continue Quality Assurance/Quality Control (QA/QC) testing to encompass the transition and fielding of biological detection assays. Continue to maintain yearly accreditation audits such as ISO 9001, 17025, and Guide 34 certifications. Continue quality actions throughout to maintain the quality managed systems. Continue development of prototypes/information for strains contained in Unified Culture Collection. Supports establishment of a Common Reference Repository - a single source for well-characterized, traceable test		7.999	8.313	8.020

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>articles and vital information for biological defense, effective verification of proficiency testing, improved acquisition of emerging technologies, all at a decreased cost for the individual organizations.</p> <p>FY 2025 Plans: Continue development/expansion of biological threat agents reference materials to known and emerging threats. Continue development of assays and nucleic acid based genomic assays to support fielded and developmental systems. Continue Quality Assurance/Quality Control (QA/QC) testing to encompass the transition and fielding of biological detection assays. Continue to maintain yearly accreditation audits such as ISO 9001, 17025, and Guide 34 certifications. Continue quality actions throughout to maintain the quality managed systems. Continue development of prototypes/information for strains contained in the United States Army Medical Research Institute of Infectious Diseases (USAMRIID's) Biodefense Reference Material Repository (BRMR). Continue to support a biological reference repository - a single source for well-characterized, traceable test articles and vital information for biological defense, effective verification of proficiency testing, improved acquisition of emerging technologies, all at a decreased cost for the individual organizations. Continue sharing data and reference materials are with the U.S. Government community which benefit a variety of science and technology detection and medical countermeasure programs.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to funding efficiencies gained in assay tool development.</p>			
<p>Title: 7) DBPAP-ENBD</p> <p>Description: Advanced Development</p> <p>FY 2024 Plans: Continue expansion of site locations for increased sequencing capabilities to monitor critical assay performance that detect biothreats, and exchange critical data (sequence information) collected at these sites. (One Site per Year through FY28). Continue expanding the repository of collected biothreat genomic information to a government access controlled, cloud-based information center to support analytics from the field. Maintain exchange of data by creating data compression/decompression capabilities prior to storage and retrieval on GARDIC. Continue expansion of biorepository of targeted biothreats and toxins strategically against emerging diseases and potential pandemics. Maintain information storage capabilities on DoD Accredited sites.</p> <p>FY 2025 Plans: Continue expansion of site locations for increased sequencing capabilities to monitor critical assay performance that detect biothreats, and exchange critical data (sequence information) collected at these sites. (One Site per Year through FY29). Continue expanding the repository of collected biothreat genomic information to a government access controlled, cloud-based information center to support analytics from the field. Continue expanding analytical tools and capabilities for evaluating assays and reagents.</p>	2.548	1.900	2.050

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Continue expansion of biorepository of targeted biothreats and toxins strategically against emerging diseases and potential pandemics. Continue maintaining information storage capabilities on DoD Accredited sites. FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to increased production of materials for expanding notes for targeted reference material acquisition.				
Title: 8) FFBS Description: Prototype Development FY 2024 Plans: Prototype development and testing effort will focus on the development of prototypes to ensure they are able to meet requirements of decreasing sample to answer time, increasing the ease of use for the preparation of samples, increasing bioinformatics data and software and database development. FY 2025 Plans: Complete EMD testing on prototypes and prepare for transition into the Production and Deployment phase. FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to transition into Critical Design Review and testing.		-	2.488	1.989
Title: 9) JBTDS Description: Program management, testing, contracting and logistics support. FY 2024 Plans: Complete Low Rate Initial Production T&E activities. FY 2025 Plans: Conduct Multi-Service Operational Test & Evaluation (MOT&E) and development test/operational test activities in preparation for Full Rate Production (FRP) decision. FY 2024 to FY 2025 Increase/Decrease Statement: FY25 funds decrease in line with schedule requirements to support completion of T&E activities to support Full Rate Production (FRP) in FY26.		5.480	7.892	5.658
Title: 10) MFK Description: Modernization, Development and Continuous Engineering FY 2024 Plans:		-	6.300	6.552

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Begin the modernization, development and continuous engineering of MFK, with a focus on hardening the application suite for cyber security. Effort also includes updates to the software based on user feedback in order to maintain operational relevancy.</p> <p>FY 2025 Plans: Continue engineering, development, and modernization of MFK in support of the time-phased transition of capabilities from MFK to CBRN Support to command and control.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to expanded modernization and development efforts.</p>				
<p>Title: 11) NBCRV SSU</p> <p>Description: Product Development, Program Management, Test and Evaluation and Support.</p> <p>FY 2024 Plans: Continue government strategic planning, systems engineering, logistics, training, test and evaluation, technical support, integration, and developmental testing. Complete Limited User Test for Capability Set 2.1 (CS2.1). Complete CBRN sensor and integrated sensor suite prototype development, and maturation of CS2.2, and initiate CS2.2 developmental testing. Continue program office management and administration processes to include but not limited to program oversight, resource justification, budgeting and programming, milestone and schedule tracking. Continue program office management and administration processes.</p> <p>FY 2025 Plans: Continue government strategic planning, systems engineering, logistics, training, technical support, integration, and test and evaluation. Complete Chemical Biological Radiological and Nuclear (CBRN) sensor and integrated sensor suite prototype development, and maturation of Capability Set 2.2 (CS2.2), and initiate CS2.2 developmental testing. Continue program office management and administration processes to include, but not limited to program oversight, resource justification, budgeting and programming, milestone and schedule tracking.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to expanding developmental test activities of CS2.2.</p>		16.576	21.629	23.344
<p>Title: 12) NGDS 2 CHEMDX</p> <p>Description: Engineering and Manufacturing Development</p> <p>FY 2024 Plans:</p>		6.682	7.808	2.129

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Continue Engineering Development, conduct Development Testing and Operational User Evaluations, begin clinical trials. FY 2025 Plans: Finish clinical trials and submit application for FDA clearance, to complete EMD, achieve MS C and award a production contract. FY 2024 to FY 2025 Increase/Decrease Statement: Program/project transitioned to Production and Deployment Phase.				
Title: 13) NGDS 2 MPDS Description: Engineering and Manufacturing Development. FY 2024 Plans: Continue hardware, software, assay development; instrument developmental testing, and analytical testing/ two clinical trials. FY 2025 Plans: Continue clinical trials needed for FDA clearance of first two assays, start clinical trials of third assay, and complete Developmental Testing (DT). FY 2024 to FY 2025 Increase/Decrease Statement: Decrease is aligned to planned EMD activities scheduled in FY25.		10.575	19.359	14.637
Title: 14) PCAD Description: PCAD developmental testing, program management and contract support for Non-Trace. FY 2025 Plans: Conduct operational and developmental testing for Non-Trace effort, An operational field test event and prepare for program Milestone events and program management activities. FY 2024 to FY 2025 Increase/Decrease Statement: PCAD Non-Trace enters EMD and will conduct MS B in FY25 and will enter into Low Rate Initial Production (LRIP) in FY26.		-	-	6.472
Title: 15) PM2S Description: Service Integration FY 2025 Plans:		-	-	12.600

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Conduct software hardening, verification/validation, and integration on algorithms transitioned from DTRA JSTO and service wearables S&T partners.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to transition and hardening of multiple science and technology wearables products (PREP, PRESAGED, AGENT/ RAPIDS transitioned via TTA w/ DTRA JSTO; MASTR-E and tactical wearables via TTA w/ DEVCOM Soldier Center; Sigma+ via TTA w/ DARPA).</p>				
<p>Title: 16) SPU RCDD</p> <p>Description: Advanced Development: this line includes product development, test and evaluation, management services, and support to develop technology across multiple commodity areas.</p> <p>FY 2024 Plans: Continue developing, prototyping, and maturing CBRND technologies to rapidly equip users with capabilities in response to new and emerging threats and opportunities. Continue developing prototype systems across the CBDP commodity areas in order to close Joint Special Operations Command (JSOC) capability gaps.</p> <p>FY 2025 Plans: Continue developing, prototyping, and maturing CBRND technologies to rapidly equip users with capabilities in response to new and emerging threats and opportunities within Understand, Protect, Mitigate, and Enabling commodity areas. FY25 SPU RCDD funds will align with Understand and Protect. Continue developing Special Operations Forces (SOF)-peculiar CB solutions for USSOCOM.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to economic cost adjustments in Project Understand Budget Activity 5 (UN5).</p>		6.725	7.050	7.122
<p>Title: 17) WARP</p> <p>Description: Prototype Development: this effort will initiate, prototype, and mature WARP kits, maximizing the use of commercial off-the-shelf and Government off-the-shelf (COTS/GOTS) items.</p> <p>FY 2024 Plans: Execute integration of commercial off-the-shelf and Government off-the-shelf (COTS/GOTS) CBRN sensors into a visualization tool that is viewable on a customer-specific Team Awareness Kit (TAK) device.</p> <p>FY 2025 Plans:</p>		-	2.100	2.650

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Complete integration of the WARP Kit prototype. Finalize development of the hardened prototype. FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to integration and finalizing prototype development.			
Title: 18) WARP Description: Test & Evaluation: this effort will test and evaluate via developmental and operational assessments the capability of the WARP kits. FY 2024 Plans: Execute test and evaluation on the software and communication protocol for the integrated CBRN sensors and the Team Awareness Kit (TAK) device(s). FY 2025 Plans: Complete physical (MIL-STD) and end-to-end (integration into USSOCOM equipment) test and evaluation activities. FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to USSOCOM equipment integration and performing DT/OT testing activities.	-	1.100	1.450
Title: 19) MPCAD Description: Program Management, Testing, contracting and logistics support FY 2024 Plans: Complete Vapor Low Rate Initial Procurement (LRIP) product and development (P&D) testing. Complete program management efforts including Government system engineering, program/financial management, costing, personnel support and travel. FY 2024 to FY 2025 Increase/Decrease Statement: The FY24 to FY25 decrease aligns with termination expectations of the MPCAD from centralized acquisition program management and return to JSTO-CBD for further Science and Technology (S&T) development.	2.061	8.265	-
Title: 20) SPCHAR-ENBD Description: This effort will focus on Innovative Contact Tracing.	1.372	-	-
Accomplishments/Planned Programs Subtotals	128.837	182.726	154.658

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / Chemical and Biological Defense Program - EMD	Project (Number/Name) UN5 / Understand (SDD)
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2023	FY 2024	FY 2025	FY 2025	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Cost To	
			Base	OCO	Total					Complete	Total Cost
• UN4: Understand (ACD&P)	52.163	61.638	53.120	-	53.120	47.808	49.646	49.608	62.105	Continuing	Continuing
• UN7: Understand (Op Sys Dev)	39.602	50.603	59.296	-	59.296	71.995	70.339	64.131	59.948	Continuing	Continuing
• SA0015: Aerosol Vapor	-	2.458	42.496	-	42.496	45.496	47.932	66.561	110.248	Continuing	Continuing
<i>Chemical Agent Detector (AVCAD)</i>											
• SA0005: Chemical Biological Radiological Nuclear Sensor Integration on Robotic Platforms (CSIRP)	2.099	-	-	-	-	-	-	-	-	0.000	5.560
• SA0024: Compact Vapor Chemical Agent Detector (CVCAD)	-	-	-	-	-	8.200	13.687	22.144	22.144	Continuing	Continuing
• JX0210: Defense Biological Products Assurance Program (DBPAP)	2.736	2.736	2.736	-	2.736	2.736	2.736	2.736	2.736	Continuing	Continuing
• MX0001: Joint Biological Tactical Detection System (JBTDs)	-	7.025	9.872	-	9.872	33.556	78.102	78.405	79.031	Continuing	Continuing
• SA0056: Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite Upgrade (NBCRV SSU)	-	16.795	-	-	-	15.525	15.561	16.222	16.723	Continuing	Continuing
• SA0043: Next Generation Diagnostics System 2 Chemical Diagnostics (NGDS 2 CHEM DX)	-	1.881	4.891	-	4.891	7.722	7.212	7.014	0.672	Continuing	Continuing
• SA0044: Next Generation Diagnostics System 2 Man Portable Diagnostic System (NGDS 2 MPDS)	-	-	-	-	-	5.416	7.032	5.156	1.026	Continuing	Continuing
• PHM018: Special Purpose Unit Rapid Capability Development and Demonstration (SPU RCDD)	10.188	49.455	30.799	-	30.799	34.180	33.716	26.638	32.609	Continuing	Continuing
• SA0055: Wearable All Hazard Remote Monitoring Program (WARP)	-	-	17.500	-	17.500	7.000	7.000	7.000	-	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• SA0017: <i>Multiphase Chemical Agent Detector (MPCAD)</i>	4.014	13.561	-	-	-	-	-	-	-	0.000	17.575

Remarks

D. Acquisition Strategy

Advanced and Emerging Threat Defense (AET DEFENSE)

The AET DEFENSE program will use a variety of acquisition approaches to survey, assess, and rapidly field technologies to inform and fill advanced and emerging threat defensive capability gaps. The program will utilize existing Multiple Award Indefinite Delivery Indefinite Quantity Task Order Contracts to provide technical support to studies and assessments of performance against emerging threats. For Program of Record (PoR) systems currently in development that will be assessed for performance against emerging threats, those PoR's existing contracts will be modified to incorporate development engineering and test support for emerging threat capability. The AET DEFENSE program will utilize Other Transaction Authority (OTA) agreements for system development and prototyping activities and Government Agencies and Federally Funded Research and Development Centers to provide development, testing and technical support.

Aerosol Vapor Chemical Agent Detector (AVCAD)

The AVCAD program achieved Milestone C approval and awarded the low rate initial production (LRIP) as an existing option leveraging the current contract. Upon completion of Production & Deployment test activities, the full rate production options will be executed.

Chemical and Biological Wearables - Enhanced Biological Defense (CB WEARABLES-ENBD)

CB Wearables-ENBD will leverage a presumed hybrid acquisition strategy that will use the software acquisition pathway to integrate and field software algorithms developed under the Physiological Monitoring Sensor Suite (PM2S) program, as well as develop and integrate Government Off-The-Shelf (GOTS) hardware needed for deployment on service-sponsored networks and weapons platforms.

Chemical Biological Radiological Nuclear Sensor Integration on Robotic Platforms (CSIRP)

CSIRP is a streamlined and tailored acquisition effort to rapidly prototype and field CBRN payload capabilities for unmanned ground, air and/or surface platforms. CSIRP will provide and integrate unmanned CBRN payload prototypes in cyclic prototyping plans based on service requirements. The prototyping plans will use a streamlined acquisition process in order to keep pace with industry and the rapid advancement of technologies. The CSIRP strategy will use the rapid prototyping process enabled by the Other Transactional Agreements (OTA) contract vehicle to develop mature prototypes for transition to Programs of Record (POR) for procurement.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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<p>Compact Vapor Chemical Agent Detector (CVCAD)</p> <p>The CVCAD program will use the Combating Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) contract vehicle to transition four technologies from Science & Technology (S&T) into the program of record. This streamlined acquisition approach is broken into four phases; Phase I S&T advanced development, Phase II technology transition maturation evaluation, Phase III competitive prototyping down select, Engineering decision, manufacturing and development. Phase IV will execute Production and Development for low rate initial production (LRIP) systems. CVCAD will procure Full Rate Production (FRP) items through a follow-on Federal Acquisition Regulation based contract.</p> <p>Defense Biological Products Assurance Program (DBPAP)</p> <p>DBPAP utilizes best buying principles and acquisition rigor for alignment to requirements to perform an “enabling” function for certain programs of record (e.g., Analytical Lab System (ALS), Common Analytical Lab System (CALs), Next Generation Diagnostic System (NGDS)) and other enterprise partners. The DBPAP uses better buying power to consolidate requirements for “commodity-like” biological detection products. Appropriated fixed program objective funds enable investment to build out high-quality, standardized biological products portfolio and expand offerings to customers. Advanced development and testing / evaluation of new products (Research, Development, Test and Evaluation - RDTE) based on customer demands, Conformance testing and Development of information products (e.g., databases, analytical tools). The DBPAP coordinates closely with the Joint, Science and Technology Office to enhance the DBPAP reference material holdings in the United States Army Medical Research Institute of Infectious Diseases (USAMRIID’s) Biodefense Reference Material Repository (BRMR); improve antibodies and expand the portfolio of DBPAP immunoassays and reagents; and develop new molecular assays. The DBPAP uses a mix of competitive commercial contracts and funding of government laboratories to produce high quality assays and reagents.</p> <p>Defense Biological Products Assurance Program - Enhanced Biological Defense (DBPAP-ENBD)</p> <p>The DBPAP-ENBD provides increased capabilities above baseline abilities in part through expanding capabilities of the Targeted Acquisition of Reference Materials Augmenting Capabilities (TARMAC) initiative. Additional data generated through the use of products and partnerships coordinated through TARMAC is collected and curated into a DOD accredited database, the Government Assay and Reagents for Defense Information Center (GARDIC). government. The DBPAP-ENBD coordinates with an increased number of international and interagency partners to set the conditions to sequence strains of interest that characterize the virus at fixed and far forward locations. The DBPAP-ENBD expands the use of internally developed as well as commercially acquired analytical tools to determine the efficacy of the government assays and supports development of appropriate countermeasures.</p> <p>The focused expansion of efforts for the DBPAP-ENBD is:</p> <ol style="list-style-type: none"> 1) Expansion of site locations for increased sequencing capabilities to monitor critical assay performance that detect biothreats and exchange critical data (sequence information) collected at these sites. (One Site Per Year). 2) Expanding the repository of collected biothreat genomic information to a government access controlled, cloud-based information center in order to support analytics from the field. 3) Expansion of biorepository of targeted biothreats and toxins strategically against emerging diseases and potential pandemics. 4) Maintain information storage capabilities on DoD Accredited sites. 		

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
<p>Far Forward Biological Sequencing (FFBS)</p> <p>The FFBS program released a Request For Information (RFI) to industry in 4QFY23. Program plans to initiate into the Engineering and Manufacturing Development (EMD) phase during 2QFY24 and issue a request for proposals for the development and testing of prototypes. FFBS will complete operational test during 4QFY25 and issue a competitive production award in 1QFY26 to meet Initial Operational Capability (IOC) in 4QFY26 and Full Operational Capability (FOC) in 4QFY27.</p> <p>Joint Biological Tactical Detection System (JBTDS)</p> <p>The JBTDS program utilizes a streamlined acquisition strategy leveraging contracts with Chemring Sensors and Electronic Systems (CSES) and Biomeme. The contracts include options for Low Rate Initial Production (LRIP) and Full Rate Production (FRP). The JBTDS Milestone C LRIP was approved 03 AUG 23. The JBTDS program uses an agile acquisition strategy which leverages current technologies, recognizing up front the need for potential technology insertion to provide more cost effective capabilities.</p> <p>Mobile Field Kit (MFK)</p> <p>Mobile Field Kit (MFK) will transition from the Defense Threat Reduction Agency (DTRA) by coordinating a Technology Transition Agreement that addresses current technical and acquisition shortfalls and limitations. MFK will manage the continuous engineering, development, and modernization process in support of National Guard Bureau (NGB) operations by assuming control of the requirements generation process and incrementally modernizing the software architecture. Additional work includes software updates to ensure interoperability with the Joint architecture and assessing and engineering improvements for cyber security from a Joint perspective. MFK will inform the NGB/Homeland Defense configuration of CBRN Support to C2 (CSC2). The long-term (NTE 5 years) strategy is to transition MFK functions to the CSC2 program in a time-phased approach that aligns with CSC2 requirements, and cost/schedule/performance targets. This strategy will be executed without impacting the current operational relevancy of MFK.</p> <p>Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite Upgrade (NBCRV SSU)</p> <p>Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite Upgrade (NBCRV SSU) program is testing Capability Set 2.1 (CS2.1) to inform a CS2.1 Low Rate Initial Production (LRIP) Decision in FY24. CS2.1 will provide initial capability to the warfighter. The NBCRV SSU program will build CS2.2 systems in FY24-FY25, followed by testing in FY25-FY26 to inform the CS2.2 Full Rate Production (FRP) Decision in FY27. CS2.2 will meet all threshold requirements to provide full capability to the warfighter. As CS2.2 systems are fielded, the CS2.1 systems will be retrofitted to the CS2.2 configuration.</p> <p>Next Generation Diagnostics 2 Chemical Diagnostics (NGDS 2 CHEMDX)</p> <p>NGDS Increment 2 ChemDx is using an Other Transactions Authority (OTA) agreement to take advantage of non-traditional Defense contractor offerings. NGDS 2 ChemDx will use the agreement holder to conduct system development, pre-developmental testing (pre-DT) and clinical trials. ChemDx will use Department of Defense</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
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(DoD) test agencies to conduct Development Testing and Operational User Evaluations. Clinical trials will inform approval of the ChemDx system by the U.S. Food and Drug Administration for "Prescription Home Use", which along with DoD testing will inform a Full Rate Production decision, leading to the award of a FAR-based production contract.

Next Generation Diagnostics 2 Man Portable Diagnostic System (NGDS 2 MPDS)

NGDS 2 MPDS is currently in engineering and manufacturing development (EMD). MPDS is using Other Transactions Authority (OTA) agreements to take advantage of nontraditional Defense contractor offerings. MPDS will use the agreement holder to develop the system and assays, conduct the clinical trials, and for pre-developmental testing (pre-DT) instrument testing. MPDS will be using DoD sites to support the agreement holder's clinical trials. Defense (DoD) agencies will conduct Developmental Testing (DT), operational assessment (OA), and Initial Operational Test & Evaluation (IOT&E). Following MS C, MPDS will initiate a Federal Acquisition Regulation (FAR) based production contract.

Proximate Chemical Agent Detector (PCAD)

Proximate Chemical Agent Detector (PCAD) Non-Trace effort will leverage the existing Science & Technology (S&T) Chemical Weapons Mass Destruction (CWMD) Other Transaction Authority (OTA) contract in FY24 to procure prototypes for Technology Maturation Risk Reduction (TMRR) phase. This streamlined approach will use one contracting mechanism to transition technology from S&T to acquisition and allow follow-on acquisitions up through Low Rate Initial Production (LRIP). PCAD Non-Trace will procure Full Rate Production (FRP) items through a follow-on Federal Acquisition Regulation based contract. PCAD Trace effort will leverage the existing S&T CWMD OTA's to evaluate and transition the technologies in accordance to the Technology Transition Agreement (TTA) with the Defense Threat Reduction Agency (DTRA) in FY27. PCAD Non-Trace intends to enter in at a Milestone B (MS B) 1QFY25 utilizing the existing Next Generation Chemical Detection (NGCD) Milestone A (MS A) Acquisition Decision Memorandum (ADM).

Physiological Monitoring Sensor Suite (PM2S)

PM2S will leverage a rapid acquisition strategy (such as the software acquisition pathway) to develop, integrate, and field software algorithms into hardware-focused decision support tools developed under the CB WEARABLES-ENBD program. These capabilities will help to address knowledge gaps identified under the OSD-sponsored wearables Pilot program related to integrated physiological threat-based decision support.

Special Purpose Unit Rapid Capability Development and Deployment (SPU RCDD)

The SPU RCDD overall acquisition strategy allows for rapid prototyping and testing of novel and modified COTS and or GOTS systems against mission critical capabilities to enhance mission success. SPU RCDD will use developmental testing and USSOCOM combat and functional evaluations to rapidly develop items that close SPECAT capability gaps. This will be accomplished through competitive contracting vehicles such as Multiple Award Indefinite Delivery Indefinite Quantify Task

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
<p>Orders, the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA), and Commercial Solutions Opening (CSO). SPU RCDD will use Government Agencies for test and evaluation, and technical support.</p> <p>Wearable All Hazard Remote Monitoring Program (WARP)</p> <p>WARP will leverage the Wearables Pilot for market survey and high-Technology Readiness Level (TRL) products. Using those items, WARP will integrate Commercial-off-the-shelf (COTS) and Government-off-the-shelf (GOTS) CBRN sensors and COTS physiological monitoring devices into a common infrastructure for display on USSOCOM devices. This will be accomplished through Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) and Government Agencies for prototype development, test and evaluation, and technical support.</p> <p>Multi-Phase Chemical Agent Detector (MPCAD)</p> <p>The MPCAD used a streamlined acquisition strategy. The MPCAD contract(s) utilized the Countering Weapons of Mass Destruction (CWMD) Other Transaction Authority (OTA) for EMD and Production representative items. The program developed and validated the systems during EMD and LRIP with production representative items utilizing two contractors to increase competition and minimize production price. In FY24, the MPCAD program has been directed by the Milestone Decision Authority to transition efforts from centralized acquisition program management and return to DTRA JSTO for Science and Technology (S&T) development. The MPCAD will no longer procure production items.</p> <p>Surveillance and Pathogen Characterization - Enhanced Biological Defense (SPCHAR-ENBD)</p> <p>SPCHAR-ENBD (contact tracing) sunsets at the end of FY23 and will integrate all capabilities into the CB-Wearables ENBD.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AET DEFENSE - HW C - Protection Capability Prototyping	Various	Various : N/A	-	0.197	Feb 2023	0.280	Jan 2024	0.000		-		0.000	0.000	0.477	0.000
AET DEFENSE - HW S - System Prototyping and Modification	Various	Various : N/A	-	0.197	Feb 2023	0.000		0.000		-		0.000	0.000	0.197	0.000
AET DEFENSE - HW S - Emerging threat detection/decontamination/protection capability engineering development	Various	Various : N/A	-	0.172	Jan 2023	0.000		0.000		-		0.000	0.000	0.172	0.000
AET DEFENSE - HW C - Emerging Threat Detection	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	-	0.000		0.964	Mar 2024	0.000		-		0.000	0.000	0.964	0.000
AVCAD - HW C - Government Product Development Team Labor	MIPR	Various : N/A	-	1.862	Nov 2022	1.850	Feb 2024	0.500	Nov 2024	-		0.500	Continuing	Continuing	0.000
AVCAD - HW S - P&D Contract	C/CPIF	Smiths Detection : Edgewood, MD	-	6.094	Jun 2023	0.000		1.200	Nov 2024	-		1.200	Continuing	Continuing	0.000
CB WEARABLES-ENBD - SW C - Common Wearable Device Interfacing	C/CPFF	Various : N/A	-	10.460	Jan 2023	13.430	Jan 2024	6.746	Dec 2024	-		6.746	Continuing	Continuing	0.000
CB WEARABLES-ENBD - HW C - Service-sponsored Decision Support System Integration	C/CPFF	Various : N/A	-	19.038	Jan 2023	14.410	Jan 2024	15.240	Dec 2024	-		15.240	Continuing	Continuing	0.000
CSIRP - HW C - Government Product Development Team Labor	MIPR	U.S. Army Combat Capabilities Development	-	1.478	Nov 2022	1.900	Nov 2023	1.594	Dec 2024	-		1.594	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / Chemical and Biological Defense Program - EMD	Project (Number/Name) UN5 / Understand (SDD)
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
		Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD													
CSIRP - HW C - Chem Sensor Design	C/CPFF	Charles Stark Draper Laboratories, Inc. : Cambridge, MA	-	1.110	Nov 2022	1.600	Nov 2023	0.000		-		0.000	0.000	2.710	0.000
CSIRP - HW C - Sensor Prototype and Integration	C/FFP	Radiation Monitoring Devices, Inc : Boston, MA	-	0.172	Nov 2022	0.000		0.076	Dec 2024	-		0.076	Continuing	Continuing	0.000
CSIRP - HW C - Sensor Integration	C/FFP	FLIR Systems, Inc. : Elkridge, MD	-	2.403	Nov 2022	2.500	Nov 2023	4.103	Dec 2024	-		4.103	Continuing	Continuing	0.000
CSIRP - HW C - Contractor Product Development Team Labor	C/FFP	Various : N/A	-	0.589	Jan 2023	0.540	Feb 2024	0.617	Feb 2025	-		0.617	Continuing	Continuing	0.000
CSIRP - HW C - Standoff Detection	C/CPFF	U.S. Naval Air Warfare Center (Aircraft Division) : Patuxent River, MD	-	0.890	Sep 2023	0.000		1.851	Dec 2024	-		1.851	Continuing	Continuing	0.000
CSIRP - HW C - UAS Manufacturing and Design	MIPR	Various : N/A	-	0.000		5.500	Nov 2023	0.000		-		0.000	0.000	5.500	0.000
CSIRP - SW C - UAS and Sensor Manufacturing and Design	C/CPFF	T2S Solutions (T2S, LLC) : Belcamp, MD	-	0.654	Jul 2023	0.000		0.000		-		0.000	0.000	0.654	0.000
CSIRP - SW C - Sensor Integration	C/CPFF	Charles Stark Draper Laboratories, Inc. : Cambridge, MA	-	0.974	Jul 2023	1.400	Nov 2023	4.330	Dec 2024	-		4.330	Continuing	Continuing	0.000
CVCAD - HW S - CWMD OTA Phase 3 Task Awards	C/CPFF	Advanced Technologies International : Summerville, SC	-	0.565	Dec 2023	9.200	May 2024	4.105	Dec 2024	-		4.105	Continuing	Continuing	0.000
DBPAP - HW C - Development of Select	MIPR	Various : N/A	-	3.618	Mar 2023	4.869	Feb 2024	4.932	Feb 2025	-		4.932	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
Biological Threat Agent Reference Materials and Assays															
DBPAP-ENBD - HW C - Targeted Acquisition of Reference Materials Augmenting Capabilities (TARMAC) initiative	MIPR	Various : N/A	-	2.548	Feb 2023	1.900	Feb 2024	2.050	Feb 2025	-		2.050	Continuing	Continuing	0.000
FFBS - HW S - Hardware - prototype refinement and maturation	Various	Various : N/A	-	0.000		1.363	Apr 2024	0.000		-		0.000	0.000	1.363	0.000
JBTDS - HW S - Government Product Development Team Labor	MIPR	Various : N/A	-	3.314	Jan 2023	0.829	Jan 2024	0.278	Dec 2024	-		0.278	Continuing	Continuing	0.000
MFK - SW S - Modernization	C/CPFF	Various : N/A	-	0.000		3.000	Oct 2023	3.120	Oct 2024	-		3.120	Continuing	Continuing	0.000
MFK - SW S - Cyber Security Sustainment	MIPR	TBD : N/A	-	0.000		0.620	Mar 2024	0.645	Mar 2025	-		0.645	Continuing	Continuing	0.000
MFK - ES S - CSC2 Interoperability	TBD	Various : N/A	-	0.000		0.550	Oct 2023	0.571	Oct 2024	-		0.571	Continuing	Continuing	0.000
MFK - SW S - Interoperability	C/CPFF	Various : N/A	-	0.000		0.389	Mar 2024	0.404	Mar 2025	-		0.404	Continuing	Continuing	0.000
NBCRV SSU - HW C - compact Standoff Detection System (cSDS) On The Move	MIPR	MRIGlobal : Kansas City, MO	-	1.008	Nov 2022	0.000		0.000		-		0.000	0.000	1.008	0.000
NBCRV SSU - HW C - OTA CS2.1 Integration	C/FFP	FLIR Systems, Inc. : Elkridge, MD	-	1.845	Nov 2022	0.000		0.000		-		0.000	0.000	1.845	0.000
NBCRV SSU - HW C - Chemical Surface Detector (CSD) Maturation	C/FFP	Various : N/A	-	5.653	Nov 2022	7.418	Nov 2023	0.000		-		0.000	0.000	13.071	0.000
NBCRV SSU - HW C - Government Product Development Team Labor	MIPR	U.S. Army Combat Capabilities Development	-	0.000		0.000		2.306	Dec 2024	-		2.306	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / Chemical and Biological Defense Program - EMD	Project (Number/Name) UN5 / Understand (SDD)
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
		Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD													
NBCRV SSU - HW C - Contractor Product Development Team Labor	C/FFP	Various : N/A	-	0.000		0.000		0.431	Feb 2025	-		0.431	Continuing	Continuing	0.000
NBCRV SSU - HW C - CS2.2 Integration	C/FFP	TBD : N/A	-	0.000		0.000		7.949	Jun 2025	-		7.949	Continuing	Continuing	0.000
NGDS 2 CHEMDX - HW S - Product Development	C/CPFF	MRIGlobal : Kansas City, MO	-	4.484	Nov 2022	3.895	Dec 2023	0.557	Dec 2024	-		0.557	Continuing	Continuing	0.000
NGDS 2 CHEMDX - HW C - Product Management	Various	Various : N/A	-	1.912	Nov 2022	2.304	Dec 2023	1.344	Dec 2024	-		1.344	Continuing	Continuing	0.000
NGDS 2 MPDS - HW C - Product Development	C/CPFF	Cepheid : Sunnyvale, CA	-	6.155	Jun 2023	11.870	Dec 2023	8.638	Dec 2024	-		8.638	Continuing	Continuing	0.000
NGDS 2 MPDS - HW C - Product Management	Various	Various : N/A	-	3.279	Nov 2022	3.930	Dec 2023	3.119	Dec 2024	-		3.119	Continuing	Continuing	0.000
PCAD - HW S - Government Team Labor	Various	Various : N/A	-	0.000		0.000		2.000	Nov 2024	-		2.000	Continuing	Continuing	0.000
PM2S - SW C - Algorithm Hardening & Integration	C/CPFF	Various : N/A	-	0.000		0.000		5.835	Dec 2024	-		5.835	Continuing	Continuing	0.000
PM2S - SW C - Algorithm Test Bed Integration	C/CPFF	Various : N/A	-	0.000		0.000		3.890	Dec 2024	-		3.890	Continuing	Continuing	0.000
SPU RCDD - HW C - Prototype Procurement	Various	Various : N/A	-	4.664	Dec 2022	4.156	Dec 2023	4.091	Dec 2024	-		4.091	Continuing	Continuing	0.000
WARP - HW C - Prototype Development	Various	Various : N/A	-	0.000		2.100	Dec 2023	2.650	Dec 2024	-		2.650	Continuing	Continuing	0.000
MPCAD - HW S - EMD Contract	C/CPFF	FLIR Systems, Inc. : West Lafayette, IN	-	0.000		1.035	Nov 2023	0.000		-		0.000	0.000	1.035	0.000
MPCAD - HW S - EMD Contract	C/CPFF	Signature Science : Austin, TX	-	0.256	Sep 2023	1.035	Nov 2023	0.000		-		0.000	0.000	1.291	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / Chemical and Biological Defense Program - EMD	Project (Number/Name) UN5 / Understand (SDD)
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
MPCAD - PM/MS S - Government Team Labor	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	-	0.671	Nov 2022	1.804	Nov 2023	0.000		-		0.000	0.000	2.475	0.000
MPCAD - HW C - Contract Support	C/FFP	Various : N/A	-	0.179	Feb 2023	0.161	Feb 2024	0.000		-		0.000	0.000	0.340	0.000
SPCHAR-ENBD - SW C - JEONS JS 0003 Integration	C/CPFF	Various : N/A	-	1.000	Jan 2023	0.000		0.000		-		0.000	0.000	1.000	0.000
Subtotal			-	87.441		106.802		95.172		-		95.172	Continuing	Continuing	N/A

Remarks
JBTDS: Program received \$2.936M realignment in FY23. The additional funding was applied to Prod Dev.

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
AVCAD - ES C - OGAs	MIPR	Various : N/A	-	0.958	Feb 2023	2.907	Nov 2023	0.500	Nov 2024	-		0.500	Continuing	Continuing	0.000
CB WEARABLES-ENBD - ES S - Technical Support	MIPR	Various : N/A	-	4.023	Jan 2023	5.200	Dec 2023	1.589	Dec 2024	-		1.589	Continuing	Continuing	0.000
CSIRP - ES C - Engineering Support	Various	Various : N/A	-	0.626	Nov 2022	0.395	Nov 2023	1.060	Dec 2024	-		1.060	Continuing	Continuing	0.000
CSIRP - ES C - Cyber Security and ETPs	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) C5ISR Center : Aberdeen	-	0.362	Apr 2023	0.000		0.000		-		0.000	0.000	0.362	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
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Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
		Proving Grounds, MD													
CSIRP - ES C - Test Support	Various	Various : N/A	-	0.819	Nov 2022	0.000		0.931	Dec 2024	-		0.931	Continuing	Continuing	0.000
CSIRP - ES C - Logistics Training and Support	C/FFP	L2 Defense Inc. : Baltimore, MD	-	0.000		0.000		0.421	Jan 2025	-		0.421	Continuing	Continuing	0.000
CVCAD - ES S - OGA Support and Analysis	Various	Various : N/A	-	0.000		3.000	Feb 2024	0.771	Dec 2024	-		0.771	Continuing	Continuing	0.000
DBPAP - ES S - Select Biological Threat Agent Reference Material Support	MIPR	Various : N/A	-	1.683	Mar 2023	1.714	Feb 2024	1.536	Feb 2025	-		1.536	Continuing	Continuing	0.000
DBPAP - ES S - Select Biological Threat Agent Reference Material Regulatory/Quality Assurance (QA) Support	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	-	1.699	Mar 2023	1.730	Feb 2024	1.552	Feb 2025	-		1.552	Continuing	Continuing	0.000
FFBS - ES S - System engineering and design support	Various	Various : N/A	-	0.000		0.212	Nov 2023	0.536	Nov 2024	-		0.536	Continuing	Continuing	0.000
JBTDS - ES S - Contract and Product Support	MIPR	Various : N/A	-	0.558	Nov 2022	0.000		0.613	Feb 2025	-		0.613	Continuing	Continuing	0.000
NBCRV SSU - ILS C - Logistics and Product Contract Support	C/FFP	Various : N/A	-	0.508	Nov 2022	0.900	Nov 2023	0.300	Dec 2024	-		0.300	Continuing	Continuing	0.000
PCAD - ES S - OGA Support	MIPR	Various : N/A	-	0.000		0.000		1.673	Nov 2024	-		1.673	Continuing	Continuing	0.000
PM2S - ES S - Technical Support	MIPR	Various : N/A	-	0.000		0.000		0.715	Dec 2024	-		0.715	Continuing	Continuing	0.000
SPU RCDD - Engineering Support	Various	Various : N/A	-	0.626	Dec 2022	0.669	Dec 2023	0.682	Nov 2024	-		0.682	Continuing	Continuing	0.000
Subtotal			-	11.862		16.727		12.879		-		12.879	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
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Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
CVCAD: FY24 support cost will be updated during the BES26, adjustments are due to the delay of MS B.

Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AET DEFENSE - DTE C - Technology Assessments	MIPR	Various : N/A	-	0.284	Feb 2023	0.300	Mar 2024	0.000		-		0.000	0.000	0.584	0.000
AET DEFENSE - DTE S - Technology Assessments	Various	Various : N/A	-	0.284	Dec 2022	0.000		0.940	Dec 2024	-		0.940	Continuing	Continuing	0.000
AET DEFENSE - DTE C - Technology Assessments	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	-	0.000		0.906	Mar 2024	0.842	Mar 2025	-		0.842	Continuing	Continuing	0.000
AVCAD - OTE C - DT/OT Test Activities	MIPR	Various : N/A	-	6.037	Dec 2022	5.374	Jun 2024	0.500	Nov 2024	-		0.500	Continuing	Continuing	0.000
CB WEARABLES-ENBD - DTE S - System DT&E	MIPR	Various : N/A	-	0.725	Jan 2023	1.475	Jan 2024	1.045	Jan 2025	-		1.045	Continuing	Continuing	0.000
CSIRP - DTE C - Testing and Evaluation	Various	Various : N/A	-	0.302	Nov 2022	1.530	Nov 2023	1.426	Dec 2024	-		1.426	Continuing	Continuing	0.000
CSIRP - DTE C - JHU Applied Physics Lab	MIPR	Johns Hopkins University - Applied Physics Lab : Laurel, MD	-	0.775	Nov 2022	0.660	Jan 2024	0.450	Dec 2024	-		0.450	Continuing	Continuing	0.000
CVCAD - DTE S - Developmental Test Activities	MIPR	Various : N/A	-	0.000		2.834	May 2024	2.310	Dec 2024	-		2.310	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program												Date: March 2024			
Appropriation/Budget Activity 0400 / 5						R-1 Program Element (Number/Name) PE 0604384BP / Chemical and Biological Defense Program - EMD						Project (Number/Name) UN5 / Understand (SDD)			

Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
FFBS - DTE S - T&E for prototype refinement and maturation	Various	Various : N/A	-	0.000		0.665	Apr 2024	1.180	Jan 2025	-		1.180	Continuing	Continuing	0.000
JBTDS - OTE S - Operational Test and Evaluation	MIPR	Various : N/A	-	0.000		3.000	Feb 2024	1.945	Feb 2025	-		1.945	Continuing	Continuing	0.000
JBTDS - DTE S - DT/OT Test Activities	MIPR	Various : N/A	-	1.439	Nov 2022	3.125	Feb 2024	2.063	Dec 2024	-		2.063	Continuing	Continuing	0.000
MFK - DTE S - Integration and Interoperability T&E	MIPR	Various : N/A	-	0.000		1.200	Oct 2023	1.250	Oct 2024	-		1.250	Continuing	Continuing	0.000
NBCRV SSU - DTE C - Test and Evaluation	Various	TBD : N/A	-	0.934	Jan 2023	0.000		9.000	Dec 2024	-		9.000	Continuing	Continuing	0.000
NBCRV SSU - DTE C - System Level Developmental Testing	Various	Various : N/A	-	1.230	Jan 2023	1.200	Nov 2023	0.000		-		0.000	0.000	2.430	0.000
NBCRV SSU - DTE C - System Level Developmental Testing	C/FFP	MRIGlobal : Kansas City, MO	-	0.000		1.800	Nov 2023	0.000		-		0.000	0.000	1.800	0.000
NBCRV SSU - DTE C - System Level Testing Developmental Testing	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	-	0.661	Mar 2023	7.000	Nov 2023	0.000		-		0.000	0.000	7.661	0.000
NBCRV SSU - OTE S - Limited User Test Activities	MIPR	Various : N/A	-	2.398	Mar 2023	0.000		0.000		-		0.000	0.000	2.398	0.000
NBCRV SSU - LFTE S - Live Fire Testing	MIPR	Various : N/A	-	0.145	Mar 2023	0.000		0.000		-		0.000	0.000	0.145	0.000
NGDS 2 CHEMDX - DTE S - Testing	MIPR	Various : N/A	-	0.000		0.750	Dec 2023	0.000		-		0.000	0.000	0.750	0.000
NGDS 2 MPDS - OTHT C - Analytical/Clinical Testing	MIPR	U.S. Army Medical Research and Development Command (USAMRDC) : Fort Detrick, MD	-	0.739	Jun 2023	1.430	Dec 2023	0.458	Dec 2024	-		0.458	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program												Date: March 2024			
Appropriation/Budget Activity 0400 / 5						R-1 Program Element (Number/Name) PE 0604384BP / Chemical and Biological Defense Program - EMD						Project (Number/Name) UN5 / Understand (SDD)			

Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NGDS 2 MPDS - OTE S - System Test & Evaluation	MIPR	Various : N/A	-	0.000		0.000		0.857	Dec 2024	-		0.857	Continuing	Continuing	0.000
PCAD - DTE S - Testing	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	-	0.000		0.000		2.000	Nov 2024	-		2.000	Continuing	Continuing	0.000
PM2S - DTE S - Algorithm Performance DT&E	MIPR	Various : N/A	-	0.000		0.000		0.946	Jan 2025	-		0.946	Continuing	Continuing	0.000
SPU RCDD - DTE C - Testing and Evaluation	Various	Various : N/A	-	0.449	Dec 2022	1.249	Dec 2023	1.363	Feb 2025	-		1.363	Continuing	Continuing	0.000
WARP - DTE C - Prototype Testing	Various	Various : N/A	-	0.000		1.100	Dec 2023	1.450	Feb 2025	-		1.450	Continuing	Continuing	0.000
MPCAD - DTE C - DT/OT Chemical Chamber Event	MIPR	West Desert Test Center : Dugway, UT	-	0.631	Nov 2022	1.000	Dec 2023	0.000		-		0.000	0.000	1.631	0.000
MPCAD - OTE S - Multi-Service Test	MIPR	Operational Test Command (OTC) : Fort Hood, TX	-	0.050	Sep 2023	0.838	Nov 2023	0.000		-		0.000	0.000	0.888	0.000
MPCAD - DTE C - OGA - Test	MIPR	Various : N/A	-	0.274	Mar 2023	1.607	Dec 2023	0.000		-		0.000	0.000	1.881	0.000
Subtotal			-	17.357		39.043		30.025		-		30.025	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AET DEFENSE - PM/MS S - IPT Support/Program Management	MIPR	JPEO Chem, Bio, Rad, and Nuc Defense (JPEO-	-	0.089	Dec 2022	0.242	Dec 2023	0.060	Dec 2024	-		0.060	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / Chemical and Biological Defense Program - EMD	Project (Number/Name) UN5 / Understand (SDD)
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Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
		CBRND) : Aberdeen Proving Ground, MD													
AVCAD - PM/MS S - Program Management	MIPR	Various : N/A	-	1.652	May 2023	1.159	Nov 2023	0.300	Nov 2024	-		0.300	Continuing	Continuing	0.000
CB WEARABLES-ENBD - PM/MS C - Program Management	MIPR	Various : N/A	-	3.676	Jan 2023	4.686	Dec 2023	2.679	Nov 2024	-		2.679	Continuing	Continuing	0.000
CSIRP - PM/MS C - PM/MS S Program Management Support	Various	JPM CBRN Sensors, JPEO-CBRND : Aberdeen Proving Ground, MD	-	1.320	Jan 2023	2.480	Jan 2024	2.609	Jan 2025	-		2.609	Continuing	Continuing	0.000
CVCAD - PM/MS C - Program Management Support	MIPR	Various : N/A	-	0.032	Jul 2023	1.800	Oct 2023	1.190	Dec 2024	-		1.190	Continuing	Continuing	0.000
DBPAP - PM/MS C - Product Management Contractor Support	SS/FFP	Various : N/A	-	0.999	Mar 2023	0.000		0.000		-		0.000	0.000	0.999	0.000
FFBS - PM/MS C - Program management	Various	Various : N/A	-	0.000		0.248	Nov 2023	0.273	Nov 2024	-		0.273	Continuing	Continuing	0.000
JBTDS - PM/MS S - Program Management	MIPR	Various : N/A	-	0.169	Mar 2023	0.938	Jan 2024	0.759	Jan 2025	-		0.759	Continuing	Continuing	0.000
MFK - PM/MS S - Program Management Office Support	MIPR	TBD : N/A	-	0.000		0.541	Oct 2023	0.562	Oct 2024	-		0.562	Continuing	Continuing	0.000
NBCRV SSU - PM/MS S - Program Management Support	Various	Various : N/A	-	2.194	Jan 2023	3.311	Jan 2024	3.358	Jan 2025	-		3.358	Continuing	Continuing	0.000
NGDS 2 CHEMDX - PM/MS S - Management Services	Various	Various : N/A	-	0.286	Nov 2022	0.859	Dec 2023	0.228	Dec 2024	-		0.228	Continuing	Continuing	0.000
NGDS 2 MPDS - PM/MS S - Management Services	Various	Various : N/A	-	0.402	Nov 2022	2.129	Dec 2023	1.565	Dec 2024	-		1.565	Continuing	Continuing	0.000
PCAD - PM/MS S - Program Management	MIPR	Various : N/A	-	0.000		0.000		0.799	Nov 2024	-		0.799	Continuing	Continuing	0.000

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
CSIRP - Developmental Test and Evaluation - Test and Evaluation of Prototypes - Development Capability Set 2.0																												
CSIRP - Build Decision - Transition Decision - Development Capability Set 1.5																												
CSIRP - Capability Drop - OTA Award and Execution for Development Capability Set 4.0																												
CSIRP - Build Decision - Transition Decision - Development Capability Set 3.0																												
CSIRP - Developmental Test and Evaluation - Test and Evaluation of Prototypes - Development Capability Set 4.0																												
CVCAD - Capability Development Document Validation																												
CVCAD - Milestone B																												
CVCAD - Critical Design Review																												
CVCAD - Capability Development Document Update																												
CVCAD - Milestone C																												
CVCAD - Low Rate Initial Production																												
CVCAD - Full Rate Production Decision																												
DBPAP - Acquire and Distribute Quality Select Biological Reference Materials and Assays while Storing and Analyzing Related Data																												
DBPAP-ENBD - Expansion of Acquisition and Distribution of Quality Select Biological Reference Materials and Assays while Storing and Analyzing Related Data																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
FFBS - Development Request for Proposal Release Decision																												
FFBS - Preliminary Design Review																												
FFBS - Critical Design Review																												
FFBS - Operational Test and Evaluation - Combined DT/OT																												
FFBS - Milestone C																												
FFBS - Initial Operational Capability																												
FFBS - Full Operational Capability																												
FFBS - Milestone B																												
JBTDS - Milestone C																												
JBTDS - Low Rate Initial Production - LRIP Contract Award																												
JBTDS - Operational Test and Evaluation - MOT&E																												
JBTDS - Full Rate Production Decision																												
JBTDS - FRP Award																												
JBTDS - Initial Operational Capability																												
JBTDS - Authorized Procurement Objective																												
MFK - MFK User Definition workshop 1																												
MFK - Capability Drop - Capability release 1																												
MFK - MFK User Definition workshop 2																												
MFK - Capability Drop - Capability release 2																												
MFK - MFK User Definition workshop 3																												
MFK - Capability Drop - Capability release 3																												
MFK - MFK User Definition workshop 4																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
PCAD - Milestone C - Non-Trace capability																												
PCAD - Low Rate Initial Production - Non-Trace capability																												
PCAD - Full Rate Production Decision - Non-Trace capability																												
SPU RCDD - Contaminated Waste Mitigation System (CWMS)																												
SPU RCDD - Expedient Liquid Barrier System (ELBS)																												
SPU RCDD - Low Temperature Plasma Mass Spectrometer (LTPMS)																												
WARP - Prototype Development																												
WARP - Prototype T&E																												
MPCAD - Developmental Test and Evaluation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AET DEFENSE - Technology Assessments/Systems Engineering	1	2023	4	2029
AVCAD - EMD Contract	1	2023	3	2023
AVCAD - Milestone C	3	2023	3	2023
AVCAD - Low Rate Initial Production	3	2023	1	2025
AVCAD - Full Rate Production Decision	2	2025	2	2025
AVCAD - First Unit Equipped	1	2026	1	2026
AVCAD - Initial Operational Capability	2	2027	2	2027
CB WEARABLES-ENBD - Software Development & Integration	2	2023	1	2026
CB WEARABLES-ENBD - Capability Development Document (CDD)	1	2023	2	2023
CB WEARABLES-ENBD - Rapid Prototyping Effort	1	2024	4	2025
CB WEARABLES-ENBD - Initial Developmental Testing	2	2024	4	2025
CB WEARABLES-ENBD - Continuous Army & Air Force Warfighter Touchpoints	2	2024	4	2025
CSIRP - Developmental Test and Evaluation - Test and Evaluation of Prototypes - Development Capability Set 1.5	1	2023	2	2024
CSIRP - Developmental Test and Evaluation - Test and Evaluation of Prototypes - Development Capability Set 3.0	3	2023	4	2026
CSIRP - Capability Drop - OTA Award and Execution for Development Capability Set 3.0	4	2023	2	2025
CSIRP - Developmental Test and Evaluation - Test and Evaluation of Prototypes - Development Capability Set 2.0	4	2023	4	2025
CSIRP - Build Decision - Transition Decision - Development Capability Set 1.5	3	2024	4	2024
CSIRP - Capability Drop - OTA Award and Execution for Development Capability Set 4.0	2	2025	2	2027
CSIRP - Build Decision - Transition Decision - Development Capability Set 3.0	3	2026	4	2026

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
CSIRP - Developmental Test and Evaluation - Test and Evaluation of Prototypes - Development Capability Set 4.0	2	2027	3	2028
CVCAD - Capability Development Document Validation	4	2024	4	2024
CVCAD - Milestone B	4	2024	4	2024
CVCAD - Critical Design Review	1	2026	1	2026
CVCAD - Capability Development Document Update	2	2026	2	2026
CVCAD - Milestone C	4	2026	4	2026
CVCAD - Low Rate Initial Production	2	2027	1	2028
CVCAD - Full Rate Production Decision	2	2028	2	2028
DBPAP - Acquire and Distribute Quality Select Biological Reference Materials and Assays while Storing and Analyzing Related Data	1	2023	4	2029
DBPAP-ENBD - Expansion of Acquisition and Distribution of Quality Select Biological Reference Materials and Assays while Storing and Analyzing Related Data	1	2023	4	2029
FFBS - Development Request for Proposal Release Decision	2	2024	2	2024
FFBS - Preliminary Design Review	1	2025	1	2025
FFBS - Critical Design Review	4	2025	4	2025
FFBS - Operational Test and Evaluation - Combined DT/OT	4	2024	4	2025
FFBS - Milestone C	2	2026	2	2026
FFBS - Initial Operational Capability	1	2027	1	2027
FFBS - Full Operational Capability	1	2028	1	2028
FFBS - Milestone B	2	2024	2	2024
JBTDs - Milestone C	4	2023	4	2023
JBTDs - Low Rate Initial Production - LRIP Contract Award	4	2023	4	2023
JBTDs - Operational Test and Evaluation - MOT&E	4	2025	4	2025
JBTDs - Full Rate Production Decision	4	2026	4	2026
JBTDs - FRP Award	4	2026	4	2026

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
JBTDS - Initial Operational Capability	4	2029	4	2029
JBTDS - Authorized Procurement Objective	4	2029	4	2029
MFK - MFK User Definition workshop 1	2	2024	2	2024
MFK - Capability Drop - Capability release 1	1	2026	1	2026
MFK - MFK User Definition workshop 2	2	2025	2	2025
MFK - Capability Drop - Capability release 2	1	2027	1	2027
MFK - MFK User Definition workshop 3	2	2026	2	2026
MFK - Capability Drop - Capability release 3	1	2028	1	2028
MFK - MFK User Definition workshop 4	2	2027	2	2027
MFK - Capability Drop - Capability release 4	1	2029	1	2029
NBCRV SSU - Developmental Test and Evaluation - CS2.1 - Component & System Level Developmental Testing	1	2023	3	2024
NBCRV SSU - Operational Test and Evaluation - CS2.1 - Limited User Test (LUT)	4	2023	1	2024
NBCRV SSU - Capability Drop - CS2.2 - Design and Fabrication	4	2024	4	2025
NBCRV SSU - Developmental Test and Evaluation - CS2.2 - Component and System Level Developmental Testing	4	2025	2	2027
NBCRV SSU - Operational Test and Evaluation - CS2.2 - Initial Operational Test and Evaluation (IOT&E)	4	2026	1	2027
NBCRV SSU - Full Rate Production Decision - CS2.2 - FRP/Materiel Release Decision	3	2027	1	2028
NGDS 2 CHEMDX - EMD	1	2023	2	2025
NGDS 2 CHEMDX - Milestone C	2	2025	2	2025
NGDS 2 CHEMDX - Production and Deployment	3	2025	4	2028
NGDS 2 MPDS - EMD	1	2023	1	2028
NGDS 2 MPDS - Milestone C - LRIP	3	2026	3	2026
PCAD - Trace Draft CDD	4	2027	4	2027
PCAD - Milestone A - Trace capability	1	2028	1	2028

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) UN5 / <i>Understand (SDD)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
PCAD - Milestone B - Trace capability	3	2029	3	2029
PCAD - Capability Development Document Validation - Non-Trace Validated CDD	1	2025	1	2025
PCAD - Milestone B - Non-Trace capability	1	2025	1	2025
PCAD - Milestone C - Non-Trace capability	4	2026	4	2026
PCAD - Low Rate Initial Production - Non-Trace capability	4	2026	4	2026
PCAD - Full Rate Production Decision - Non-Trace capability	4	2029	4	2029
SPU RCDD - Contaminated Waste Mitigation System (CWMS)	1	2023	3	2024
SPU RCDD - Expedient Liquid Barrier System (ELBS)	1	2023	4	2024
SPU RCDD - Low Temperature Plasma Mass Spectrometer (LTPMS)	1	2023	4	2025
WARP - Prototype Development	1	2024	3	2024
WARP - Prototype T&E	3	2024	1	2025
MPCAD - Developmental Test and Evaluation	1	2023	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
PT5: <i>Protect (SDD)</i>	-	86.221	97.975	41.664	0.000	41.664	25.670	15.951	34.836	58.658	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Protect System Development & Demonstration (SDD) Project enhances mission performance and provides effective protection against current and emerging threats by rapidly developing and fielding modernized protection capabilities. Developmental efforts focus on advances in materials and systems engineering to enhance protective properties against a broader array of hazards, while reducing Countering Weapons of Mass Destruction (CWMD) operational challenges and logistical burdens. Developmental efforts focus on advanced medical countermeasures that provide safe and effective medical defenses against biological agents (bacteria, toxins, and viruses), emerging infectious diseases, and chemical agents.

Efforts included in this Project are:

- (1) Advanced System for Protection and Integration Reduction of Encumbrances (ASPIRE)
- (2) Advanced System for Protection and Integration Reduction of Encumbrances - Enhanced Biological Defense (ASPIRE-ENBD)
- (3) Botulinum Monoclonal Antibodies (BOT MAB)
- (4) Collective Protection Conex - Enhanced Biological Defense (COL PRO CONEX-ENBD)
- (5) Biological Containment Isolation System - Enhanced Biological Defense (BCIS-ENBD)
- (6) Portable Patient Transport System - Enhanced Biological Defense (PPTS-ENBD)
- (7) Shipboard Isolation System (SIS)
- (8) Uniform Integrated Protective Ensemble Family of Systems Air (UIPE FOS AIR)
- (9) Uniform Integrated Protective Ensemble Family of Systems General Purpose (UIPE FOS GP)
- (10) Uniform Integrated Protective Ensemble Family of Systems Gloves (UIPE FOS GLOVES)
- (11) Special Immunization Program (VAC SIP)
- (12) Rapid Access to Products in Development (RAPID)

The Advanced System for Protection and Integrated Reduction of Encumbrances (ASPIRE) program allows near normal operations in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment by minimizing or eliminating physical and psychological burden and increasing Warfighter lethality. The ASPIRE program will provide respiratory and ocular protection against CBRN threats. The program will provide the capability to incorporate upgrades into the current ground masks to improve the suit hood/mask interface (HMI) with Uniform Integrated Protective Ensemble Family of Systems General Purpose (UIPE FoS GP). In addition, this program, in conjunction with work by Joint Science and Technology Office (JSTO), will lay out the strategy and path forward required to minimize the burden to the warfighter while still providing respiratory and ocular protection against chemical, biological, radiological and nuclear agents. In FY25, ASPIRE/UIPE FoS HMI will continue to execute the phases of the Other Transactional Authority (OTA) Contract, perform developmental testing on interface prototypes and conduct acquisition program activities to include engineering reviews and documentation in support of the FY25 Milestone (MS) B decision review.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>

The ASPIRE ENBD is a new start program in FY24 and will support unencumbering warfighters and revolutionizing respiratory and ocular protection against Chemical, Biological, Radiological and Nuclear (CBRN) threats, including protection from biological, toxic industrial chemicals, and other emerging threats. ASPIRE-ENBD will provide a revolutionized capability to the Services for the next generation of respiratory and ocular protection by developing bio-masks that are low-burden, provide protection against bio threats, and are designed as a reusable system with modularity and/or scalability for additional ocular protection. In FY25, the ASPIRE-ENBD program will continue prototype development, evaluation, and testing for down selection of bio half mask and to inform the ASPIRE program.

The Botulinum Monoclonal Antibodies (BOT MAB) program will develop and deliver Food and Drug Administration (FDA) approved botulinum monoclonal antibodies to the warfighter. The BOT MAB will be a monoclonal antibody solution that protects the warfighter against exposure to botulinum toxins A and B. This product will do large scale Good Manufacturing Practices (GMP) in the DoD Advanced Development Manufacturing (ADM) facility. In FY25, BOT MAB will deliver a post exposure prophylaxis (PEP) pre-Emergency Use Authorization (pre-EUA) submission to the U.S. Food and Drug Administration (FDA) with the positioning of >5,000 doses to the Rapid Acquisition of Products in Development (RAPID) program that could be used in case of an emergency.

The Collective Protection CONEX-Enhanced Biological Defense (COL PRO CONEX-ENBD) is a new start program in FY24 and has been renamed the Biological Containment Isolation System-Enhanced Biological Defense (BCIS-ENBD) to accurately reflect the capability and applicability of the system. Funding has been transferred in FY25.

The Biological Containment Isolation System - Enhanced Biological Defense (BCIS-ENBD) will provide a negative pressure shelter system for medical treatment of biologically contaminated patients in an Army field hospital environment. BCIS-ENBD will provide a ground-based isolation area for personnel infected or suspected of infection from a biological threat and allows medical staff to monitor and/or treat while decreasing the risk of infecting other patients and staff. This project was funded in FY24 under the Collective Protection CONEX-Enhanced Biological Defense (COL PRO CONEX-ENBD) effort, and was renamed BCIS-ENBD to accurately reflect the capability and applicability of the system. In FY25, BCIS-ENBD will complete concept design, system planning and conduct an initial concept demonstration.

The Portable Biocontainment Patient Transport System-Enhanced Biodefense (PPTS-ENBD) is a new start program in FY24 and will provide a biocontainment isolation system to safely transport personnel infected or suspected of infection from a biological threat. In FY25, PPTS ENBD will begin system test and evaluation and develop logistics products.

The Shipboard Isolation System (SIS) is a new start program in FY24 and will provide the capability to temporarily isolate or quarantine personnel to prevent the spread of a biological threat and safely evacuate patients for transfer off the ship. SIS will be used on multiple Navy ship types to contain and medically monitor/treat patients while protecting embarked crew and personnel. In FY25, SIS will release Request for Proposals (RFP), award contract for prototypes, and delivery of prototypes.

The Uniform Integrated Protective Ensemble Family of Systems Air (UIPE FoS Air) program will provide the warfighter percutaneous protection from operationally relevant traditional and non-traditional Chemical, Biological, Radiological, Nuclear (CBRN) threats. UIPE FoS Air will improve aircrew performance and survivability under CBRN conditions by reducing thermal burden and bulk, while increasing mobility and resulting in an increase operational effectiveness. The UIPE FoS Air is composed of two variants. The UIPE FoS Air Chemical, Biological, Radiological Layer (CBRL) to address the specific requirements of the United States Air Force

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>
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(USAF) tactical/ejection fixed wing platforms and the Two Piece Undergarment (2PUG) to address the remaining USAF and United States Navy / United States Marine Corps tactical/ejection seat (rotary wing) and non-ejection (fixed wing) platforms.

The Uniform Integrated Protective Ensemble Family of Systems General Purpose (UIPE FoS GP) is part of a family of systems that will give the warfighter percutaneous protection from operationally relevant traditional, non-traditional, and advanced Chemical, Biological, Radiological and Nuclear (CBRN)/Toxic Industrial Material (TIM) threats likely to be encountered during joint force operations. The legacy chemical biological garment is nearing the end of its service life and does not meet updated requirements. The UIPE FoS GP is a two-piece lightweight (compared to the legacy system) duty uniform-like replacement. In FY25, program will begin Multi Service Operational Test and Evaluation (MOT&E) and continue low rate initial production (LRIP). FY25 is last year of BA5 funding, program is transitioning to Production and Deployment Phase.

The Uniform Integrated Protective Ensemble Family of Systems Gloves (UIPE FOS GLOVES) program provides percutaneous protection to the hand and wrist interface of the warfighter against traditional and non-traditional Chemical, Biological, Radiological and Nuclear (CBRN) threats. UIPE FoS Gloves will provide improved comfort, tactility and dexterity and for certain mission profiles enhanced touch screen and flame resistant capability. In FY25, the UIPE FoS Gloves program will complete Developmental Testing/Operational Testing (DT/OT) and go to Full Rate Production (FRP) decision.

The Special Immunizations Program (VAC SIP) restructures to the Rapid Access to Products in Development (RAPID) program in FY24. VAC SIP continually manages, updates, and executes the Investigational New Drugs (INDs) of selected prophylaxis, treatments and diagnostics development products which provide additional protection to individuals that are at high risk of exposure to CBRN agents. DoD has the mission to maintain IND vaccines in Good Manufacturing Practice (GMP) storage and to conduct the periodic potency and stability testing of these materials to support submissions to the U.S. Food & Drug Administration (FDA).

RAPID (Rapid Access to Products in Development) an FY24 restructure of the VAC SIP program, will allow access to prototype medical countermeasures (MCMs) that are being developed to differential states of readiness by storing and maintaining data packages and doses of countermeasures. These data packages and doses enable Interim Fielding Capability (IFC), continued development, or transition to other USG partners as a Programs of Record. In FY25 RAPID will continue to employ a tiered system to increase clarity of each MCM's state of development and how quickly/costly it will be to achieve IFC.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Title: 1) ASPIRE</p> <p>Description: Respiratory and Ocular Protection Development</p> <p>FY 2024 Plans: Initiate optimization of the current ground mask systems to address suit hood/mask interface and conduct prototype build and evaluation of suit hood/mask interface improvements into current ground masks for down selection and refinement.</p> <p>FY 2025 Plans:</p>	-	4.776	6.962

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Perform developmental testing (DT) on interface prototypes. Conduct acquisition program activities to include engineering reviews and documentation in support of the FY25 Milestone (MS) B decision review. Execute the phases of the Other Transactional Authority (OTA) Contract. FY 2024 to FY 2025 Increase/Decrease Statement: Increase supports activities, including DT, to support an MS B decision in FY25.				
Title: 2) ASPIRE-ENBD Description: Development of Low burden mask for biological protection FY 2024 Plans: Initiate bio mask/half-mask prototype development and evaluation for down selection and refinement. FY 2025 Plans: Continue prototype evaluation, and testing of bio mask. Incorporate initial user feedback and evaluations into prototype. Evaluate ocular protection scalability to inform ASPIRE program. FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to conducting multiple prototype development and evaluation builds of bio masks and incorporating scalability for ocular protection into prototypes.		-	1.600	1.850
Title: 3) BOT MAB - Manufacturing Description: Manufacturing FY 2024 Plans: Complete large scale GMP manufacturing and initiate Process Qualification runs for final drug product. FY 2025 Plans: Submit a pre-Emergency Use Authorization (pre-EUA) to the U.S. Food and Drug Administration (FDA) and program closeout. FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to program entering completion and will transition product to the Rapid Acquisition of Products in Development (RAPID) program.		34.271	16.528	1.000
Title: 4) BOT MAB - Clinical and Nonclinical Studies Description: Clinical and Nonclinical Studies FY 2024 Plans:		27.744	48.000	3.826

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Complete large scale Good Manufacturing Practices (GMP) manufacturing and initiate Process Qualification runs for final drug product.</p> <p>FY 2025 Plans: Complete the Clinical comparability study and final nonclinical studies.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to program entering completion and will transition product to the Rapid Acquisition of Products in Development (RAPID) program.</p>				
<p>Title: 5) COL PRO CONEX-ENBD</p> <p>Description: Prototype, test and evaluate ground based biocontainment isolation systems.</p> <p>FY 2024 Plans: Complete concept design, system planning and conduct an initial concept demonstration.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program funding transferred due to program name change from Collective Protection CONEX-Enhanced Biological Defense (COL PRO CONEX-ENBD) to Biological Containment Isolation System-Enhanced Biological Defense (BCIS-ENBD).</p>		-	4.600	-
<p>Title: 6) BCIS-ENBD</p> <p>Description: Prototype, test and evaluate ground based biocontainment isolation systems.</p> <p>FY 2025 Plans: Complete system design. Conduct developmental testing. Generate program Technical Manuals and supporting documentation.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program funding transferred due to program name change from Collective Protection CONEX-Enhanced Biological Defense (COL PRO CONEX-ENBD) to Biological Containment Isolation System-Enhanced Biological Defense (BCIS-ENBD) to accurately reflect the capability and applicability of the system. Decrease due to completion of concept demonstration and design as well as initial prototyping.</p>		-	-	2.100
<p>Title: 7) PPTS-ENBD</p> <p>Description: Prototype, test and evaluate Portable Patient Transport Systems for biocontainment and isolation.</p> <p>FY 2024 Plans:</p>		-	5.300	5.300

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Begin system test and evaluation and develop logistics products. FY 2025 Plans: Continue system test and evaluation and developing logistics products. Initiate Multi-service Operational Test and Evaluation (MOT&E)				
Title: 8) SIS Description: Prototype Development and Testing FY 2024 Plans: Begin system planning and award Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) Prototype Contract. FY 2025 Plans: Finalize prototype contract award and initiate fabrication and testing. Update system specifications and technical documentation FY 2024 to FY 2025 Increase/Decrease Statement: Funding increase accounts for FY25 prototype contract award and to begin prototype test and evaluation.		-	0.976	3.035
Title: 9) UIPE FOS AIR Description: Test and Integration of the 2 Piece Undergarment (2PUG)		0.600	-	-
Title: 10) UIPE FOS GP Description: Development of the next generation protective ensembles. FY 2024 Plans: Conduct Multi Service Operational Test and Evaluation (MOT&E) and evaluate program cost reduction material alternatives. FY 2025 Plans: Begin Multi Service Operational Test and Evaluation (MOT&E) and continue low rate initial production (LRIP). FY 2024 to FY 2025 Increase/Decrease Statement: BA5 funding ramps down as program completes transition to the Production and Deployment Phase.		9.388	7.052	5.925
Title: 11) UIPE FOS GLOVES Description: Development of the Next Generation Protective Glove FY 2024 Plans:		7.410	3.856	1.759

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Conduct developmental testing, complete prototype development on multiple mission profiles (General Purpose, Aviation Heavy and Aviation Light) and conduct operational testing on prototypes for the multiple mission profiles. FY 2025 Plans: Achieve MS C and Full Rate Production (FRP) decision, complete Developmental Testing/Operational Testing (DT/OT). FY 2024 to FY 2025 Increase/Decrease Statement: BA5 funding ramps down as program completes transition to the Production and Deployment Phase.			
Title: 12) VAC SIP Description: Storage, Distribution, Potency Testing	6.808	-	-
Title: 13) RAPID Description: Storage, Stability, Testing FY 2024 Plans: Initiate RAPID storage and stability testing by leveraging existing Accelerated Antibodies-Enhanced Biodefense (AA-ENBD), Vaccine Acceleration by Modular Progression-Enhanced Biodefense (VAMP-ENBD), RAIDR, and Generative Unconstrained Intelligent Drug Engineering-Enhanced Biodefense (GUIDE-ENBD) program data packages and prototype doses; Design and build a RAPID database that will be the interface for Department of Defense stakeholders for key data associated with the status and availability of medical countermeasures in development. FY 2025 Plans: Continue the development/optimization of RAPID database to include implementation of the first version; release incremental RAPID database updates to stakeholders; evaluate RAPID operational capability through stakeholder exercises. FY 2024 to FY 2025 Increase/Decrease Statement: Additional investment for increased preparedness and access to additional MCMs.	-	5.287	9.907
Accomplishments/Planned Programs Subtotals	86.221	97.975	41.664

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PT4: <i>Protect (ACD&P)</i>	170.788	179.158	172.190	-	172.190	154.024	131.577	137.660	120.758	Continuing	Continuing
• PT7: <i>Protect (Op Sys Dev)</i>	19.649	26.818	22.815	-	22.815	15.610	14.319	13.717	10.220	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PHM039: <i>Botulinum Monoclonal Antibodies (BOT MAB)</i>	-	-	-	-	-	-	-	-	-	0.000	0.000
• JP1111: <i>Joint Expeditionary Collective Protection (JECF)</i>	29.295	-	-	-	-	3.750	3.000	-	-	Continuing	Continuing
• PHM034: <i>Uniform Integrated Protection Ensemble Family of Systems Air (UIPE FOS AIR)</i>	23.407	25.794	26.195	-	26.195	17.943	0.475	0.492	0.492	Continuing	Continuing
• PHM033: <i>Uniform Integrated Protective Ensemble Family of Systems General Purpose (UIPE FOS GP)</i>	30.145	55.100	82.861	-	82.861	101.750	99.653	110.658	145.328	Continuing	Continuing
• PHM032: <i>Uniform Integrated Protective Ensemble Family of Systems Gloves (UIPE FOS GLOVES)</i>	-	4.978	6.215	-	6.215	7.974	8.328	8.926	9.478	Continuing	Continuing

Remarks

D. Acquisition Strategy

Advanced System for Protection and Integration Reduction of Encumbrances (ASPIRE)

The Advanced System for Protection and Integration Reduction of Encumbrances (ASPIRE) next generation respirator efforts will focus providing upgrades improving the hood/mask interface (HMI) utilizing the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA). Prototypes will be developed and produced for test and evaluation and eventual down selection to a final solution.

Advanced System for Protection and Integration Reduction of Encumbrances - Enhanced Biological Defense (ASPIRE-ENBD)

The ASPIRE-ENBD Efforts will be accomplished by awarding an agreement through the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) to develop prototype for evaluation and further refinement.

Botulinum Monoclonal Antibodies (BOT MAB)

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>
<p>The Botulinum Monoclonal Antibodies (BOT MAB) program is the development of a Post-Exposure Prophylaxis (PEP) through the Engineering, Manufacturing and Development (EMD) phase against the Botulinum Neuro Toxin (BoNT). This Medical Countermeasure (MCM) will reduce the incidence or progression of botulism disease, following exposure to BoNT serotypes A and B. The program will deliver a PEP pre-Emergency Use Authorization (pre-EUA) submission to the U.S. Food and Drug Administration (FDA) with the positioning of >5,000 doses to the Rapid Acquisition of Products in Development (RAPID) program that could be used in case of an emergency.</p> <p>Biological Containment Isolation System - Enhanced Biological Defense (BCIS-ENBD)</p> <p>The BCIS-ENBD approach will fund prototype system design and development through the Countering Weapons of Mass Destruction Other Transaction Agreement (CWMD OTA) contract. Prototypes will undergo evaluation and further refinement to optimize performance and minimize total ownership cost.</p> <p>Portable Patient Transport System - Enhanced Biological Defense (PPTS-ENBD)</p> <p>The PPTS-ENBD effort will resource prototype system design and development through the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA). Leverage lessons learned from previous efforts to optimize performance and minimize total ownership cost.</p> <p>Shipboard Isolation System (SIS)</p> <p>The SIS program will utilize the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) to design, procure, and test iterative prototypes to meet the shipboard isolation requirements. Once a final prototype design is selected and successfully completes testing and user evaluations, a technical data package (TDP) and logistics package will be developed. The program will culminate in the procurement and fielding of systems for ship use that will be stored at fleet concentration areas on both CONUS and OCONUS locations.</p> <p>Uniform Integrated Protective Ensemble Family of Systems Air (UIPE FOS AIR)</p> <p>The UIPE FoS Air utilizes a streamlined acquisition strategy that identifies mature technology and capitalizes on work accomplished by the United States Air Force (USAF) Integrated Aircrew Ensemble (IAE) and UIPE FoS General Purpose (GP) programs. The UIPE FoS Air will utilize a Milestone A-C acquisition strategy that will accelerate fielding to the warfighter. The contract strategy leveraged the USAF IAE Small Business Innovation Research (SBIR) Phase III contract to procure UIPE Air CBRL. The UIPE FoS Air 2PUG is a government owned design and as an item on the Federal Procurement List, will be produced by Source America and Ready One Industries.</p> <p>Uniform Integrated Protective Ensemble Family of Systems General Purpose (UIPE FOS GP)</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>
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The UIPE FoS GP program used the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) and Government designed prototypes produced in conjunction with an Industry Partner to acquire prototypes for early user testing. UIPE FoS GP executed multiple awards leading to MS C in FY24 to allow for completion of UIPE evaluation (effectiveness, suitability and survivability) prior to award of a high ceiling production contract. In FY23, the program began a cost reduction initiative to evaluate alternative materials as well as non-material design changes. Any material or non-material changes will be implemented in the form of product improvement insertions as the program continues forward in the acquisition process.

Uniform Integrated Protective Ensemble Family of Systems Gloves (UIPE FOS GLOVES)

The UIPE FOS Gloves program will utilize the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) to conduct market research through Requests for Information (RFIs) and a call for White Papers. A Middle Tier Acquisition Rapid Prototyping strategy was used. Testing characterized chemical protection performance, interoperability, operation in induced and natural environments, and availability and logistical supportability. Developmental Testing/Operational Testing (DT/OT) will further evaluate the performance of the UIPE FoS Glove solutions at both a material and system level.

SPECIAL IMMUNIZATION PROGRAM (VAC SIP) (VAC SIP)

The SIP program manages the continual storage, testing, compliance, and distribution activities associated with Investigational New Drugs (INDs) for legacy prophylactic medical countermeasures, as well as the recent Bot and Plague vaccine candidates. Additionally, the SIP maintains interagency agreements with US Army Medical Research and Development Command to support testing and compliance requirements. This Department of Defense program supports the Federal interagency with this effort, as well as academic and industry partners.

Rapid Access to Products in Development (RAPID)

RAPID will leverage existing Chemical Biological Defense Program (CBDP) development programs within the Joint Program Executive Office for Chemical, Biological, Radiological, and Nuclear Defense (JPEO-CBRND) and Defense Threat Reduction Agency (DTRA)-Joint Science and Technology Office (JSTO) to build a repository of MCMs at different readiness levels, in order to establish a rapid response capability by providing access to products still in development.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / Chemical and Biological Defense Program - EMD	Project (Number/Name) PT5 / Protect (SDD)
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
ASPIRE - HW S - Prototype Development ASPIRE (HMI)	C/FFP	ATI Solutions, Inc. : Tysons Corner, VA	-	0.000		2.708	Jan 2024	3.326	May 2025	-		3.326	Continuing	Continuing	0.000
ASPIRE-ENBD - HW C - Bio half-mask Prototype Development	TBD	Various : N/A	-	0.000		0.700	Dec 2023	0.425	Jan 2025	-		0.425	Continuing	Continuing	0.000
BOT MAB - SW C - BOT MONO	C/CPFF	Resilience Government Services, Inc. : Alachua, Florida	-	49.328	Dec 2022	54.011	Dec 2023	4.826	Dec 2024	-		4.826	Continuing	Continuing	0.000
COL PRO CONEX-ENBD - HW S - Concept Design	Various	TBD : N/A,	-	0.000		2.187	Nov 2023	0.000		-		0.000	0.000	2.187	0.000
BCIS-ENBD - HW S - Concept Design	Various	TBD : N/A	-	0.000		0.000		1.000	Jan 2025	-		1.000	Continuing	Continuing	0.000
PPTS-ENBD - HW S - Prototyping Contract	TBD	TBD : N/A	-	0.000		2.461	Jan 2024	0.698	Jan 2025	-		0.698	Continuing	Continuing	0.000
SIS - HW S - Develop Requirements and Specifications, Develop Shipboard Isolation System Concepts	TBD	TBD : N/A	-	0.000		0.481	Dec 2023	1.256	Jun 2025	-		1.256	Continuing	Continuing	0.000
UIPE FOS GP - HW C - Prototype Development	MIPR	TBD : N/A	-	1.055	Sep 2023	1.750	Nov 2023	0.200	Nov 2024	-		0.200	Continuing	Continuing	0.000
UIPE FOS GLOVES - HW C - Prototype Manufacturing, Demonstration and Down-select	MIPR	Various : N/A	-	0.218	Jul 2023	0.400	Nov 2023	0.000		-		0.000	0.000	0.618	0.000
Subtotal			-	50.601		64.698		11.731		-		11.731	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / Chemical and Biological Defense Program - EMD	Project (Number/Name) PT5 / Protect (SDD)
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Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
ASPIRE - ES C - Engineering Support ASPIRE (HMI)	Various	Various : N/A	-	0.000		0.716	Nov 2023	1.487	Nov 2024	-		1.487	Continuing	Continuing	0.000
ASPIRE-ENBD - ES S - Engineering and Technical Support	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	-	0.000		0.240	Nov 2023	0.661	Nov 2024	-		0.661	Continuing	Continuing	0.000
BOT MAB - PM/MS C - BOT MONO	Various	JPEO Chem, Bio, Rad, and Nuc Defense (JPEO-CBRND) : Aberdeen Proving Ground, MD	-	6.202	Dec 2022	4.517	Dec 2023	0.000		-		0.000	0.000	10.719	0.000
BOT MAB - PM/MS C - BOT MONO	Various	ATI Solutions, Inc. : Tysons Corner, VA	-	6.485	Mar 2023	6.000	Dec 2023	0.000		-		0.000	0.000	12.485	0.000
COL PRO CONEX-ENBD - ES S - Engineering, Logistics, Technical, IPT Support	MIPR	Various : N/A	-	0.000		0.956	Nov 2023	0.000		-		0.000	0.000	0.956	0.000
BCIS-ENBD - ES S - Engineering, Logistics, Technical, IPT Support	MIPR	Various : N/A	-	0.000		0.000		0.321	Nov 2024	-		0.321	Continuing	Continuing	0.000
PPTS-ENBD - ES S - Engineering, Logistics, Technical, IPT Support	MIPR	Various : N/A	-	0.000		1.962	Nov 2023	1.521	Nov 2024	-		1.521	Continuing	Continuing	0.000
SIS - ES S - Engineering, Logistics, Technical, IPT Support	TBD	TBD : N/A	-	0.000		0.150	Dec 2023	0.466	Dec 2024	-		0.466	Continuing	Continuing	0.000
UIPE FOS AIR - ES C - Engineering and IPT Support	Various	Various : N/A	-	0.090	Nov 2022	0.000		0.000		-		0.000	0.000	0.090	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>
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Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
UIPE FOS GP - ILS C - Integrated Log Support-System	Various	Various : N/A	-	0.588	Nov 2022	0.442	Nov 2023	0.378	Nov 2024	-		0.378	Continuing	Continuing	0.000
UIPE FOS GP - ES C - Engineering & Technical IPT Support / SME Support	Various	Various : N/A	-	0.820	Nov 2022	0.610	Nov 2023	0.510	Nov 2024	-		0.510	Continuing	Continuing	0.000
UIPE FOS GLOVES - ES C - Engineering, Logistics, Technical, IPT Support	MIPR	Various : N/A	-	0.827	Nov 2022	0.578	Nov 2023	0.263	Nov 2024	-		0.263	Continuing	Continuing	0.000
Subtotal			-	15.012		16.171		5.607		-		5.607	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
ASPIRE - OTHT C - Prototype Evaluation ASPIRE (HMI)	Various	Various : N/A	-	0.000		1.157	Nov 2023	1.450	Nov 2024	-		1.450	Continuing	Continuing	0.000
ASPIRE-ENBD - OTHT C - Prototype Evaluation	MIPR	Various : N/A	-	0.000		0.562	Dec 2023	0.487	Dec 2024	-		0.487	Continuing	Continuing	0.000
COL PRO CONEX-ENBD - DTE C - T&E Support	MIPR	Various : N/A	-	0.000		1.175	Nov 2023	0.000		-		0.000	0.000	1.175	0.000
BCIS-ENBD - DTE S - Test and Evaluation	MIPR	Various : N/A	-	0.000		0.000		0.537	Nov 2024	-		0.537	Continuing	Continuing	0.000
PPTS-ENBD - DTE S - T&E Support	MIPR	Various : N/A	-	0.000		0.552	Nov 2023	2.519	Nov 2024	-		2.519	Continuing	Continuing	0.000
SIS - DTE S - Develop T&E strategy, Provide T&E Inputs to Contract Documentation, Begin T&E	TBD	TBD : N/A	-	0.000		0.285	Dec 2023	0.982	Dec 2024	-		0.982	Continuing	Continuing	0.000
UIPE FOS AIR - DTE C - System Level Testing	Various	Various : N/A	-	0.452	Nov 2022	0.000		0.000		-		0.000	0.000	0.452	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / Chemical and Biological Defense Program - EMD	Project (Number/Name) PT5 / Protect (SDD)
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Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
UIPE FOS GP - DTE C - DT/OT	Various	Various : N/A	-	6.007	Nov 2022	3.993	Nov 2023	4.242	Nov 2024	-		4.242	Continuing	Continuing	0.000
UIPE FOS GLOVES - OTE S - Final DT/OT, Operational Demos	MIPR	Various : N/A	-	5.911	Nov 2022	2.642	Nov 2023	1.320	Nov 2024	-		1.320	Continuing	Continuing	0.000
VAC SIP - OTHT C - Storage and Distribution of Vaccines	SS/FP	Fisher BioServices : Rockville, MD	-	1.365	Mar 2023	0.000		0.000		-		0.000	0.000	1.365	0.000
VAC SIP - OTHT C - Potency Testing of Vaccines	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	-	1.196	Mar 2023	0.000		0.000		-		0.000	0.000	1.196	0.000
VAC SIP - OTHT C - Potency Testing of Vaccines	C/CPFF	Battelle Memorial Institute : Columbus, OH	-	1.642	Jan 2023	0.000		0.000		-		0.000	0.000	1.642	0.000
VAC SIP - OTHT C - BOT & PLG Stability	C/CPFF	TBD : N/A	-	2.080	Jan 2023	0.000		0.000		-		0.000	0.000	2.080	0.000
RAPID - OTHT C - Testing, Stability	TBD	Various : N/A	-	0.000		4.927	Dec 2023	9.015	Dec 2024	-		9.015	Continuing	Continuing	0.000
Subtotal			-	18.653		15.293		20.552		-		20.552	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
ASPIRE - PM/MS S - Management Support Services ASPIRE (HMI)	Various	Various : N/A	-	0.000		0.195	Nov 2023	0.699	Nov 2024	-		0.699	Continuing	Continuing	0.000
ASPIRE-ENBD - PM/MS C - Program Management Support	Various	Various : N/A	-	0.000		0.098	Dec 2023	0.277	Nov 2024	-		0.277	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / Chemical and Biological Defense Program - EMD	Project (Number/Name) PT5 / Protect (SDD)
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Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
COL PRO CONEX-ENBD - PM/MS S - Program Management	MIPR	Various : N/A	-	0.000		0.282	Nov 2023	0.000		-		0.000	0.000	0.282	0.000
BCIS-ENBD - PM/MS S - Program Management	MIPR	Various : N/A	-	0.000		0.000		0.242	Nov 2024	-		0.242	Continuing	Continuing	0.000
PPTS-ENBD - PM/MS S - Program Management	MIPR	Various : N/A	-	0.000		0.325	Nov 2023	0.562	Nov 2024	-		0.562	Continuing	Continuing	0.000
SIS - PM/MS S - Program Management Support	Various	Various : N/A	-	0.000		0.060	Dec 2023	0.331	Dec 2024	-		0.331	Continuing	Continuing	0.000
UIPE FOS AIR - PM/MS C - Program Management Services	MIPR	Various : N/A	-	0.058	Nov 2022	0.000		0.000		-		0.000	0.000	0.058	0.000
UIPE FOS GP - PM/MS C - Program Management Support	Various	Various : N/A	-	0.918	Nov 2022	0.257	Nov 2023	0.595	Nov 2024	-		0.595	Continuing	Continuing	0.000
UIPE FOS GLOVES - PM/MS C - Program Management Support	Various	Various : N/A	-	0.454	Dec 2022	0.236	Nov 2023	0.176	Nov 2024	-		0.176	Continuing	Continuing	0.000
VAC SIP - PM/MS S - PM Support	Various	JPL CBRND Enabling Biotechnologies, JPEO-CBRND : Fort Detrick, MD	-	0.525	Jan 2023	0.000		0.000		-		0.000	0.000	0.525	0.000
RAPID - PM/MS C - Program Management	C/CPFF	Various : N/A	-	0.000		0.360	Dec 2023	0.892	Dec 2024	-		0.892	Continuing	Continuing	0.000
Subtotal			-	1.955		1.813		3.774		-		3.774	Continuing	Continuing	N/A

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		86.221	97.975	41.664	-	41.664	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / Chemical and Biological Defense Program - EMD	Project (Number/Name) PT5 / Protect (SDD)
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
BCIS-ENBD - Milestone B - Milestone B																												
BCIS-ENBD - ILS Development																												
BCIS-ENBD - Training Development																												
BCIS-ENBD - Developmental Test and Evaluation - DT&E																												
BCIS-ENBD - Operational Test and Evaluation - OT&E																												
BCIS-ENBD - Milestone C - Milestone C																												
BCIS-ENBD - Production Contract																												
PPTS-ENBD - Concept Development and System Planning																												
PPTS-ENBD - CWMD OTA Contract Award																												
PPTS-ENBD - DT/IT Testing																												
PPTS-ENBD - Logistics Demonstration																												
PPTS-ENBD - MOT&E																												
PPTS-ENBD - Logistics/Sustainment Package Complete																												
PPTS-ENBD - Technical Design Package Complete																												
PPTS-ENBD - MS C / FRP																												
PPTS-ENBD - Final Purchase Contract																												
SIS - Requirements Definition Package - Requirements Definition																												
SIS - Concept Development and System Planning																												
SIS - CWMD OTA Contract Award																												
SIS - Initial Prototype Fabrication and Delivery																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
SIS - Initial Prototype Testing																												
SIS - Modified Prototype Fabrication and Delivery																												
SIS - Modified Prototype Testing and User Demo																												
SIS - Final Prototype Fabrication and Delivery																												
SIS - Technical Data Package and Logistics Package																												
SIS - Final Prototype MOT&E and Logistics Demo																												
SIS - System Fabrication and Delivery																												
UIPE FOS AIR - Fixed Wing Non-Ejection Aircraft Testing																												
UIPE FOS AIR - Fixed Wing Ejection Aircraft Integration Testing																												
UIPE FOS AIR - Rotary Wing Aircraft Integration Testing																												
UIPE FOS AIR - Safe to Fly Certification																												
UIPE FOS AIR - Safe-to-Fly and Airworthiness Testing																												
UIPE FOS AIR - Capability Development Document (CDD) Update																												
UIPE FOS AIR - Full Rate Production Decision - 2PUG																												
UIPE FOS AIR - Initial Operational Capability - 2PUG																												
UIPE FOS AIR - Full Operational Capability - 2PUG																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UIPE FOS GP - Operational Assessment	■																											
UIPE FOS GP - Joint Independent Logistics Assessment (JILA)			■	■																								
UIPE FOS GP - Manufacturing Readiness Assessment (MRA)			■	■																								
UIPE FOS GP - Production Initiation Contract				■																								
UIPE FOS GP - Test & Evaluation Master Plan (TEMP) Update				■	■																							
UIPE FOS GP - Capability Development Document (CDD) Update (if needed)						■	■																					
UIPE FOS GP - Production Contract Award						■	■																					
UIPE FOS GP - Milestone C							■																					
UIPE FOS GP - Operational Test and Evaluation													■	■														
UIPE FOS GP - Full Rate Production Decision															■													
UIPE FOS GLOVES - Early User, material and system level testing	■	■	■	■	■	■	■																					
UIPE FOS GLOVES - Mid-Tier Acquisition Rapid Prototype Initiation	■																											
UIPE FOS GLOVES - Mid-Tier Acquisition DT/OT	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
UIPE FOS GLOVES - Approved CDD		■																										
UIPE FOS GLOVES - Mid-Tier Acquisition IPR			■	■																								
UIPE FOS GLOVES - Mid-Tier Acquisition Rapid Prototyping Decision Point				■	■																							
UIPE FOS GLOVES - Milestone C - Milestone C													■															

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
UIPE FOS GLOVES - Full Rate Production Decision - FRP Decision																																
VAC SIP - Storage, distribution, potency testing, biosurety compliance activities																																
RAPID - Developmental Test and Evaluation - Storage and stability testing																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ASPIRE - Suit Hood/Mask Interface Prototype Testing and Evaluation - (HMI)	2	2024	2	2027
ASPIRE - Suit Hood/Mask Interface Prototype Development - (HMI)	4	2024	2	2027
ASPIRE - Milestone B - MS B (HMI)	2	2025	2	2025
ASPIRE - Milestone C - MS C (HMI)	2	2027	2	2027
ASPIRE - Suit Hood/Mask Interface Production - (HMI)	3	2027	4	2029
ASPIRE - Initial Operational Capability - IOC (HMI)	2	2028	2	2028
ASPIRE-ENBD - Prototype Development	3	2024	3	2027
ASPIRE-ENBD - Prototype Testing and Evaluation	4	2024	4	2027
ASPIRE-ENBD - Transition to ASPIRE Next Generation Respirator	2	2027	2	2028
BOT MAB - Manufacturing	1	2023	4	2024
BOT MAB - Platform Development	1	2023	2	2024
BOT MAB - Clinical and Nonclinical	1	2023	4	2025
BOT MAB - Pre-Emergency Use Authorization (pre-EUA) Submission	1	2026	1	2026
COL PRO CONEX-ENBD - Initial Concept Demonstration	4	2024	4	2024
COL PRO CONEX-ENBD - Concept Design and System Planning	2	2024	4	2024
COL PRO CONEX-ENBD - Iterative Prototyping	4	2024	4	2024
BCIS-ENBD - Iterative Prototyping	1	2025	3	2026
BCIS-ENBD - Milestone B - Milestone B	1	2025	1	2025
BCIS-ENBD - ILS Development	3	2025	4	2026
BCIS-ENBD - Training Development	3	2025	4	2026
BCIS-ENBD - Developmental Test and Evaluation - DT&E	4	2025	2	2026
BCIS-ENBD - Operational Test and Evaluation - OT&E	2	2026	3	2026

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
BCIS-ENBD - Milestone C - Milestone C	1	2027	1	2027
BCIS-ENBD - Production Contract	1	2027	1	2027
PPTS-ENBD - Concept Development and System Planning	1	2024	1	2025
PPTS-ENBD - CWMD OTA Contract Award	3	2024	3	2024
PPTS-ENBD - DT/IT Testing	1	2025	3	2025
PPTS-ENBD - Logistics Demonstration	3	2025	3	2025
PPTS-ENBD - MOT&E	3	2025	1	2026
PPTS-ENBD - Logistics/Sustainment Package Complete	1	2026	1	2026
PPTS-ENBD - Technical Design Package Complete	1	2026	1	2026
PPTS-ENBD - MS C / FRP	2	2026	2	2026
PPTS-ENBD - Final Purchase Contract	2	2026	2	2026
SIS - Requirements Definition Package - Requirements Definition	1	2024	2	2024
SIS - Concept Development and System Planning	2	2024	1	2025
SIS - CWMD OTA Contract Award	3	2025	4	2025
SIS - Initial Prototype Fabrication and Delivery	4	2025	1	2026
SIS - Initial Prototype Testing	4	2025	2	2026
SIS - Modified Prototype Fabrication and Delivery	1	2026	2	2026
SIS - Modified Prototype Testing and User Demo	3	2026	4	2026
SIS - Final Prototype Fabrication and Delivery	1	2027	2	2027
SIS - Technical Data Package and Logistics Package	2	2027	4	2027
SIS - Final Prototype MOT&E and Logistics Demo	3	2027	3	2027
SIS - System Fabrication and Delivery	2	2028	4	2028
UIPE FOS AIR - Fixed Wing Non-Ejection Aircraft Testing	1	2023	4	2023
UIPE FOS AIR - Fixed Wing Ejection Aircraft Integration Testing	1	2023	4	2023
UIPE FOS AIR - Rotary Wing Aircraft Integration Testing	1	2023	4	2023

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
UIPE FOS AIR - Safe to Fly Certification	1	2023	2	2024
UIPE FOS AIR - Safe-to-Fly and Airworthiness Testing	1	2023	4	2023
UIPE FOS AIR - Capability Development Document (CDD) Update	2	2023	2	2023
UIPE FOS AIR - Full Rate Production Decision - 2PUG	2	2023	2	2023
UIPE FOS AIR - Initial Operational Capability - 2PUG	3	2024	3	2024
UIPE FOS AIR - Full Operational Capability - 2PUG	1	2029	1	2029
UIPE FOS GP - Operational Assessment	1	2023	1	2023
UIPE FOS GP - Joint Independent Logistics Assessment (JILA)	3	2023	4	2023
UIPE FOS GP - Manufacturing Readiness Assessment (MRA)	3	2023	4	2023
UIPE FOS GP - Production Initiation Contract	4	2023	4	2023
UIPE FOS GP - Test & Evaluation Master Plan (TEMP) Update	4	2023	2	2024
UIPE FOS GP - Capability Development Document (CDD) Update (if needed)	2	2024	3	2024
UIPE FOS GP - Production Contract Award	2	2024	4	2024
UIPE FOS GP - Milestone C	3	2024	3	2024
UIPE FOS GP - Operational Test and Evaluation	4	2025	1	2026
UIPE FOS GP - Full Rate Production Decision	3	2026	3	2026
UIPE FOS GLOVES - Early User, material and system level testing	1	2023	2	2024
UIPE FOS GLOVES - Mid-Tier Acquisition Rapid Prototype Initiation	1	2023	1	2023
UIPE FOS GLOVES - Mid-Tier Acquisition DT/OT	1	2023	2	2025
UIPE FOS GLOVES - Approved CDD	2	2023	2	2023
UIPE FOS GLOVES - Mid-Tier Acquisition IPR	3	2023	3	2023
UIPE FOS GLOVES - Mid-Tier Acquisition Rapid Prototyping Decision Point	4	2023	2	2024
UIPE FOS GLOVES - Milestone C - Milestone C	2	2025	2	2025
UIPE FOS GLOVES - Full Rate Production Decision - FRP Decision	2	2025	2	2025
VAC SIP - Storage, distribution, potency testing, biosurety compliance activities	1	2023	4	2023

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program			Date: March 2024	
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) PT5 / <i>Protect (SDD)</i>		

Events	Start		End	
	Quarter	Year	Quarter	Year
RAPID - Developmental Test and Evaluation - Storage and stability testing	1	2024	4	2029

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) MT5 / <i>Mitigate (SDD)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
MT5: <i>Mitigate (SDD)</i>	-	66.596	88.441	65.958	0.000	65.958	68.516	80.822	100.320	97.781	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Mitigate System Development & Demonstration (SDD) Project provides the Joint Force the ability to recover from exposure to chemical and biological hazards and quickly return to the fight. Efforts include development of U.S. Food & Drug Administration (FDA) approved medical countermeasures (MCMs) to protect the lives and maintain the battle readiness of the warfighter. Efforts also provide safe, effective MCMs to enable warfighter recovery and return to duty after exposure to chemical threat agents, and reduce logistics needs of decontamination methods with operationally-relevant test methods and allows personnel to reduce Mission-Oriented Protective Posture (MOPP) levels as rapidly as possible. Activities in this project realize considerable efficiencies through cost sharing agreements.

Efforts included in this Project are:

- (1) Alternative Autoinjector Manufacturer Capability (AUTOINJ)
- (2) Countering Emerging Threats Rapid Acquisition and Investigation of Drugs for Repurposing (CET RAIDR)
- (3) Countering Emerging Threats Rapid Acquisition and Investigation of Drugs for Repurposing-Enhanced Biological Defense (CET RAIDR-ENBD)
- (4) Improved Nerve Agent Treatment Centrally Acting (INATS CA)
- (5) Service Equipment Decontamination System (SEDS)
- (6) Tactical Contamination Mitigation System (TCMS)
- (7) Decontamination Family of Systems Contamination Indicator Decontamination Assurance Spray Blister (DFoS CIDAS BLISTER)
- (8) Antiviral Therapeutics (AV TX)
- (9) Forward Area Mobility Spray System (FAMS-S)

The Alternative Autoinjector Manufacturer Capability (AUTOINJ) program expands the industrial base to provide Food and Drug Administration (FDA)-approved alternative source(s) for currently-fielded autoinjectors that deliver Department of Defense (DOD) Nerve Agent (NA) antidote and treatment capabilities to the warfighter. This industrial base expansion reduces the inventory risk of a single source and mitigates capability fielding and operational readiness risks. This program augments legacy autoinjectors - Antidote Treatment Nerve Agent Autoinjector (ATNAA) and AtroPen, by providing alternative commercial sources, which includes the Dual Drug Delivery Device (D4), the Atropine Autoinjector, and Reconstitution Autoinjector Device - Atropine (RAD-A), previously referred to as Wet-Dry Autoinjector. In FY25, the program will be initiating the development of the semi-automated manufacturing line for RAD-A.

The Countering Emerging Threats Rapid Acquisition and Investigation of Drugs for Repurposing (CET RAIDR) program will develop repurposed drugs as medical countermeasures towards known, potential, and emerging threats, bridging the gap from when a threat is identified until targeted countermeasures are available. CET RAIDR will repurpose U.S. Food & Drug Administration (FDA) approved therapeutics to reduce risk to the warfighter by providing medical countermeasures to CBRN threat symptoms. CET RAIDR will evaluate FDA-approved and/or late-stage products through nonclinical studies to repurpose as a CBRN Medical Countermeasure.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) MT5 / <i>Mitigate (SDD)</i>
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Studies will generate safety and efficacy data to support the use of these tested products against CBRN threats. In FY25, the CET RAIDR program will generate data to inform the Clinical Practice Guidelines.

The Countering Emerging Threats Rapid Acquisition and Investigation of Drugs for Repurposing - Enhanced Biological Defense (CET RAIDR-ENBD) program will use nonclinical safety/efficacy model studies to evaluate FDA-approved and/or late stage products to repurpose as a CBRN Medical Countermeasures toward known, potential, and emerging threats, bridging the gap from when a threat is identified until targeted countermeasures are available. Studies will generate safety and efficacy data to support the use of these tested product against CBRN threats. In FY25, the CET RAIDR-ENBD program will generate safety/efficacy model data to inform the Clinical Practice Guidelines.

The Improved Nerve Agent Treatment System Centrally Acting (INATS CA) program will develop the centrally-acting anticholinergic, scopolamine, to increase survivability and decrease morbidity following exposure to toxic nerve agents. When added to currently fielded nerve agent treatments, scopolamine will improve overall medical outcomes and will be available in both a vial for use at definitive care, and in an autoinjector for use in the field. In FY25, INATS CA will complete all non-clinical studies required to support the scopolamine vial new drug application (NDA) submission, continue scopolamine vial stability studies, submit NDA for scopolamine vial, continue functional and environmental testing for the autoinjector device, and begin manufacturing of current Good Manufacturing Practice (cGMP) autoinjector registration lots. Interaction with the FDA through Public Law 115-92 prioritization will continue throughout non-clinical testing, scopolamine vial NDA review and autoinjector development.

The Service Equipment Decontamination System (SEDS) program consists of two efforts, Joint SEDS and Special Operations Forces (SOF) Critical Equipment Decontamination (CEDS), which will develop reliable and modular hardware intended to decontaminate military equipment in operational environments, including personal effects and weapons, to pre-contamination conditions. This capability is needed to reduce logistical burdens in order to increase tactical agility and sustain a resilient force posture and align with the National Defense Strategy (NDS). SEDS and CEDS will provide contamination mitigation capabilities for critical equipment exposed to chemical and biological contamination and achieve efficacy levels that allow unprotected post-decontamination exposures for long periods with less than negligible severity effects. In FY25, Joint Service SEDS Engineering & Manufacturing Development (EMD) Phase continues with Developmental Testing, Operational Testing (DT/OT), and Operational Assessment (OA). In FY25, the CEDS (SOF) will complete DT/OT testing and program documentation in preparation for entry into the Production and Deployment (P&D) phase.

The Tactical Contamination Mitigation System (TCMS) will address gaps related to the decontamination of critical equipment and vehicles and reduce the time and logistics associated with decontamination. TCMS will limit the spread and mitigate the effects of Chemical, Biological, and Radiological (CBR) contamination to allow warfighters to continue their mission for an extended period of time in a high threat, CBR contaminated environment. The effort will mitigate risk to personnel by limiting the potential spread of CBR contamination and eliminate the need for subsequent decontamination to mitigate contamination on military equipment. TCMS, when combined with weathering, may reduce Mission Oriented Protective Posture (MOPP) level requirements. FY25 BA5 funding will achieve Milestone B, conduct critical design review (CDR) and a test readiness review to support the initiation of Development Testing/Operational Testing (DT/OT).

The Decontamination Family of Systems Contamination Indicator Decontamination Assurance Spray Blister (DFoS CIDAS BLISTER) program addresses traditional blister agents, two separate threat scenarios that require different materiel solutions, modernizing a key capability to help build a more lethal force, as outlined in the

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) MT5 / <i>Mitigate (SDD)</i>
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National Defense Strategy. Program efforts terminate in FY24 and all CIDAS Blister programmatic documentation will be archived and the Joint Requirements Office will enter the Capability Development Document (for the CIDAS Blister KSA) in the Knowledge Management/Decision Support tool for Archiving.

The Anti-viral Therapeutics (AV TX) program will develop and deliver a Food and Drug Administration (FDA) approved antiviral therapeutics for the warfighter. The initial therapeutic candidate is a treatment against the Marburg virus. Developed broad spectrum antiviral therapeutics will be employed after suspected or confirmed exposure to the relevant threat agents and AV TX Medical Countermeasures (MCM) will ameliorate the effect of threat agents to the warfighter. In the event of a natural occurring outbreak, antiviral therapeutics can be provided to ensure freedom of operation.

The FAMS-S will provide Special Operations Forces (SOF) and SOF Task Forces (SOTFs) with transportable, rapidly-deployable decontamination systems in three variants: man-portable, small vehicle-mounted, and large vehicle-mounted systems to rapidly decontaminate chemical and biological (CB) agents from the exterior of vehicles and support equipment to a level that is clean enough for re-use during missions without the need for donning CB personal protective equipment. This will maximize tactical flexibility and fighting strength while minimizing the logistical burden and the cost of conducting Countering Weapons of Mass Destruction (CWMD) and CB operations. BA5/RDTE activities closed out in FY23.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Title: 1) AUTOINJ - RAD-A</p> <p>Description: Reconstituting Autoinjector Device - Atropine (RAD-A) development</p> <p>FY 2024 Plans: Initiate formulation and device development with two performers which includes the evaluation of three different formulation methods for atropine. Initiate human factors evaluation of the atropine autoinjector. Initiate technology transfer and batch production of atropine. Initiate equipment purchases and certification/qualification to good manufacturing practice (GMP) standards.</p> <p>FY 2025 Plans: Continue formulation and device development with one performer which includes the evaluation of three different formulation methods for atropine. Continue human factors evaluation of the atropine autoinjector. Continue technology transfer and batch production of atropine. Continue the equipment purchases and certification/qualification to good manufacturing practice (GMP) standards.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding decrease is due to previously planned Alt Midazolam effort which has now been transferred to RAD-A, which was planned to be two performers and now is only one performer.</p>	5.165	35.694	18.669
<p>Title: 2) AUTOINJ - Dual Drug Delivery Device (D4)</p> <p>Description: Food and Drug Administration (FDA) Coordination</p>	0.715	0.776	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) MT5 / <i>Mitigate (SDD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>FY 2024 Plans: Continue FDA submission of FDA application for Dual Drug Delivery Device (D4) & ALT-Diazepam.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease in FY25 due to cost-sharing agreement in place with performer thus no cost to government in FY25.</p>				
<p>Title: 3) CET RAIDR</p> <p>Description: Advanced Development</p> <p>FY 2024 Plans: Continue nonclinical studies to evaluate up to two (2) FDA-approved and/or late-stage products to repurpose as a CBRN Medical Countermeasure. Studies will generate safety and efficacy data to support the use of the tested product against CBRN symptoms.</p> <p>FY 2025 Plans: Continue nonclinical studies to evaluate FDA-approved and/or late-stage products to repurpose as a CBRN Medical Countermeasure. Studies will generate safety and efficacy data to support the use of the tested product against CBRN symptoms.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increased investment provided to support further non-clinical studies to generate additional safety and efficacy data to support drug repurposing.</p>		7.713	13.703	16.022
<p>Title: 4) CET RAIDR-ENBD</p> <p>Description: Advanced Development</p> <p>FY 2024 Plans: Continue safety/efficacy model studies to evaluate FDA-approved therapeutics to repurpose as a CBRN Medical Countermeasure. These studies will generate data to support potential expansion of use against CBRN symptoms.</p> <p>FY 2025 Plans: Continue nonclinical studies to evaluate FDA-approved and/or late-stage products to repurpose as a CBRN Medical Countermeasure. Studies will generate safety and efficacy data to support the use of the tested product against CBRN symptoms.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease in funding due to completion of projects within FY24 and new projects beginning in FY25 with differing costs.</p>		8.329	8.500	7.500
<p>Title: 5) INATS CA - Clinical</p>		-	4.572	4.390

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) MT5 / <i>Mitigate (SDD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Description: Clinical Testing to support FDA approval.</p> <p>FY 2024 Plans: Initiate Bioavailability/Bioequivalent (BA/BE) clinical trial with autoinjector.</p> <p>FY 2025 Plans: Complete the BA/BE clinical trial with the Autoinjector (AI). Clinical testing to support the FDA approval of this novel medical countermeasure for use against nerve agents.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to completion of the clinical trial.</p>				
<p>Title: 6) INATS CA - Manufacturing</p> <p>Description: Manufacture drug product and device development</p> <p>FY 2024 Plans: Continuing manufacturing of registration lots, and stability studies.</p> <p>FY 2025 Plans: Continue vial stability studies, manufacture cGMP scopolamine drug product, and manufacture autoinjector (AI) registration lots.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to ramping down manufacturing activities.</p>		12.017	6.019	5.627
<p>Title: 7) INATS CA - Non-Clinical</p> <p>Description: Non-Clinical Efficacious Studies</p> <p>FY 2024 Plans: Continuing Non-Clinical Studies. Continue Pivotal Animal and Efficacy Studies.</p> <p>FY 2025 Plans: Complete all non-clinical and pivotal safety/efficacy model studies in support of the New Drug Application (NDA) submission.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to bulk of studies occurring in FY24.</p>		9.874	5.652	3.649
<p>Title: 8) SEDS</p>		6.154	11.025	6.398

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) MT5 / <i>Mitigate (SDD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: Engineering, Manufacturing and Development (EMD) activities and Product Development</p> <p>FY 2024 Plans: Continue through the Joint SEDS Engineering, Manufacturing and Development (EMD) phase with Developmental Testing (DT) and post MS B activities. Conduct a CDR and complete EMD phase for SOF.</p> <p>FY 2025 Plans: Joint Service SEDS will continue with Developmental Testing (DT), Operational Testing (OT) and Operational Assessment (OA). SOF CEDS will complete system testing, configuration management and conduct manufacturing readiness.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY25 decrease due to program SOF CEDS transitioning into the Production and Deployment Phase. Joint Service SEDS Program will continue EMD phase until Q2FY26 MS-C decision.</p>			
<p>Title: 9) TCMS</p> <p>Description: Milestone (MS) B support and DT/OT</p> <p>FY 2025 Plans: Achieve Milestone B. Conduct a Critical Design Review (CDR), a Test Readiness Review and initiate Development Testing/Operational Testing (DT/OT).</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY25 increase to initiate Engineering and Manufacturing Development (EMD) phase.</p>	-	-	3.703
<p>Title: 10) DFoS CIDAS BLISTER</p> <p>Description: Blister Indicator Kits and Large Scale Applicators (LSA)</p> <p>FY 2024 Plans: Conduct a Manufacturing Readiness Assessment (MRA) and a Physical Configuration Audit (PCA) with Prime Contractor and complete Operational Testing (OT) in support of Full Rate Production (FRP)/Fielding Decision.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program terminated in FY24, CIDAS Blister program will transition back to Science & Technology (S&T).</p>	3.216	2.500	-
<p>Title: 11) AV TX</p> <p>Description: Enabling Technologies</p>	10.506	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Title: 12) FAMS-S	2.907	-	-
Description: Complete FAMS-S small and large variant prototype development and close out of remaining DT/OT activities.			
Accomplishments/Planned Programs Subtotals	66.596	88.441	65.958

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

Line Item	FY 2023	FY 2024	FY 2025	FY 2025	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Cost To	
			Base	OCO	Total					Complete	Total Cost
• MT4: <i>Mitigate (ACD&P)</i>	16.935	28.785	43.364	-	43.364	44.601	36.558	5.309	11.643	Continuing	Continuing
• MT7: <i>Mitigate (Op Sys Dev)</i>	4.977	3.074	1.987	-	1.987	1.819	1.845	1.862	1.034	Continuing	Continuing
• JD0050: <i>Decontamination Family of Systems (DFoS)</i>	4.795	6.062	4.878	-	4.878	3.891	5.965	4.996	-	Continuing	Continuing
• PHM025: <i>Forward Area Mobility Spray System (FAMS-S)</i>	4.333	4.824	4.724	-	4.724	4.724	4.724	4.889	-	Continuing	Continuing
• PHM040: <i>Improved Nerve Agent Treatment System Centrally Acting (INATS CA)</i>	-	-	-	-	-	-	31.678	39.322	40.108	Continuing	Continuing
• PHM007: <i>Service Equipment Decontamination System (SEDS)</i>	-	-	14.028	-	14.028	22.531	24.920	13.050	11.258	Continuing	Continuing

Remarks

D. Acquisition Strategy

Alternate Autoinjector Manufacturer Capability (AUTOINJ)

The AUTOINJ will identify an alternative source(s) to develop and provide required Food and Drug Administration (FDA)-approved autoinjector-delivered nerve agent antidote and treatment capabilities to the DoD. The AUTOINJ effort leverages novel technologies and industrial base expansion in order to develop the autoinjector products. AUTOINJ uses contracts and Other Transactional Agreements (OTAs) in which the performer shall be responsible for conducting development and testing activities consistent with current FDA regulations. The contractor shall sponsor the combination product to the FDA and hold all approvals and/or licenses. Upon FDA approval, purchases for product sustainment will be made by the Defense Logistics Agency.

Countering Emerging Threats Rapid Acquisition and Investigation of Drugs for Repurposing (CET RAIDR)

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) MT5 / <i>Mitigate (SDD)</i>
<p>Countering Emerging Threats Rapid Acquisition and Investigation of Drugs for Repurposing (CET RAIDR) is an investment program that leverages established manufacturing and safety databases to conduct studies to evaluate U.S. Food & Drug Administration (FDA) approved and late-stage development therapeutics against CBRN threats. Data generated from these efforts will be used to provide a solution to protect the warfighter against CBRN threats that do not have any identified medical countermeasures. CET RAIDR utilizes multiple contracting and management strategies through existing service laboratory Interagency Agreements (IAAs), Cooperative Research and Development Agreements (CRADAs), flexible contracts, Broad Agency Announcements, and Other Transaction Authority (OTA) agreements.</p> <p>Countering Emerging Threats Rapid Acquisition and Investigation of Drugs for Repurposing - Enhanced Biological Defense (CET RAIDR-ENBD)</p> <p>Countering Emerging Threats Rapid Acquisition and Investigation of Drugs for Repurposing - Enhanced Biological Defense (CET RAIDR-ENBD) program will conduct safety/efficacy model studies to evaluate FDA-approved therapeutics against CBRN threats. Data generated from these efforts will be utilized to support potential expansion of use against CBRN symptoms. CET RAIDR ENBD utilizes multiple contracting and management strategies through existing service laboratory IAAs, Cooperative Research and Development Agreements (CRADAs), flexible contracts, Broad Agency Announcements, and Other Transaction Authority (OTA) agreements.</p> <p>Improved Nerve Agent Treatment Centrally Acting (INATS CA)</p> <p>The Improved Nerve Agent Treatment System Centrally Acting (INATS CA) consists of scopolamine in an autoinjector as adjunct therapy to current nerve agent medical countermeasure (MCM) treatments. Addition of scopolamine to existing treatments for nerve agent exposure increases survival of casualties compared to treatment without scopolamine and reduces the logistical burden for additional atropine. The contractors shall be the sponsor and conduct drug development activities to achieve U.S. Food and Drug Administration (FDA) approval of both a vial product, and the drug-device combination product. Upon FDA approval, a follow-on procurement contract will allow the contractor to manufacture and deliver sufficient quantities of the autoinjector to meet Full Operational Capability (FOC). Product sustainment will be the responsibility of Defense Logistics Agency Troop Support. Post marketing commitments and requirements are anticipated as a result of FDA approval and will be the responsibility of the contractor and the government.</p> <p>Service Equipment Decontamination System (SEDS)</p> <p>The SEDS program will utilize the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) to design and develop state of the art equipment using competitive and iterative prototyping. The program will test prototypes against live chemical warfare agents and biological warfare agents, conduct reliability, availability, and maintainability testing, conduct regular user evaluations to identify human system integration issues, and will conduct testing to ensure the system meets military standards. The program will use the Request for Prototype Proposals (RPP), under the CWMD OTA, followed by awards of Prototype Agreements.</p> <p>Tactical Contamination Mitigation System (TCMS)</p> <p>The TCMS will utilize the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) to conduct market research through Requests for Information (RFIs) and a call for White Papers. Data collected will inform a Milestone A decision in FY23. The OTA vehicle will also be used to request prototypes, which</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) MT5 / <i>Mitigate (SDD)</i>

will undergo technology demonstrations and Early Field testing, followed by an analysis to determine the most suitable candidate. Results of Prototyping will inform Milestone B and Request for Proposals (RFPs) followed by developmental and operational testing and Milestone C/Full Rate Production Approval.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / Chemical and Biological Defense Program - EMD	Project (Number/Name) MT5 / Mitigate (SDD)
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
AUTOINJ - HW C - RAD-A	C/CPFF	Kaleo : Richmond, VA	-	0.000		30.372	Dec 2023	14.381	Dec 2024	-		14.381	Continuing	Continuing	0.000
AUTOINJ - HW C - D4	C/CPFF	Emergent Biosolutions : Gaithersburg, MD	-	0.585	Dec 2022	0.000		0.000		-		0.000	0.000	0.585	0.000
AUTOINJ - HW C - Program Management Labor	Various	JPM CBRN Medical, JPEO-CBRND : Fort Detrick, MD	-	0.966	Dec 2022	1.670	Nov 2023	1.009	Dec 2024	-		1.009	Continuing	Continuing	0.000
AUTOINJ - HW C - Direct Product Support	C/CPFF	JPEO Chem, Bio, Rad, and Nuc Defense (JPEO-CBRND) : Aberdeen Proving Ground, MD	-	0.240	Dec 2022	2.011	Nov 2023	1.609	Dec 2024	-		1.609	Continuing	Continuing	0.000
AUTOINJ - HW C - Diazepam	C/CPFF	Emergent Biosolutions : Gaithersburg, MD	-	0.436	Dec 2023	0.000		0.000		-		0.000	0.000	0.436	0.000
AUTOINJ - HW C - Business Case Analysis	MIPR	Booz Allen Hamilton, Inc. : Belcamp, MD	-	0.335	Mar 2023	0.000		0.000		-		0.000	0.000	0.335	0.000
CET RAIDR - HW C - Direct Product Support	Various	Various : N/A	-	1.274	Dec 2022	1.254	Dec 2023	1.328	Dec 2024	-		1.328	Continuing	Continuing	0.000
CET RAIDR-ENBD - HW C - Nonclinical Studies	Various	Various : N/A	-	5.536	Dec 2022	6.787	Dec 2023	6.045	Dec 2024	-		6.045	Continuing	Continuing	0.000
CET RAIDR-ENBD - HW C - Direct Program Support	Various	Various : N/A	-	2.284	Nov 2022	0.778	Dec 2023	0.653	Dec 2024	-		0.653	Continuing	Continuing	0.000
INATS CA - HW C - Clinical	C/CPFF	Battelle Memorial Institute : Columbus, OH	-	3.141	Dec 2022	3.531	Dec 2023	3.555	Dec 2024	-		3.555	Continuing	Continuing	0.000
INATS CA - HW C - Non-Clinical	C/CPFF	Battelle Memorial Institute : Columbus, OH	-	3.529	Nov 2022	4.290	Dec 2023	1.743	Dec 2024	-		1.743	Continuing	Continuing	0.000
INATS CA - HW C - Manufacturing	C/CPFF	Battelle Memorial Institute : Columbus, OH	-	3.424	Mar 2023	0.000		3.917	Dec 2024	-		3.917	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) MT5 / <i>Mitigate (SDD)</i>
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
INATS CA - HW C - Manufacturing	C/FFP	Aktivax : Boulder, CO	-	4.173	Dec 2022	3.915	Dec 2023	0.000		-		0.000	0.000	8.088	0.000
INATS CA - HW C - Program Management Labor	Allot	JPM CBRN Medical, JPEO-CBRND : Fort Detrick, MD	-	3.315	Dec 2022	1.234	Nov 2023	1.800	Dec 2024	-		1.800	Continuing	Continuing	0.000
INATS CA - PM/MS C - Direct Product Support	Various	JPEO Chem, Bio, Rad, and Nuc Defense (JPEO-CBRND) : Aberdeen Proving Ground, MD	-	1.127	Dec 2022	1.486	Nov 2023	1.189	Dec 2024	-		1.189	Continuing	Continuing	0.000
SEDS - HW S - SEDS - Prototypes	C/FFP	ATI Solutions, Inc. : Tysons Corner, VA	-	0.468	May 2023	3.453	Nov 2023	0.813	Nov 2024	-		0.813	Continuing	Continuing	0.000
SEDS - HW S - CEDS	C/CPFF	ATI Solutions, Inc. : Tysons Corner, VA	-	2.295	Sep 2023	1.712	Jan 2024	1.145	Jan 2025	-		1.145	Continuing	Continuing	0.000
TCMS - HW S - Product Development	C/FFP	ATI Solutions, Inc. : Tysons Corner, VA	-	0.000		0.000		2.031	Nov 2024	-		2.031	Continuing	Continuing	0.000
DFoS CIDAS BLISTER - HW S - Small and Large Scale Applicators/Kits	SS/FPIF	FLIR Systems, Inc. : Stillwater, OK	-	0.815	Jan 2023	0.000		0.000		-		0.000	0.000	0.815	0.000
AV TX - HW GFPP - Nonclinical Trials - OTA	C/FP	Gilead Sciences : San Francisco, CA	-	10.506	Dec 2022	0.000		0.000		-		0.000	0.000	10.506	0.000
FAMS-S - HW S - System Development and Prototype Refinement	C/CPIF	ATI Solutions, Inc. : Tysons Corner, VA	-	1.085	May 2023	0.000		0.000		-		0.000	0.000	1.085	0.000
Subtotal			-	45.534		62.493		41.218		-		41.218	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
AUTOINJ - ES C - MITRE	MIPR	Various : N/A	-	0.531	Sep 2023	0.000		0.000		-		0.000	0.000	0.531	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / Chemical and Biological Defense Program - EMD	Project (Number/Name) MT5 / Mitigate (SDD)
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Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
SEDS - ILS S - SEDS - Logistics, Engineering and IPT Support	MIPR	Various : N/A	-	0.000		0.836	Nov 2023	0.911	Nov 2024	-		0.911	Continuing	Continuing	0.000
SEDS - ES S - CEDS	MIPR	Various : N/A	-	0.151	Apr 2023	0.210	Nov 2023	0.337	Nov 2024	-		0.337	Continuing	Continuing	0.000
TCMS - ES S - Logistics, Engineering and IPT Support	MIPR	Various : N/A	-	0.000		0.000		0.300	Nov 2024	-		0.300	Continuing	Continuing	0.000
DFoS CIDAS BLISTER - TD/D S - IPT and Technical Support	MIPR	Various : N/A	-	0.656	Nov 2022	0.375	Nov 2023	0.000		-		0.000	0.000	1.031	0.000
FAMS-S - ES C - Systems Engineer/Technical SME Support	MIPR	Various : N/A	-	0.710	Dec 2022	0.000		0.000		-		0.000	0.000	0.710	0.000
Subtotal			-	2.048		1.421		1.548		-		1.548	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
CET RAIDR - DTE C - Continuing Repurposing Efforts	Various	Various : N/A	-	5.702	Dec 2022	10.942	Dec 2023	13.064	Dec 2024	-		13.064	Continuing	Continuing	0.000
SEDS - OTHT S - SEDS - T&E IPR Test Planning	MIPR	Various : N/A	-	0.000		0.944	Nov 2023	1.902	Nov 2024	-		1.902	Continuing	Continuing	0.000
SEDS - DTE S - CEDS T&E	C/CPFF	MRIGlobal : Kansas City, MO	-	2.820	Nov 2022	3.177	Jan 2024	0.232	Jan 2025	-		0.232	Continuing	Continuing	0.000
TCMS - OTHT S - Prototype T&E IPR Test Planning	MIPR	Various : N/A	-	0.000		0.000		1.020	Nov 2024	-		1.020	Continuing	Continuing	0.000
DFoS CIDAS BLISTER - OTHT S - DT/OT	MIPR	Various : N/A	-	1.462	Nov 2022	1.972	Nov 2023	0.000		-		0.000	0.000	3.434	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / Chemical and Biological Defense Program - EMD	Project (Number/Name) MT5 / Mitigate (SDD)
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Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FAMS-S - DTE S - Decon Solution Analysis	C/CPPF	MRIGlobal : Kansas City, MO	-	0.894	Jan 2023	0.000		0.000		-		0.000	0.000	0.894	0.000
Subtotal			-	10.878		17.035		16.218		-		16.218	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AUTOINJ - PM/MS C - Management Services	Various	Various : N/A	-	2.787	Dec 2022	2.417	Nov 2023	1.670	Dec 2024	-		1.670	Continuing	Continuing	0.000
CET RAIDR - PM/MS S - Management Support	Various	Various : N/A	-	0.737	Nov 2022	1.507	Dec 2023	1.630	Dec 2024	-		1.630	Continuing	Continuing	0.000
CET RAIDR-ENBD - PM/MS S - Management Support	Various	Various : N/A	-	0.509	Dec 2022	0.935	Dec 2023	0.802	Dec 2024	-		0.802	Continuing	Continuing	0.000
INATS CA - PM/MS C - Management Services	Various	JPEO Chem, Bio, Rad, and Nuc Defense (JPEO-CBRND) : Aberdeen Proving Ground, MD	-	3.182	Dec 2022	1.787	Nov 2023	1.462	Dec 2024	-		1.462	Continuing	Continuing	0.000
SEDS - PM/MS C - SEDS - PM/MS S - Program Management Support	MIPR	Various : N/A	-	0.025	Mar 2023	0.341	Nov 2023	0.487	Nov 2024	-		0.487	Continuing	Continuing	0.000
SEDS - PM/MS C - CEDS	MIPR	Various : N/A	-	0.395	Apr 2023	0.352	Nov 2023	0.571	Nov 2024	-		0.571	Continuing	Continuing	0.000
TCMS - PM/MS S - Program Management Support	Various	Various : N/A	-	0.000		0.000		0.352	Nov 2024	-		0.352	Continuing	Continuing	0.000
DFoS CIDAS BLISTER - PM/MS S - Program Management Support	MIPR	Various : N/A	-	0.283	Nov 2022	0.153	Nov 2023	0.000		-		0.000	0.000	0.436	0.000
FAMS-S - PM/MS S - Indirect Program Management	MIPR	JPEO Chem, Bio, Rad, and Nuc Defense (JPEO-	-	0.218	Dec 2022	0.000		0.000		-		0.000	0.000	0.218	0.000

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) MT5 / <i>Mitigate (SDD)</i>
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FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
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

AUTOINJ - Food and Drug Administration Approval - Dual Drug Delivery Device (D4)	
AUTOINJ - Preliminary Design Review - RAD - A	
AUTOINJ - Phase 1 Clinical Trials - RAD - A	
CET RAIDR - Advance Development Efforts to Repurpose FDA Approved Products	
CET RAIDR-ENBD - Advance Development Efforts to Repurpose FDA Approved Products	
INATS CA - Manufacturing/Auto-Injector	
INATS CA - Non-Clinical Studies	
INATS CA - Clinical Trials	
INATS CA - Scopolamine Vial New Drug Application Submission	
INATS CA - New Drug Application Submission	
INATS CA - Scopolamine AI New Drug Application Submission	
INATS CA - Food and Drug Administration Approval	
SEDS - Capability Development Document Validation - Other Services	
SEDS - Early Developmental Testing (Other Services)	
SEDS - Milestone B - Other Services	
SEDS - Developmental Test and Evaluation - Other Services	

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) MT5 / <i>Mitigate (SDD)</i>
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
SEDS - Operational Test and Evaluation - Other Services																												
SEDS - Milestone C - Other Services																												
SEDS - Full Rate Production Decision - Other Services																												
SEDS - Preliminary Design Review - CEDS SOF																												
SEDS - Developmental Test and Evaluation - CEDS SOF																												
SEDS - Milestone B - CEDS SOF																												
SEDS - Operational Test and Evaluation - CEDS SOF																												
SEDS - Milestone C - CEDS SOF																												
SEDS - Initial Operational Capability - CEDS SOF																												
SEDS - Full Operational Capability - CEDS SOF																												
TCMS - Milestone B																												
TCMS - Critical Design Review																												
TCMS - Developmental Test / Operational Test																												
TCMS - System Verification Review/Production Readiness Review																												
TCMS - CDD Update																												
TCMS - Low Rate Initial Production																												
TCMS - Milestone C																												
DFoS CIDAS BLISTER - Knowledge Point																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) MT5 / <i>Mitigate (SDD)</i>
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
DFoS CIDAS BLISTER - System Verification Review (SVR)/Production Readiness Review			■																									
DFoS CIDAS BLISTER - Functional Configuration Audit (FCA)				■																								
DFoS CIDAS BLISTER - Operational Test and Evaluation							■																					
DFoS CIDAS BLISTER - Manufacturing Readiness Assessment							■																					
DFoS CIDAS BLISTER - Close Out Report								■																				
AV TX - Safety/Efficacy Studies (Marburg)	■	■	■	■																								
AV TX - Supplemental New Drug Application (sNDA) (Marburg)							■	■																				
AV TX - Natural History Study (Marburg)	■																											
FAMS-S - Operational Test and Evaluation - Man-Portable Variant		■																										
FAMS-S - Critical Design Review - Man-Portable Variant		■																										
FAMS-S - Operational Test and Evaluation - Small/Large Variants							■	■																				
FAMS-S - Critical Design Review - Small/Large Variants								■																				
FAMS-S - Initial Operational Capability - All Variants															■	■	■	■	■	■								
FAMS-S - Full Operational Capability - All Variants																							■	■	■	■	■	■

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) MT5 / <i>Mitigate (SDD)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AUTOINJ - Food and Drug Administration Approval - Dual Drug Delivery Device (D4)	1	2023	3	2025
AUTOINJ - Preliminary Design Review - RAD - A	4	2023	3	2024
AUTOINJ - Phase 1 Clinical Trials - RAD - A	4	2024	4	2027
CET RAIDR - Advance Development Efforts to Repurpose FDA Approved Products	1	2023	4	2029
CET RAIDR-ENBD - Advance Development Efforts to Repurpose FDA Approved Products	1	2024	4	2029
INATS CA - Manufacturing/Auto-Injector	1	2023	2	2027
INATS CA - Non-Clinical Studies	1	2023	2	2025
INATS CA - Clinical Trials	1	2023	2	2027
INATS CA - Scopolamine Vial New Drug Application Submission	4	2025	2	2026
INATS CA - New Drug Application Submission	4	2025	2	2026
INATS CA - Scopolamine AI New Drug Application Submission	2	2026	1	2027
INATS CA - Food and Drug Administration Approval	1	2027	1	2027
SEDS - Capability Development Document Validation - Other Services	1	2023	2	2023
SEDS - Early Developmental Testing (Other Services)	1	2023	3	2023
SEDS - Milestone B - Other Services	4	2023	4	2023
SEDS - Developmental Test and Evaluation - Other Services	1	2024	3	2025
SEDS - Operational Test and Evaluation - Other Services	4	2025	4	2025
SEDS - Milestone C - Other Services	3	2026	3	2026
SEDS - Full Rate Production Decision - Other Services	4	2027	4	2027
SEDS - Preliminary Design Review - CEDS SOF	1	2023	1	2023
SEDS - Developmental Test and Evaluation - CEDS SOF	2	2023	4	2024

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) MT5 / <i>Mitigate (SDD)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
SEDS - Milestone B - CEDS SOF	4	2023	4	2023
SEDS - Operational Test and Evaluation - CEDS SOF	4	2024	4	2025
SEDS - Milestone C - CEDS SOF	4	2025	4	2025
SEDS - Initial Operational Capability - CEDS SOF	2	2027	2	2027
SEDS - Full Operational Capability - CEDS SOF	4	2028	4	2028
TCMS - Milestone B	2	2025	2	2025
TCMS - Critical Design Review	3	2025	3	2025
TCMS - Developmental Test / Operational Test	3	2025	3	2026
TCMS - System Verification Review/Production Readiness Review	1	2027	1	2027
TCMS - CDD Update	1	2027	1	2027
TCMS - Low Rate Initial Production	2	2027	1	2028
TCMS - Milestone C	2	2027	2	2027
DFoS CIDAS BLISTER - Knowledge Point	3	2023	3	2023
DFoS CIDAS BLISTER - System Verification Review (SVR)/Production Readiness Review	3	2023	3	2023
DFoS CIDAS BLISTER - Functional Configuration Audit (FCA)	4	2023	4	2023
DFoS CIDAS BLISTER - Operational Test and Evaluation	1	2024	1	2024
DFoS CIDAS BLISTER - Manufacturing Readiness Assessment	1	2024	1	2024
DFoS CIDAS BLISTER - Close Out Report	2	2024	2	2024
AV TX - Safety/Efficacy Studies (Marburg)	1	2023	4	2023
AV TX - Supplemental New Drug Application (sNDA) (Marburg)	4	2023	2	2024
AV TX - Natural History Study (Marburg)	1	2023	1	2023
FAMS-S - Operational Test and Evaluation - Man-Portable Variant	2	2023	2	2023
FAMS-S - Critical Design Review - Man-Portable Variant	2	2023	2	2023
FAMS-S - Operational Test and Evaluation - Small/Large Variants	2	2024	3	2024
FAMS-S - Critical Design Review - Small/Large Variants	3	2024	3	2024

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) MT5 / <i>Mitigate (SDD)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
FAMS-S - Initial Operational Capability - All Variants	4	2026	4	2027
FAMS-S - Full Operational Capability - All Variants	4	2027	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program										Date: March 2024		
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0604384BP / Chemical and Biological Defense Program - EMD				Project (Number/Name) EN5 / Enabling Investments (SDD)			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
EN5: <i>Enabling Investments (SDD)</i>	-	13.120	13.835	7.985	0.000	7.985	13.436	11.811	18.542	16.527	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Enabling Investments System Development & Demonstration (SDD) Project provides the capability to rapidly develop, manufacture, and approve medical countermeasures through sustaining the Department of Defense advanced development manufacturing facility. Enabling efforts in this area support dedicated infrastructure capabilities, demonstrations, and overarching development support functions as portfolio enablers responding to emerging threats. Additional efforts facilitate incorporation of chemical and biological (CB) survivability equipment into service major acquisition programs.

Efforts included in this Project are:

- (1) Chemical Biological Incident Preparedness and Response - Advanced Development and Manufacturing (CBIPR-ADM)
- (2) Chemical Biological Incident Preparedness and Response - Secure Biolaboratory Consortium (CBIPR-SBC)
- (3) Major Defense Acquisition Program (MDAP)

The CBIPR-ADM ensures prioritization to domestic biopharmaceutical manufacturing capacities, capabilities, and infrastructure (e.g. the DoD-ADM Facility and other strategic partners) that are operationally ready to rapidly develop and manufacture medical countermeasures (MCMs) against current and emerging chemical and biological threats including pandemic response. Prioritization is achieved by establishing and enhancing proven biopharmaceutical manufacturing platform technologies and infrastructure at these facilities. Thus, these facilities will have the capability to accelerate development of MCMs at all stages of development, enhance preparedness for existing threats, and rapidly respond to emerging threats as part of a medical integrated layered defense. MCMs that benefit from these efforts include: Vaccines for Viral Agents, Vaccines for Bacterial Agents and Toxins, monoclonal antibodies, antibody fragments and conjugates for therapeutic and prophylactic use across all agent classes. In FY25, CBIPR-ADM transitions to CBIPR-SBC based on current incident preparedness and response requirements.

The Chemical Biological Incident Preparedness and Response – Secure Biolaboratory Consortium (CBIPR-SBC) program will establish a robust capability to analyze and characterize inbound threat samples and nucleic acid sequences in classified environment for risk stratification, understanding of pathogenic potential, and response strategy development. Inherent to both characterization and drug development are requirements for a robust laboratory infrastructure up to biosafety level 4 (BSL-4) that can work with highly classified (up to TS/SCI) intelligence data. This capability can be utilized across the Chemical Biological Defense (CBD) Enterprise and will support the GUIDE program to include “live fire” exercises.

The MDAP CBRN Survivability Support and Services (CS3) initiative provides enabling support to DoD programs designated as CBRN Mission Critical or requiring CBRN capabilities. Enabling support facilitates alignment with CBRN capabilities through the following: acquisition strategy, systems engineering, CBRN assessment, technical requirements analysis and management, customized CBRN defense solutions for each weapon system program, development, and integration of CBRN

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024		
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) EN5 / <i>Enabling Investments (SDD)</i>		
equipment, test and evaluation support, logistics support, modeling and simulation support, documentation, technical review support, IPT support, and/or CBRN subject matter expertise.				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Title: 1) CBIPR-ADM Description: Establishing new manufacturing capacities, capabilities, and infrastructure at the DoD ADM. FY 2024 Plans: Continue activities to enhance and optimize known manufacturing platform technologies that will maintain the DoD ADM and other strategic partner facilities in a state of operational readiness to support the development and manufacture of medical countermeasure (MCMs). This approach ensures that the DoD's efforts are not limited to a single facility. FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred to another funding line. Decrease due to funding transition for current incident preparedness and response requirements under CBIPR-SBC.		10.751	11.465	-
Title: 2) CBIPR-SBC Description: Analyze and Characterize Threat Samples FY 2025 Plans: Expand existing capabilities and establish new testing capabilities as required to support CBD Enterprise. Conduct threat characterization studies and MCM screening studies for prototypes generated by the GUIDE program. FY 2024 to FY 2025 Increase/Decrease Statement: Program/project funding transferred from another funding line. Overall program decrease due to revised priorities within the CBIPR portfolio from the CBIPR-ADM transfer to support threat characterization and MCM screening studies.		-	-	5.000
Title: 3) MDAP Description: The MDAP Chemical, Biological, Radiological, and Nuclear (CBRN) Survivability Support and Services (CS3) initiative assists weapon system programs in meeting their CBRN defense requirements. FY 2024 Plans: Provide subject matter expertise in the execution of CBRN survivability requirements for both materiel and non-material solutions. Review and assist in document preparation for milestones and programs reviews. Conduct CBRN survivability compliance reviews for Optionally Manned Fighting Vehicle, Robotic Combat Vehicle, Future Long Range Assault Aircraft, Future Attack Reconnaissance Aircraft, Synthetic Training Environment, Precision Navigation and Timing, multiple Soldier Lethality programs,		2.369	2.370	2.985

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) EN5 / <i>Enabling Investments (SDD)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
and other CBRN survivability system integration in preparation for various program acquisition milestones, design reviews and low rate initial production reviews. FY 2025 Plans: Increase subject matter expertise in the execution of CBRN survivability requirements for both materiel and non-material solutions. Review and assist in document preparation for milestones and programs reviews. Conduct CBRN survivability compliance and interoperability reviews for CBRN on major acquisition efforts for the Joint Force, to include; CCMD Deployed Unit Assessment, Foreign Comparative Test (FCT) for Optionally Manned Fighting Vehicle, CBRN Survivability studies, Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite Upgrade COEs, Stryker Predictive Maintenance Pilot testing, CBRN Equipment Prepositioning Assessments, warfighter Integrated Sensor Ensemble, Contested Environment Chemical- Kinetic Single Operating Location Table Top Exercises and Maneuver Contaminated Operating Environment Table Top Exercises. FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to additional subject matter experts addressing CBRN Survivability and Interoperability risk for USAF, USA and USMC major acquisition programs & efforts.			
Accomplishments/Planned Programs Subtotals	13.120	13.835	7.985

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• EN4: <i>Enabling Investments (ACD&P)</i>	6.645	47.272	35.700	-	35.700	23.500	17.800	25.800	20.200	Continuing	Continuing

Remarks

D. Acquisition Strategy

Chemical Biological Incident Preparedness and Response Advanced Design Manufacturing (CBIPR-ADM)

By establishing new capabilities at the DoD-ADM Facility and other strategic partners, the CBIPR-ADM line ensures that the DoD will have priority access to critical technologies and infrastructure that are operationally ready to support the rapid development and manufacture of MCMs. The CBIPR-ADM line will continue to establish, enhance, and optimize new manufacturing platform technologies and infrastructure to support the production of MCMs. These new manufacturing technologies can come from any government sources (including Joint Science & Technology Office for Chemical Biological Defense (JSTO-CBD), the Walter Reed Army Institute of Research (WRAIR), the Biomedical Advanced Research and Development Authority (BARDA), etc. when mature enough for BA4 funding) and/or other external sources and targets of opportunity from industry.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) EN5 / <i>Enabling Investments (SDD)</i>
Chemical Biological Incident Preparedness and Response - Secure Biolaboratory Consortium (CBIPR-SBC)		
<p>The CBIPR-SBC program will leverage existing agreements with the Department of Homeland Security (DHS) to utilize and build upon the existing classified research capability at the National Biodefense Analysis and Countermeasures Center (NBACC). Existing capabilities will be expanded, and new capabilities established as required at the NBACC facility. Leveraging existing agreements with DHS and utilizing the NBACC facility allows the CBIPR-SBC program to have an immediate capability for conducting secure classified research in support of the CBD enterprise.</p> <p>Major Defense Acquisition Program (MDAP)</p> <p>MDAP effort provides CBRN capability requirements integration support to Major Defense Acquisition Programs, Services, and Program Executive Offices. Cross-walk requirements with program execution plans, introduce new/existing materiel solutions, develop common integrated CBRN solutions, support Modernization and Readiness efforts.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program												Date: March 2024				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
0400 / 5				PE 0604384BP / Chemical and Biological Defense Program - EMD				EN5 / Enabling Investments (SDD)								
Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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	
CBIPR-ADM - HW S - Capability Optimization	C/CPFF	Resilience Government Services, Inc. : Alachua, Florida	-	9.946	Dec 2022	10.763	Dec 2023	0.000		-		0.000	0.000	20.709	0.000	
CBIPR-SBC - HW S - Product Development	Various	TBD : N/A	-	0.000		0.000		4.785	Dec 2024	-		4.785	Continuing	Continuing	0.000	
Subtotal			-	9.946		10.763		4.785		-		4.785	Continuing	Continuing	N/A	
Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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	
MDAP - TD/D SB - IPT and Technical Support	MIPR	Various : N/A	-	2.081	Nov 2022	0.921	Jan 2024	1.519	Jan 2025	-		1.519	Continuing	Continuing	0.000	
Subtotal			-	2.081		0.921		1.519		-		1.519	Continuing	Continuing	N/A	
Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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	
MDAP - OTHT C - Non CBRN Platform Interoperability and Survivability T&E	MIPR	Various : N/A	-	0.000		0.900	Mar 2024	1.116	Feb 2025	-		1.116	Continuing	Continuing	0.000	
Subtotal			-	0.000		0.900		1.116		-		1.116	Continuing	Continuing	N/A	

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / <i>Chemical and Biological Defense Program - EMD</i>	Project (Number/Name) EN5 / <i>Enabling Investments (SDD)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CBIPR-ADM - MCM Enabling Manufacturing Technologies	1	2023	4	2024
CBIPR-ADM - MCM Development and Manufacturing Support (Infrastructure)	1	2023	4	2024
CBIPR-SBC - Capability expansion/new capability establishment	1	2025	4	2026
CBIPR-SBC - Characterization and MCM screening studies	1	2025	4	2029
CBIPR-SBC - Non-clinical Proof of Concept Studies	1	2026	4	2029
MDAP - USAF Generating Sorties In A Contested Environment (GSICE) Chemical - Kinetic Attack On A Single Operating Location (CK SOL) TTX 3	2	2023	3	2024
MDAP - European Command (EUCOM) Deployed Unit Assessment 2023	1	2024	4	2024
MDAP - CBRN Portfolio Concepts of Employment (CONEMP) Product Development	1	2024	4	2024
MDAP - Space Wargame Analysis Tool (SWAT) CBRN Hazards Update	4	2023	4	2024
MDAP - Tactical Radio Nuclear Survivability Test	1	2024	4	2024
MDAP - USMC CBRN Equipment Prepositioning Assessment 2023-2024	2	2024	4	2024
MDAP - Armored BCT Simulation Experiment (SIMExp)	1	2024	3	2024
MDAP - Stryker Predictive Maintenance Pilot#1	4	2023	3	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605384BP / <i>Chemical and Biological Defense Program</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	0.000	124.464	74.382	79.263	0.000	79.263	82.024	81.040	78.490	77.926	Continuing	Continuing
LS6: <i>Laboratory Support (Mgmt Support)</i>	-	9.995	10.290	10.290	0.000	10.290	10.290	10.290	10.290	11.156	Continuing	Continuing
MS6: <i>Management Support (Mgmt Support)</i>	-	52.270	64.092	68.973	0.000	68.973	71.734	70.750	68.200	66.770	Continuing	Continuing
DW6: <i>Major Range And Test Facility Base (Mgmt Support)</i>	-	62.199	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	62.199

A. Mission Description and Budget Item Justification

This program element (PE) resources to research, development, test, and evaluation (RDT&E) management support as a key enabler across the Understand, Protect, Mitigate, and Enabling Investments portfolios. Chemical Biological Defense Program (CBDP) investments provide an integrated, layered capability to enable combating weapons of mass destruction (CWMD) missions ranging from combat operations to Department of Defense (DoD) support to domestic incident prevention and response. The Projects in this PE support sustainment and modernization of laboratory infrastructure, test capabilities, studies and analyses, Joint doctrine and training, and program and financial management support. FY25 funding accelerates characterization and situational awareness of emerging biothreats and accelerates delivery of improved protection from and mitigation of biothreats, including rapid repurposing of available therapeutics and development of new vaccines.

Individual Projects include:

- Laboratory Support (LS6): Operating support for sustainment and modernization efforts for surety laboratory infrastructure in order to maintain and enhance DoD infrastructure capabilities to counter an expanding threat space, exploit advances in technology, and develop and transition CB defense equipment and countermeasures to the Warfighter.
- Management Support (MS6): Management support for the DoD CBDP to allow program overview and integration of overall medical and non-medical programs by the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs (ASD(NCB)), through the Deputy Assistant Secretary of Defense for Chemical Biological Defense (DASD(CBD)).
- Major Range and Test Facility Base (MRTFB) (DW6): Operating support to West Desert Test Center (WDTC) and BioTesting Division (Chemical Biological Center) for the required institutional test operating costs (e.g., institutional civilian and contractor labor; repair and maintenance of test instrumentation, equipment, and facilities; and replacement of test equipment). Beginning in FY24, Project DW6 will functionally transfer program and funding to the 2040 appropriation, PE 0605601A / Project WD1, West Desert Test Center.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605384BP / <i>Chemical and Biological Defense Program</i>
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B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	126.432	74.382	73.757	-	73.757
Current President's Budget	124.464	74.382	79.263	-	79.263
Total Adjustments	-1.968	0.000	5.506	-	5.506
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.968	-			
• Other Adjustments	-	-	5.506	-	5.506

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: DW6: *Major Range And Test Facility Base (Mgmt Support)*

Congressional Add: *Chemical/Biological Defense Testing*

	FY 2023	FY 2024
Congressional Add Subtotals for Project: DW6	4.200	-
Congressional Add Totals for all Projects	4.200	-

Change Summary Explanation

Funding: FY 2023 (-\$1.968 Million): Transfer of funding to support Small Business Innovative Research/Small Business Technology Transfer efforts.

FY 2025 (\$5.506 Million): The overall increase of (\$5.506 Million) includes an increase to support updates to CBDP Capabilities Based Assessments and the expansion of CBDP data processes with advanced analytical capabilities to streamline and integrate program life-cycle activities (+\$6.772 Million), a RDT&E Management Support adjustment to support DoD high priority efforts (-\$2.032 Million), and a inflation rate adjustment increase (+\$0.766 Million).

Schedule: N/A

Technical: N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program										Date: March 2024		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605384BP / <i>Chemical and Biological Defense Program</i>				Project (Number/Name) LS6 / <i>Laboratory Support (Mgmt Support)</i>			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
LS6: <i>Laboratory Support (Mgmt Support)</i>	-	9.995	10.290	10.290	0.000	10.290	10.290	10.290	10.290	11.156	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Laboratory Support Research, Development, Test, and Evaluation (RDT&E) Management Support Project provides Department of Defense (DoD) laboratory infrastructure sustainment and modernization to upgrade key systems to current state-of-the-art capabilities. Ensures that the necessary surety operations can be conducted effectively and safely in support of the Chemical and Biological Defense Program (CBDP). Provides increased robust capabilities to the CBDP and ensures continuity of operations and environmental compliance.

Efforts included in this Project are:

- (1) U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) Laboratory Infrastructure, and
- (2) U.S. Army Medical Research and Development Command (MRDC) Laboratory Infrastructure

DEVCOM CBC laboratory infrastructure provides sustainment and modernization to research and develop CB defense capabilities that enable the Joint Force to fight and win in contested environments. CBC explores, assesses, and demonstrates operational utility of Integrated Early Warning and Integrated Layered Defense approaches that impact the warfighter's ability to manage operational decisions while playing a critical role in modernizing the Army and DoD's biodefense capabilities. CBC assesses and characterizes emerging threats in order to prevent use and avoid surprise in addition to exploring technology integration of CB defense capabilities into combat platforms thus unencumbering the warfighter.

MRDC laboratory infrastructure provides for laboratory operations, facilities sustainment, and regulatory compliance for critical CB defense activities at the U.S. Army Medical Research Institute for Infectious Diseases (USAMRIID) and the U.S. Army Medical Research Institute for Chemical Defense (USAMRICD) to counter an expanding threat space, exploit advances in technology, and develop and transition CB defense equipment and countermeasures to the warfighter.

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

	FY 2023	FY 2024	FY 2025
Title: 1) LABINF - Chemical Biological Center (CBC) Laboratory Infrastructure	8.685	8.849	8.849
Description: DEVCOM CBC provides for the sustainment and modernization of the Department of Defense (DoD) laboratory infrastructure capabilities to counter an expanding threat space, exploit advances in technology, and develop and transition innovative chemical, biological, radiological, nuclear and explosive (CBRNE) defense capabilities to enable the joint warfighter's dominance on the battlefield and interagency defense of the homeland.			

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) LS6 / <i>Laboratory Support (Mgmt Support)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p><i>FY 2024 Plans:</i> Continues sustainment and modernization efforts that support chemical and biological research, development, and life-cycle engineering capabilities at DEVCOM CBC. Supports permeation testing of military issued gloves, airline hoses, and other permeable, semi-permeable, and non-permeable materials used to support the warfighter. Supports First Article Production Lot Acceptance testing as dictated by various military specifications. Modernizes two steam baths used in the decontamination of chemical agent contaminated test articles that support both the warfighter and first responders.</p> <p><i>FY 2025 Plans:</i> Will provide ongoing sustainment and modernization efforts of existing CBRNE test infrastructure at DEVCOM CBC, necessary for the safe operation of biological and chemical surety laboratories, chambers, and associated facilities that support research, development, and life-cycle engineering capabilities at DEVCOM CBC. Will modernize critical infrastructure systems and conduct routine life-cycle and use-related maintenance activities of existing components and equipment. Infrastructure will support surety operations for DTRA JSTO and JPEO CBRND. DEVCOM CBC will test, validate, and ensure product lot acceptance of materials used in individual and collective protection filters. DEVCOM CBC will provide live testing on respirator equipment in support of NIOSH's CBRN respirator certification program that serves domestic first responders.</p>			
<p><i>Title:</i> 2) LABINF - Medical Research and Development Command (MRDC) Laboratory Infrastructure</p> <p><i>Description:</i> U.S. Army Medical Research Institute for Infectious Diseases (USAMRIID) and the U.S. Army Medical Research Institute for Chemical Defense (USAMRICD) provides support to laboratory infrastructure for laboratory operations, facilities sustainment, and regulatory compliance for critical chemical biological defense activities.</p> <p><i>FY 2024 Plans:</i> Continue to support laboratory infrastructure for laboratory operations, facilities sustainment, and regulatory compliance for critical chemical and biological defense activities at USAMRIID and USAMRICD. Support includes elements of laboratory support operations, maintenance and repair of existing capabilities, chemical and biological agent security, quality systems compliance, chemical and biological safety, key maintenance contracts, and/or research protections. Reimburse provider for Joint Worldwide Intelligence Communications System (JWICS) access at USAMRICD for Top Secret (TS) and TS/SCI onsite communication. The SCIF ensures USAMRICD meets all security regulations and policies related to its chemical defense mission.</p> <p><i>FY 2025 Plans:</i> Continue to support laboratory infrastructure for laboratory operations; facilities sustainment, maintenance and repair; chemical and biological agent security and surety; quality, safety and regulatory compliance for critical chemical and biological defense activities at USAMRIID and USAMRICD. USAMRICD supports security and facility related requirements to include security in</p>	1.310	1.441	1.441

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) LS6 / <i>Laboratory Support (Mgmt Support)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
depth, changes due to research capabilities, sensitive compartmented information facility operations, security administrative requirements, and Joint Worldwide Intelligence Communications System (JWICS) maintenance requirements.			
Accomplishments/Planned Programs Subtotals	9.995	10.290	10.290

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) MS6 / <i>Management Support (Mgmt Support)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
MS6: <i>Management Support (Mgmt Support)</i>	-	52.270	64.092	68.973	0.000	68.973	71.734	70.750	68.200	66.770	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Management Support Research, Development, Test, and Evaluation (RDT&E) Project provides management support for the Department of Defense (DoD) Chemical and Biological Defense Program (CBDP). It includes program oversight and integration of overall non-Chemical Biological Radiological Nuclear (CBRN) Defense Equipment (non-CDE) and CBRN Defense Equipment (CDE) programs by the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs (ASD(NCB)) and defense programs through the Deputy Assistant Secretary of Defense for Chemical and Biological Defense (DASD(CBD)).

Efforts included in this Project are:

- (1) Biological Select Agent and Toxins (BSAT) Biorisk Program Office (BBPO),
- (2) Biodefense Materiel Readiness Common Operating Picture (BDMR COP),
- (3) Executive Agent Management (EA MGT),
- (4) Joint Acquisition CB Knowledge System Defense Business System (JACKS DBS),
- (5) Joint Concepts, Studies, and Analysis (JCSA),
- (6) Joint Requirements Office Management (JRO MGT),
- (7) Joint Test Infrastructure Working Group (JTIWG),
- (8) Office of the Secretary of Defense Management (OSD MGT),
- (9) Joint CBRN Defense Program Analysis and Integration Office Management (PAIO MGT), and
- (10) Workforce and Biosafety - Enhanced Biodefense (WB-ENBD)

BSAT BBPO supports the DoD EA and EA Responsible Official (EARO) for BSAT Biosafety and Biosecurity Programs in their responsibilities for mission oversight, technical review, inspection, harmonization of biosafety and biosecurity protocols and procedures across DoD laboratories handling BSAT. Efforts also support the Scientific Gaps in Biorisk Research Program (SGBRP) to address gaps in scientific knowledge to facilitate validation of BSAT protocols and procedures. Closing these gaps will reduce the inherent risks associated with BSAT research in CBDP laboratories and supports research and development work on priority agents. Research projects, selected from an order of merit list are funded for one year.

The BDMR COP will increase situational awareness of biodefense readiness through a biodefense logistics common operating picture (COP) to ensure preparedness and enable a more rapid response to biological threats. The platform will enable the biodefense enterprise to monitor assets and acquisition programs to consolidate data streams into executive dashboards, working level planning tools to provide material readiness status, and provide supply chain visibility and illuminations. This situational awareness of required biodefense materiel capabilities, including medical and non-medical personal protective equipment, will also enable leaders to track

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) MS6 / <i>Management Support (Mgmt Support)</i>

and manage the necessary capabilities to protect the Total Force and mitigate the effects of biological incidents. This effort will enable a holistic approach to addressing supply chain risk management, resiliency and security to across the entire biological defense aperture.

EA MGT, as the DoD Executive Agent for the CBDP, is responsible for coordinating and integrating research, development, test, and evaluation and acquisition requirements of the Military Departments and National Guard Bureau; and reviewing all funding requirement through the Planning, Programming, Budgeting, and Execution (PPBE) process for the CBDP enterprise.

JACKS DBS is a flexible, web-hosted CBRN data warehouse that provides the Warfighter, first responders and other users with a centralized, authoritative, and comprehensive source of CBRN information. JACKS also supports the acquisition domain by utilizing cutting edge information technology solutions and business intelligence tools to provide the Joint Force with the ability to mine data and create interactive data visualizations.

JCSA, through the Joint Requirements Office (JRO) for CBRN Defense, a Chairman's Controlled Activity aligned under the Joint Staff J8, is responsible for supporting foundational Joint Concepts development, studies, and analyses to enable requirements and capabilities development of both medical and physical CBRN defense systems; coordinates WMD/CBRN threat information requirements; and conducts integrated CBRN risk assessments.

JRO MGT, through the Joint Requirements Office (JRO) for CBRN Defense, a Chairman's Controlled Activity aligned under the Joint Staff J8, is responsible for representing the Services and Combatant Commands (CCMD) in the requirements generation process for the development of Joint materiel and non-materiel solutions in the medical and physical CBRN defense mission areas. Directly supports the improvement of CBRN defense-related leadership development, education, and training at the Joint and Service levels and provides technical and subject matter expert support in the areas of CBRN Defense/Countering Weapons of Mass Destruction (CWMD), including during CCMD exercises.

JTIWG, through the Chemical, Biological, Radiological and Nuclear Defense (CBRND) Test and Evaluation (T&E) Executive, is responsible for the planning, balancing, and oversight of test infrastructure and test technology requirements to support Developmental Testing (DT) and Operational Testing (OT) of DoD CBRND systems. The JTIWG program supports T&E Early Involvement; test threat planning; T&E studies; and T&E standards planning and development to support CBRND testing for all Services to include medical T&E efforts. The CBRND T&E Executive oversees the Enterprise processes to develop and sustain standardized T&E methodologies and validated instrumentation and infrastructure to ensure the adequacy of test for CBRND systems in alignment with acquisition milestones and associated decision points. The CBRND T&E Executive provides the T&E infrastructure investment strategy and coordinates investment planning and T&E capabilities validation among the Joint Service Community to ensure that program needs are met. The CBRND T&E Executive oversees the T&E processes to ensure end to end feedback loops to support to the Warfighter.

OSD MGT performs program reviews/assessments, provides programmatic PPBE oversight/analysis, provides Congressional issue analysis and support, and financial management. OSD MGT also provides the CBDP Enterprise all aspects of accounting, to include financial statements, reconciliation of budgetary and proprietary accounts, and compliance.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) MS6 / <i>Management Support (Mgmt Support)</i>
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PAIO MGT conducts independent analysis and provides objective advice to the CBDP and the Countering Weapons of Mass Destruction (CWMD) stakeholders to inform senior leader decision-making across the DoD and whole of government partners. PAIO ensures CBRN defense programs mission areas, policies, and processes support operational requirements, promotes efficiency and readiness, and enhances data management and advanced analytics capabilities to streamline administration of program life-cycle activities.

WB-ENBD provides centralized DoD expertise, implements biosafety improvements, and adds protections for CBDP defense industrial supply chain, tools and intellectual property.

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

	FY 2023	FY 2024	FY 2025
<p>Title: 1) BSAT RSRCH SPT</p> <p>Description: Scientific Gaps in Biorisk Research Program (SGBRP) Support</p> <p>FY 2024 Plans: Select gap research projects based on a new order of merit list, while remaining in accordance with the Scientific Gap Biorisk Research Program (SGBRP) Charter.</p> <p>FY 2025 Plans: Select gap research projects based on a new order of merit list, while remaining in accordance with the Scientific Gap Biorisk Research Program (SGBRP) Charter.</p>	0.733	0.806	0.806
<p>Title: 2) OSD BIOSAFETY</p> <p>Description: Biological Select Agent and Toxins (BSAT) Support</p> <p>FY 2024 Plans: Continue to maintain the Joint Interagency Biorisk Program System (JIBS) (Defense BSAT Business System), continue to perform laboratory site visits, participate and oversee laboratory inspections, execute stakeholders meetings, BSRP meetings, SGBRP committees, contribute towards harmonization of the biosafety and biosecurity across DoD BSAT registered laboratories.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to the BBPO operations salary funding transitioning to Army Funding.</p>	1.824	1.955	-
<p>Title: 3) BDMR COP</p> <p>Description: Enables a logistic common operating picture (COP) framework and platform for biodefense supply chain risk management.</p> <p>FY 2024 Plans:</p>	-	5.200	4.800

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Initiate management support and activities for the execution of a logistic COP to enable situational awareness across biodefense materials to include both medical and non-medical personal protective equipment. Supports multiple support contracts to enable a holistic view to ensure complete readiness across biological defense material solutions.</p> <p>FY 2025 Plans: Continue management support and activities for the execution of a logistic COP to enable situational awareness across biodefense materials to include both medical and non-medical personal protective equipment. Support multiple support contracts to enable a holistic view to ensure complete readiness across biological defense material solutions.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to alignment with platform development acquisition strategy.</p>			
<p>Title: 4) EA MGT</p> <p>Description: Executive Agent Management Support</p> <p>FY 2024 Plans: Provide subject matter expertise and acquisition program management to work across research, development, test and evaluation and acquisition functions. Conduct reviews and assessments of current CBRN strategy, guidance and plans to identify and inform solutions for issues requiring EA decision, coordination, and integration.</p> <p>FY 2025 Plans: Provide subject matter expertise and acquisition program management to work across research, development, test and evaluation and acquisition functions. Conduct reviews and assessments of current CBRN strategy, guidance and plans to identify and inform solutions for issues requiring EA decision, coordination, and integration.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Minor decrease due to adjustments in service support costs.</p>	0.854	1.024	0.997
<p>Title: 5) JACKS DBS</p> <p>Description: Provided an authoritative and comprehensive set of web-based applications and analytic tools supporting the CBRN community with a centralized repository of CBRN systems acquisition and operations & sustainment support information.</p> <p>FY 2024 Plans:</p>	3.181	3.650	3.591

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>JACKS will begin developing and deploying data marts into the JACKS Data Warehouse to reposition JACKS data into compartmentalized areas. The JACKS data marts will enable JACKS users to quickly make informed business decisions by curating authoritative Chemical Biological Defense Program data from various sources into a centralized location.</p> <p>FY 2025 Plans: JACKS DBS will continue developing and deploying data marts into the JACKS Data Warehouse to reposition JACKS data into compartmentalized areas. The compartmentalized areas will then feed into various web-based decision making tools that will enable JACKS users to quickly analyze data and make informed decisions.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to reduction of data needed for analytics reporting.</p>			
<p>Title: 6) JCSA</p> <p>Description: Funds will support the conduct of studies/assessments and analysis in support of new start and approved acquisition program requirements development to meet milestone decisions in coordination with the DASD(CBD) and CBDP Component organizations.</p> <p>FY 2024 Plans: Funds will be used to conduct studies/assessments and analysis in support of approved acquisition program requirements development to meet milestone decisions in coordination with the DASD(CBD) and CBDP Component organizations. Funding will additionally be used to plan and conduct CASSANDRA 24, the preeminent CBRN-focused Operational Risk Analysis exercise. Lastly, funds will continue to support detailed operational risk analyses to support CBDP leadership decisions and Joint Force planning constructs.</p> <p>FY 2025 Plans: Conduct six Analysis of Alternatives (AoAs) in FY25. JRO will additionally plan and conduct all modelling and scenario development for Combatant Command-focused CASSANDRA exercises, to prioritize gaps and solutions and inform CBRN-focused Operational Risk Analysis to support CBDP leadership decisions. JRO will continue to support additional Capability Based Assessments (CBAs) as tasked in the CBDP CBA Framework.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase from FY24 to FY25 is due to new dedicated funding for CBAs.</p>	2.681	1.320	5.054
<p>Title: 7) JRO MGT</p>	7.521	9.158	9.051

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: Funding supports the organizational mission to facilitate CJCS development of military advice through the assessment of capability needs, identification of capability gaps, and development of Joint CBRN operational capability requirements to meet the National Defense Strategy, pursuant to 10USC163 & 181.</p> <p>FY 2024 Plans: Funds will continue to represent the Services and Combatant Commands (CCMD) in the requirements generation process for Joint materiel and non-materiel solutions in the medical and physical CBRN defense mission areas; conduct foundational studies for the combating weapons of mass destruction (CWMD) / CBRN defense community; provide support to Joint and Multi-service doctrine development, including the preparation of various Joint publications which then inform Multi-service Tactics, Techniques and Procedures (MTTPs). Continue to support CBRN/CWMD training efforts at various Joint Senior Leadership schools. Continue to support CCMD scenario development and controller/evaluator training and provide expertise to CCMD exercises. Continue to chair the CWMD Working Group to ensure synchronized Joint Capabilities Integration and Development System (JCIDS) documents are appropriately vetted and staffed prior to being brought to the Protection Functional Capabilities Board (P-FCB). Continue to chair the CBRN Support to Command and Control Sub-working Group supporting the C4Cyber Functional Capabilities Board (FCB) include the preparation and validation of Capability Development Packages and Capability Packages.</p> <p>FY 2025 Plans: JRO will continue to represent the Services and Combatant Commands (CCMD) throughout the JCIDS process through the development of Joint materiel and non-materiel solutions in the medical and physical CBRN defense mission areas and conduct foundational studies and analysis for the CBRN defense community. JRO will additionally support CCMD scenario development and controller/evaluator training and provide subject matter expertise to CCMD exercises. Lastly, JRO will continue to chair the CBRN Support to Command and Control Sub-working Group supporting the C4Cyber Functional Capabilities Board (FCB) include the preparation and validation of Capability Development Packages and Capability Packages.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to adjustments in service support costs aligned with contract recompetete.</p>			
<p>Title: 8) JTIWG</p> <p>Description: JTIWG funds the mission tasks for the CBRN T&E Executive</p> <p>FY 2024 Plans: Continue Test and Evaluation (T&E) Executive mission support to ensure credible testing; T&E Early Involvement; T&E Studies; evaluation and decision support for CBDP systems; support the Director of Operational T&E (DOT&E) for OSD T&E Oversight; support the NCB in infrastructure planning; continue efforts to develop, refine, and/or streamline processes for</p>	4.914	6.286	6.116

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>identifying, assessing, and addressing gaps in T&E capabilities to ensure timely support to acquisition programs. Continue mission to improve the quality and reduce the costs of test planning and execution; eliminate unnecessary redundancies in test infrastructure. Continue efforts to identify and mitigate critical T&E capability gaps in order to reduce cost/test schedule impacts to near-term programs. Continue aligning and streamlining policies and processes to support more efficient and effective management and sustainment of test infrastructure and methodologies.</p> <p>FY 2025 Plans: Continue Test and Evaluation (T&E) Executive mission support to ensure credible testing; T&E Early Involvement; T&E Studies; evaluation and decision support for CBDP systems; support the Director of Operational T&E (DOT&E) for OSD T&E Oversight; support the NCB in infrastructure planning; continue efforts to develop, refine, and/or streamline processes and policies for identifying, assessing, and addressing gaps in T&E capabilities to ensure timely support to acquisition programs and reduce cost/test schedule. Continue mission to improve the quality and reduce the costs of test planning and execution; eliminate unnecessary redundancies in test infrastructure.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to support needs for T&E early engagement activities.</p>			
<p>Title: 9) OSD MGT</p> <p>Description: OSD Management Support</p> <p>FY 2024 Plans: Funds continue performing program reviews/assessments, providing planning, programming, budgeting, and execution (PPBE) oversight/analysis, and providing Congressional issue analysis and support. Supporting financial management services provided by the Defense Threat Reduction Agency (DTRA), such as funding distribution and execution reporting. Continue to provide the CBDP Enterprise all aspects of accounting; financial statements; reconciliation of budgetary and proprietary accounts, processing of commitments and obligations; financial accounting compliance; funds management and control; management of the Managers' Internal Control Program and financial systems integration and coordination.</p> <p>FY 2025 Plans: Continue performing program reviews/assessments, providing planning, programming, budgeting, and execution (PPBE) oversight/analysis, and providing Congressional issue analysis and support. Supports financial management services provided by the Defense Threat Reduction Agency (DTRA), such as funding distribution and execution reporting. Continue to provide the CBDP Enterprise all aspects of accounting; financial statements; reconciliation of budgetary and proprietary accounts, processing</p>	15.744	18.001	17.996

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
of commitments and obligations; financial accounting compliance; funds management and control; management of the Managers' Internal Control Program and financial systems integration and coordination. FY 2024 to FY 2025 Increase/Decrease Statement: Minor decrease due to adjustment in surge support for governance activities.			
Title: 10) PAIO MGT Description: Program Analysis and Integration Office Management Support FY 2024 Plans: Continue to provide independent analysis and objective advice to ensure CBDP programs, policies, and processes support operational requirements, promote efficiency and readiness, and meet Department level strategies. Continue to evaluate CB defense plans, programs, and budgets to measure portfolio effectiveness and identify alternative approaches. Develop CBDP data processes to promote analytics tools and methods for analyzing CB defense planning and resource allocations. FY 2025 Plans: Continue to provide independent analysis and objective advice to ensure CBDP programs, policies, and processes support operational requirements, promote efficiency and readiness, and meet Department level strategies. Continue to evaluate CB defense plans, programs, and budgets to measure portfolio effectiveness and identify alternative approaches. Expand CBDP data processes for advanced analytics capabilities. FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to expanded mission efforts supporting data processes for integrated, near-real time advanced analytics informing data-driven decisions.	8.551	9.692	13.762
Title: 11) WB-ENBD Description: This effort will focus on Biodefense and Biosafety Expertise & Technology Protection & Supply Chain Risk Management (Biosecurity) FY 2024 Plans: Support CBDP biosafety and biosecurity (biorisk) priorities through biosafety personnel retention and development, biorisk research to close gaps in scientific knowledge to facilitate validation of DoD biological agent procedures and protocols, and tools to manage and ensure DoD biorisk. Continue implementing an enduring capability to surveil, address threats, and mitigate risks related to the CBDP supply chain, its cybersecurity, protection of intellectual property, and information security. FY 2025 Plans:	6.267	7.000	6.800

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) MS6 / <i>Management Support (Mgmt Support)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Continue to support CBDP biosafety and biosecurity (biorisk) priorities through biosafety personnel retention and development, biorisk research to close gaps in scientific knowledge to facilitate validation of DoD biological agent procedures and protocols, and tools to manage and ensure DoD biorisk. Establish CBDP Framework, build supply chain risk management toolkit, SCRM guidebook and standard operating procedures for Program Managers, Product Leads etc., establish SCRM process for Program Managers.			
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Decrease due to aligning funding requirements for supporting biosafety personnel at DoD laboratories.			
Accomplishments/Planned Programs Subtotals	52.270	64.092	68.973

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program										Date: March 2024		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605384BP / <i>Chemical and Biological Defense Program</i>				Project (Number/Name) DW6 / <i>Major Range And Test Facility Base (Mgmt Support)</i>			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
DW6: <i>Major Range And Test Facility Base (Mgmt Support)</i>	-	62.199	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	62.199
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Major Range and Test Facility Base (MRTFB) Research, Development, Test, and Evaluation (RDT&E) Management Support Project provides for the Dugway Proving Ground (DPG) MRTFB technical and operational capability for proving Department of Defense (DoD) Chemical and Biological (CB) defense materiel, equipment, and systems from concept through production to include associated Tactics, Techniques, and Procedures Development (TTPD) activities.

Efforts included in this Project are:

- (1) Combat Capability Development Command (DEVCOM) Chemical and Biological Center BioTesting Division (BTD-CBC)
- (2) West Desert Test Center (WDTC)

Project provides for the technical and operational capability for testing DoD CB defense materiel, equipment, and systems from concept through production to include associated Tactics, Techniques, and Procedures Development (TTPD) activities at West Desert Test Center (WDTC), and the BioTesting Division (BTD) of the Chemical and Biological Center (CBC), both part of the Major Range and Test Facility Base (MRTFB) located at DPG. WDTC and BTD-CBC are the reliance centers for all DoD CB defense testing and provide the United States' the only combined range, chamber, toxic chemical lab, and bio-safety level-3 (BSL-3) test facility. Project provides institutional and overhead funding required to operate WDTC and BTD-CBC in compliance with National Defense Authorization Act (NDAA) for FY03 (Public Law 107-314 - December 2002), Section 232, "Objective for institutional funding of test and evaluation facilities." Institutional operating costs were transferred to the consolidated OSD Chemical and Biological Defense Program consistent with Public Law 103-160 Section 1701.

WDTC and BTD-CBC use uniquely designed state-of-the-art chemical and life-sciences test facilities and test chambers to perform CB defense testing of protective gear, decontamination systems, detectors, equipment, and non-materiel CB defense solutions while maintaining safety, security, and surety of chemical agents and biological pathogens. WDTC also provides test ranges, to include fully instrumented outdoor ranges, for TTPD activities and testing with simulants that can be correlated to the laboratory testing with live agents to ensure reliable and repeatable data are generated to support acquisition decisions of CB defense equipment.

In FY24, Project DW6 realigned from appropriation 0400, PE 0605384BP Chemical & Biological Defense Program (RDT&E Management Support) to the 2040 appropriation, PE 0605601A / Project WD1, West Desert Test Center.

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

	FY 2023	FY 2024	FY 2025
Title: 1) BTB TEST - MRTFB	7.487	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605384BP / <i>Chemical and Biological Defense Program</i>	Project (Number/Name) DW6 / <i>Major Range And Test Facility Base (Mgmt Support)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Description: Funding maintained MRTFB test and evaluation (T&E) mission readiness at Bio Testing Division (BTD Test) for bioweapons defense laboratory and chamber operations and defensive T&E mission support activities. Represented the MRTFB activity's institutional and overhead costs not charged to DoD MRTFB users in compliance with DoDI 3200.18 and DoDFMR 7000.14-R.			
Title: 2) DPG - WDTC, MRTFB Civilian Pay Description: MRTFB Civilian Pay	24.954	-	-
Title: 3) DPG - WDTC, MRTFB Mission Support Description: MRTFB Mission Support	11.694	-	-
Title: 4) DPG - WDTC, MRTFB Contractor Support Description: MRTFB Contractor Support	13.864	-	-
Accomplishments/Planned Programs Subtotals	57.999	-	-

	FY 2023	FY 2024
Congressional Add: Chemical/Biological Defense Testing	4.200	-
FY 2023 Accomplishments: Funded Major Range and Test Facility Base management support operations.		
Congressional Adds Subtotals	4.200	-

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605502BP / <i>Small Business Innovative Research - Chemical Biological Def</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	0.000	26.487	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	26.487
SB6: <i>Small Business Innovative Research (Mgmt Support)</i>	-	26.487	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	26.487

A. Mission Description and Budget Item Justification

The overall objective of the Chemical Biological Defense (CBD) Small Business Innovative Research (SBIR) program is to improve the transition or transfer of innovative CBD technologies between Department of Defense (DoD) components and the private sector for mutual benefit. The CBD SBIR program includes those technology efforts that maximize a strong defensive posture in a biological or chemical environment using passive and active means as deterrents. These technologies include chemical and biological detection; information assessment, which includes identification, modeling, and intelligence; contamination avoidance; and protection of both individual soldiers and equipment.

B. Program Change Summary (\$ in Millions)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025 Base</u>	<u>FY 2025 OCO</u>	<u>FY 2025 Total</u>
Previous President's Budget	2.000	0.000	0.000	-	0.000
Current President's Budget	26.487	0.000	0.000	-	0.000
Total Adjustments	24.487	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	24.487	-			
• Other Adjustments	-	-	0.000	-	0.000

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: SB6: *Small Business Innovative Research (Mgmt Support)*

Congressional Add: *Infectious Disease Diagnostics*

	FY 2023	FY 2024
Congressional Add Subtotals for Project: SB6	2.000	-
Congressional Add Totals for all Projects	2.000	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605502BP / <i>Small Business Innovative Research - Chemical Biological Def</i>
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Change Summary Explanation

Funding: FY 2023 (+\$24.487 Million): Funding transferred and applied to Small Business Innovative Research program.

Schedule: N/A

Technical: N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program										Date: March 2024		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605502BP / <i>Small Business Innovative Research - Chemical Biological Def</i>				Project (Number/Name) SB6 / <i>Small Business Innovative Research (Mgmt Support)</i>			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
SB6: <i>Small Business Innovative Research (Mgmt Support)</i>	-	26.487	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	26.487
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Business Innovative Research (SBIR) Program is a Congressionally mandated program established to increase the participation of small business in federal research and development (R&D). Currently, each participating Government agency must reserve 3.2% of its extramural R&D for SBIR awards to competing small businesses. The goal of the SBIR Program is to invest in the innovative capabilities of the small business community to help meet Government R&D objectives while allowing small companies to develop technologies and products which they can then commercialize through sales back to the Government or in the private sector.

The Small Business Technology Transfer (STTR) Program like SBIR, is a Government-wide program, mandated by the Small Business Research and Development Enhancement Act of 1992, Public Law (PL) 102-564. STTR was established as a companion program to the SBIR Program and is executed in essentially the same manner; however, there are several distinct differences. The STTR Program provides a mechanism for participation by university, Federally-Funded Research and Development Centers (FFRDCs), and other non-profit research institutions. Specifically, the STTR Program is designed to provide an incentive for small companies and research at academic institutions and non-profit research and development institutions to work together to move emerging technical ideas from the laboratory to the marketplace to foster high-tech economic development and to advance U.S. economic competitiveness. Each STTR proposal must be submitted by a team which includes a small business (as the prime contractor for contracting purposes) and at least one research institution, which have entered into a Cooperative Research and Development Agreement for the purposes of the STTR effort. Furthermore, the project must be divided up such that the small business performs at least 40% of the work and the research institution(s) performs at least 30% of the work. The remainder of the work may be performed by either party or a third party. The budget is separate from the SBIR budget and is significantly smaller (0.45% of the extramural R&D budget vs. 3.2% for the SBIR Program).

The overall objective of the CBD SBIR/STTR program is to improve the transition or transfer of innovative CBD technologies between DoD components and the private sector for mutual benefit. The CBD program includes those technology efforts that maximize a strong defensive posture in a biological or chemical environment using passive and active means as deterrents. These technologies include chemical and biological detection; information assessment, which includes identification, modeling, and intelligence; contamination avoidance; and protection of both individual soldiers and equipment. The executive agent for the SBIR/STTR portion of the CBDP is the Army Research Office-Washington.

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

	FY 2023	FY 2024	FY 2025
Title: 1) ZSBIR	24.487	0.000	0.000
Description: Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR)			
FY 2024 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605502BP / <i>Small Business Innovative Research - Chemical Biological Def</i>	Project (Number/Name) SB6 / <i>Small Business Innovative Research (Mgmt Support)</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<ul style="list-style-type: none"> - CB Decontamination / CB Detection – Chemical Countermeasures (estimated funding, \$4.0 Million): Blister Chemical Warfare Agent Disclosure Spray System - CB Decontamination / CB Detection – Biological Countermeasures (estimated funding \$2.6M): Decontamination of Open Wounds - CB Detection – Biological Countermeasures (estimated funding, \$2.6 Million): Development of an early-warning biosensor based on the detection of helical structures in biomolecules - CB Detection – Point Detection (estimated funding \$2.6 Million) - CB Protection (estimated funding, \$4.0 Million): Polynomial-Curved Bespoke Prescription Lens for Respiratory Protection - Medical Therapeutics / CB Protection – Biological Countermeasures (estimated funding, \$2.6 Million): Real Time Physiological Status Monitor for MicroClimate Control - CB Protection (estimated funding, \$2.6 Million): Breathable, Non-Fluorinated Chemical Barrier Materials <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Medical Pretreatments – (estimated funding, \$2.6 Million) - Medical Diagnostics – (estimated funding, \$2.6 Million) - Medical Therapeutics – Biological Countermeasures (estimated funding, \$4.0 Million) - Medical Therapeutics – Chemical Countermeasures (estimated funding, \$2.6 Million) - Detection – Point Detection (estimated funding, \$4.0 Million) 			
Accomplishments/Planned Programs Subtotals	24.487	0.000	0.000

	FY 2023	FY 2024
Congressional Add: Infectious Disease Diagnostics	2.000	-
FY 2023 Accomplishments: Conducted research in the Technology Area of Infectious Disease and Diagnostics.		
Congressional Adds Subtotals	2.000	-

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

Remarks

D. Acquisition Strategy
N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	0.000	64.228	80.495	84.098	0.000	84.098	89.424	86.503	79.710	71.202	Continuing	Continuing
UN7: <i>Understand (Op Sys Dev)</i>	-	39.602	50.603	59.296	0.000	59.296	71.995	70.339	64.131	59.948	Continuing	Continuing
PT7: <i>Protect (Op Sys Dev)</i>	-	19.649	26.818	22.815	0.000	22.815	15.610	14.319	13.717	10.220	Continuing	Continuing
MT7: <i>Mitigate (Op Sys Dev)</i>	-	4.977	3.074	1.987	0.000	1.987	1.819	1.845	1.862	1.034	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) resources Operational System Development across the Understand, Protect, and Mitigate portfolios. Chemical Biological Defense Program (CBDP) investments provide an integrated, layered capability to enable Countering Weapons of Mass Destruction (CWMD) missions ranging from combat operations to Department of Defense (DoD) support to domestic incident prevention and response. The Projects in this PE support the upgrade of systems that have been fielded or have received approval for full-rate production in order to maintain Joint Force readiness.

Individual Projects include:

- Understand (UN7): Technology refresh, modernization and continuous engineering of software applications and information systems to shape and inform the battlespace against CBRN threats. Continued development and testing of CB sensor equipment to maintain system interoperability with emerging information technology and decrease size, weight, and power requirements to reduce the logistical burden of associated capabilities. Technology refresh of fielded medical diagnostic systems and associated capabilities (e.g., assays) that contribute to the layered medical defenses against biological warfare agents and 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.
- Protect (PT7): Efforts to refresh technology of fielded individual and protective equipment that enables the Joint Force to operate in a contaminated chemical, biological, and radiological (CBR) environment with little or no degradation of performance. Technology refresh efforts for 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.
- Mitigate (MT7): Technology refresh of fielded Contamination Mitigation (ConMit) systems that will remove and/or detoxify contaminated material without damaging combat equipment, personnel, or the environment.

The projects in this PE support operational systems development necessary to maintain operational effectiveness and are, therefore, correctly placed in Budget Activity 7.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0607384BP I <i>Chemical and Biological Defense (Operational Systems Development)</i>
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B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	65.588	80.495	83.683	-	83.683
Current President's Budget	64.228	80.495	84.098	-	84.098
Total Adjustments	-1.360	0.000	0.415	-	0.415
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.359	-			
• Other Adjustments	-0.001	-	0.415	-	0.415

Change Summary Explanation

Funding: FY 2023 (-\$1.359 Million): Transfer of funding to support Small Business Innovative Research/Small Business Technology Transfer efforts.

FY 2025 (+\$0.415 Million): The overall increase of (\$0.415 Million) includes an increase for Chemical Biological Radiological Nuclear Support to Command and Control (+\$2.918 Million), and an Operational Systems Development adjustment to support DoD high priority efforts (-\$2.503 Million).

Schedule: N/A

Technical: N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program										Date: March 2024		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>					Project (Number/Name) UN7 / <i>Understand (Op Sys Dev)</i>		
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
UN7: <i>Understand (Op Sys Dev)</i>	-	39.602	50.603	59.296	0.000	59.296	71.995	70.339	64.131	59.948	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Understand Operational System Development Project provides the Joint Force continued readiness of fielded sensor, information technology and medical diagnostic capabilities and provides size, weight and power improvements to reduce logistical burden on the warfighter and services.

Efforts included in this Project are:

- (1) Modernization CBRN Information Systems (MOD CBRN IS),
- (2) Chemical Biological Radiological Nuclear Support to Command and Control (CSC2),
- (3) Enhanced Maritime Biological Detection (EMBD),
- (4) Modernization Sensors (MOD SEN),
- (5) Modernization Medical (MOD MED),
- (6) Special Purpose Unit Rapid Capability Development and Deployment (SPU RCDD), and
- (7) Weapons of Mass Destruction - Civil Support Team (WMD CST)

MOD CBRN IS combines CBRN IS (Cloud), Joint Effects Model (JEM), the Joint Warning and Reporting Network (JWARN), and the Software Support Activity within one portfolio. MOD CBRN IS provides for the continuous engineering and sustainment efforts to modernize capabilities and conduct Post Deployment Software Support (PDSS) to fielded CBRN software programs. Activities include: software code updates and modernization to correct deficiencies; compliance with system architectural changes to ensure interoperability; cybersecurity updates ensuring compliance with policies and standards; test and evaluation to identify possible cybersecurity vulnerabilities; configuration management; software redistribution, documentation, and training. In FY24, MOD CBRN IS funding will be consolidated under CBRN Support to Command and Control (CSC2).

Consolidation of continuous engineering for the currently deployed CBRN information systems (Joint Effects Model (JEM)/Joint Warning and Reporting Network (JWARN), CBRN Information System (CBRN IS)). Effort encompasses the processes, procedures, people, material and information required to support and modernize fielded CBRN information systems and applications. Fielded capabilities and efforts will be transitioned to the CSC2 Capability set in the FY27-29 timeframe, maintaining the stopgap capability for CBRN warning, reporting, and effects modeling while setting conditions for the sunset of the enduring capabilities. The approach to consolidation simplifies software BA7 management under one line and synchronizes the sunset of JEM and JWARN systems as replacement capabilities are deployed through CSC2.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program	Date: March 2024
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Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) UN7 / <i>Understand (Op Sys Dev)</i>
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The Enhanced Maritime Biological Detection (EMBD) program will undertake engineering efforts to combat Diminishing Manufacturing Sources and Material Shortages (DMSMS) and maintain a stable production line. The EMBD program will address major obsolescence problems identified by the prime contractor that could affect a stable production line and to ensure new EMBD hardware/software remains procurable, field upgradeable and backwards compatible with previously fielded units. In FY25, EMBD continues efforts under the MOD SEN BA7 program line; undertaking engineering efforts to resolve obsolescence of Light Emitting Diodes (LEDs) within the Rapid Agent Aerosol Detector (RAAD), multiple circuit card electrical components and Developmental Testing (DT) of all new components.

The Modernization Sensors (MOD SEN) program conducts technology refresh, modernization and continuous engineering of software applications and information systems to shape and inform the battlespace against CBRN threats for the Analytical Laboratory System Modification (ALS MOD), Common Analytical Laboratory System (CALs) Field Confirmatory Analytical Capability Set (FC ACS), CALs Theater Validation Integrated System (TV IS), Chemical Biological Radiological Nuclear Dismounted Reconnaissance System (CBRN DRS), M8 Chemical Detection Paper, and Enhanced Maritime Biological Detection (EMBD) programs. Continued development and testing of CB sensor equipment is planned to address obsolescence of critical equipment and functionality issues for the Services in order to maintain system interoperability with emerging information technology and decrease size, weight and power requirements to reduce logistical burden of associated capabilities. In FY25, MOD SEN supports the evaluation of components for technical refreshment of the CBRN DRS, CALs, ALS MOD, M8 paper, and EMBD.

The Modernization Medicine (MOD MED) program supports improvements to fielded systems and supports post-fielding U.S. Food & Drug Administration (FDA) requirements for CBRN Medical devices, including FDA-approved autoinjectors and diagnostic equipment, in order to mitigate obsolescence and maintain fielded capabilities. In FY25 MOD MED will continue annual cyber security updates and management of hardware and software configurations for diagnostic systems; continue development of a Next Generation Diagnostic System Increment 1 (NGDS 1) replacement system to maintain the current Biological Warfare diagnostics capability, and; support Department of Defense (DoD) sponsored regulatory activities for legacy autoinjectors and continue FDA Post-Marketing Commitments.

Special Purpose Unit Rapid Capability Development and Deployment (SPU RCDD) facilitates United States Special Operations Command (USSOCOM) rapid response requirements, through the classified special category (SPECAT) process, for near-term and emergent chemical-biological defensive capabilities. SPU RCDD mitigates risk across the Enterprise by creating a portfolio of operationally relevant CBRND capabilities that can be quickly transitioned in response to the articulated, developing capability needs of the geographic combatant commanders. These objectives are met by the early transitioning of promising S&T; the focused conduct of combat evaluations and mission-oriented operational assessments to assess technological and mission suitability; and leveraging existing Commercial-Off-The-Shelf (COTS) and Government-Off-The-Shelf (GOTS) products along with novel redesign approaches to optimize existing solutions to new challenges supported by adaptive acquisition strategies.

Weapons of Mass Destruction Civil Support Team (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 WMD CST. Program efforts support upgrades of key components of the WMD CST Program that have become obsolete or are no longer being supported by the manufacturer. In FY25, the WMD CST program continues system-related test activities, including costs of specially fabricated hardware to obtain or validate engineering data on the performance of the system.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) UN7 / <i>Understand (Op Sys Dev)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Title: 1) MOD CBRN IS</p> <p>Description: CBRN Information Systems Modernization</p>	18.112	-	-
<p>Title: 2) CSC2</p> <p>Description: Continuous engineering, and post-production software support of CSC2 and CBRN Information Systems (CBRN IS)</p> <p>FY 2024 Plans: Continue engineering, integration, and delivery of the CSC2 capability set in support of the Minimum Viable Capability Release (MVCR). Continue post-production software support of the Legacy CBRN information systems, until the CSC2 is available to deploy. This continued development will include updates to host architectures, operating systems, cyber security requirements and North Atlantic Treaty Organization (NATO) standards. Supports continuous software developmental and operational testing on software updates and modernization efforts. Provide program/financial management, costing, contracting, scheduling and acquisition oversight and product support for software redeployment and training to operational forces.</p> <p>FY 2025 Plans: Continue engineering, integration, and delivery of the CSC2 capability set in support of the Minimum Viable Capability Release (MVCR) and follow-on capability releases (CRs). Continue post-production software support of the Legacy CBRN Information Systems, until the CSC2 is available to be delivered. This continued development will include updates to host architectures, operating systems, cybersecurity requirements and North Atlantic Treaty Organization (NATO) standards. Supports continuous software developmental and operational testing on software updates and modernization efforts. Including the infrastructure for Continuous Integration/Continuous Delivery (CI/CD) development and processes to automatically build, test, and deploy new software capabilities. Provide program/financial management, costing, contracting, scheduling and acquisition oversight and product support for software redeployment and training to operational forces.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to incorporation of the Continuous Integration/Continuous Delivery (CI/CD) efforts to accelerate software development.</p>	-	20.485	25.941
<p>Title: 3) EMBD</p> <p>Description: Product Development, Test and Evaluation, and Management</p>	1.976	-	-
<p>Title: 4) MOD SEN</p> <p>Description: Sensors Modernization</p>	8.386	11.666	11.500

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) UN7 / <i>Understand (Op Sys Dev)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>FY 2024 Plans: Complete evaluation of prototyping efforts associated with the CBRN Dismounted Reconnaissance Systems (DRS) Systems Modernization Program (SMP), and the continued technical refreshment of CBRN DRS, Common Analytical Laboratory System (CALs), Analytical Laboratory System (ALS) Modification (MOD), M8, and Enhanced Maritime Biological Detection (EMBD). Plans include laboratory information systems and gas chromatography mass spectrometer refreshments for CALs, suit refreshment and communications updates for DRS, modernizing the M8 to refresh the technology originally manufactured in the 1960s, and software refreshments and electronics components obsolescence for EMBD.</p> <p>FY 2025 Plans: Continue technical refreshment of CBRN DRS, Common Analytical Laboratory System (CALs), Analytical Laboratory System (ALS) Modification (MOD), M8 Chemical Detection Paper, and Enhanced Maritime Biological Detection (EMBD). Plans include addressing capability gap resulting from obsolescence of the current Gas Chromatograph Mass Spectrometer (GC MS) system within the CALs program with an analytical system that will work within existing space and interoperability constraints that will detect and identify various volatile organic compounds (VOCs) and semi volatile organic compounds (SVOCs), obsolescence management of support equipment and conducting a verification and validation of a non-intrusive assessment technology insertion for the Chemical Biological Radiological Nuclear Dismounted Reconnaissance System (CBRN DRS), continue modernization of the M8 and start surety testing and user touch points to support changes to M8, and software refreshments and electronics components obsolescence for EMBD.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to reduction in system modernization activities.</p>			
<p>Title: 5) MOD MED - Diagnostic System Upgrades / Assay Development</p> <p>Description: Maintain system hardware and software configurations for fielded diagnostics and develop additional assays.</p> <p>FY 2024 Plans: Continue annual cyber security updates and management of hardware and software configurations, and develop additional assays for NGDS 1.</p> <p>FY 2025 Plans: Continue annual cyber security updates, management of hardware and software configurations, and develop additional assays for emerging threats.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>	3.881	3.024	3.523

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) UN7 / <i>Understand (Op Sys Dev)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Increase from FY24 to FY25 includes the Next Generation Diagnostic System Increment 2 (NGDS 2) ChemDx system, which transitions to Production/Deployment in FY25.			
<p>Title: 6) MOD MED - Autoinjector Post Marketing Commitments and Requirements (PMRs/PMCs)</p> <p>Description: Food and Drug Administration (FDA) required Post-Marketing Commitments and Requirements for combination products.</p> <p>FY 2024 Plans: Support Army, Office of the Surgeon General (OTSG) - Sponsored regulatory activities for legacy autoinjectors. Initiate FDA Post-Marketing Commitments.</p> <p>FY 2025 Plans: Continue support for Army Office of the Surgeon General (OTSG) - Sponsored regulatory activities for legacy autoinjectors. Initiate FDA Post-Marketing Commitments for the Dual Drug Delivery Device (D4). Continue conducting design improvements needed for Antidote Treatment Nerve Agent Autoinjector (ATNAA) to meet FDA's reliability requirements.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program costs increased in FY25 due to increased costs from OTSG for sponsored regulatory activities for legacy autoinjectors, and adding activities related to reliability improvements for ATNAA.</p>	0.294	1.906	2.649
<p>Title: 7) MOD MED - NGDS 1 Tech Refresh</p> <p>Description: NGDS 1 technology refresh</p> <p>FY 2024 Plans: Initiate developmental activities for system to maintain the Biological Warfare diagnostics capability currently provided by NGDS 1.</p> <p>FY 2025 Plans: Continue developmental activities for a system to maintain the Biological Warfare diagnostics capability currently provided by Next Generation Diagnostic System Increment 1 (NGDS 1).</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to going from partial-year effort (3QFY24 prototype award) to full-year effort.</p>	1.588	8.043	12.086
<p>Title: 8) SPU RCDD - System Modernization</p> <p>Description: Product development, test and evaluation, and management services to modernize technology across multiple commodity areas.</p>	1.934	1.835	1.848

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) UN7 / <i>Understand (Op Sys Dev)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>FY 2024 Plans: Continue product enhancement, development, and technology upgrades on currently fielded equipment to counter emerging threats, conduct limited user evaluations and operational assessments, and provide program management support. Continue the MSCBA and EWAT product enhancement, development, and technology upgrades, conduct limited user evaluation, and operational assessments, and provide program management support.</p> <p>FY 2025 Plans: Continued maturing CBRND technologies within Understand, Protect, Mitigate, and Enabling commodity areas. The bulk of SPU RCDD funds will align with Enable and Protect.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Minor increase due to economic cost adjustments within Project Understand Budget Activity 7 (UN7).</p>			
<p>Title: 9) WMD CST</p> <p>Description: System Upgrade and Support</p> <p>FY 2024 Plans: FY24 funding address capability gaps and obsolescence issues that were identified by the commercial of the shelf (COTS) modification (MOD) process in collaboration with the National Guard Bureau.</p> <p>FY 2025 Plans: FY25 funding continues to address capability gaps and obsolescence issues identified by the commercial of the shelf (COTS) modification (MOD) process in collaboration with the National Guard Bureau.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to current requirements and scheduled NGB CST test and validation events to include: UAS Phase III testing, wireless sensor integration, and next generation re-breather performance validation.</p>	3.431	3.644	1.749
Accomplishments/Planned Programs Subtotals	39.602	50.603	59.296

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• UN5: <i>Understand (SDD)</i>	128.837	182.726	154.658	-	154.658	124.463	90.423	63.185	55.658	Continuing	Continuing
• JS0005: <i>Common Analytical Laboratory System (CALS)</i>	30.530	7.167	21.323	-	21.323	22.132	3.057	-	-	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) UN7 / <i>Understand (Op Sys Dev)</i>

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025 Base</u>	<u>FY 2025 OCO</u>	<u>FY 2025 Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• JS5230: <i>Modernization Chemical Biological Radiological Nuclear Information Systems (MOD CBRN IS)</i>	0.656	-	-	-	-	-	-	-	-	0.000	21.455
• MC0101: <i>Chemical Biological Radiological Nuclear Dismounted Reconnaissance Systems (CBRN DRS)</i>	47.324	60.492	74.140	-	74.140	28.378	23.132	-	-	Continuing	Continuing
• PHM018: <i>Special Purpose Unit Rapid Capability Development and Demonstration (SPU RCDD)</i>	10.188	49.455	30.799	-	30.799	34.180	33.716	26.638	32.609	Continuing	Continuing

Remarks

D. Acquisition Strategy

Chemical Biological Radiological Nuclear Support to Command and Control (CSC2)

The acquisition strategy utilizes a managed portfolio approach to align multiple capabilities in support of continuous engineering and modernization of CBRN Information Systems. This encompasses the continuous engineering to maintain, modernize, and conduct post-production and deployment support to fielded CBRN software information systems and capabilities. CSC2 will leverage and modernize the existing capabilities formally under the MOD CBRN IS effort to reduce cost and technical risk through the existing infrastructure and software platforms for integration and delivery of the modular capability set. As well as initiate the sun setting of the fielded capabilities associated with MOD CBRN IS.

Modernization Sensors (MOD SEN)

MOD SEN program uses a Commercial Off-The-Shelf (COTS)/Government Off-The-Shelf (GOTS) approach to manage modernization for multiple Chemical Biological Radiological Nuclear (CBRN) sensor programs. This strategy employs a Non-developmental Item acquisition concept to translate mission needs and emerging technology capabilities into a fieldable component to solve obsolescence and technology update needs. Current planned funding supports Analytical Laboratory System Modification (ALS MOD), Common Analytical Laboratory System (CALS) Field Confirmatory Analytical Capability Set (FC ACS), CALS Theater Validation Integrated System (TV IS), CBRN Dismounted Reconnaissance System (CBRN DRS), M8 Chemical Detection Paper Modification, and Enhanced Maritime Biological Detection (EMBD) modernization activities. The program maintains baseline capabilities with obsolescence management, technology insertions, and enhancements based on

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) UN7 / <i>Understand (Op Sys Dev)</i>

changes in requirements. This program modernizes the Joint Force to combat advancing threats and current capability gaps in analytical laboratory and sensitive site assessment and exploitation capabilities require a system modernization strategy for each system.

Modernization Medical (MOD MED)

MOD MED leverages an existing Indefinite Delivery/Indefinite Quantity (IDIQ) Delivery Order contract with the Next Generation Diagnostic System Increment 1 (NGDS 1) original equipment manufacturer for both hardware and software updates, including cybersecurity, as well as for development of additional assays (i.e. tests) to address emerging biological threats and diseases.

MOD MED will mitigate obsolescence of the NGDS 1, by awarding contracts and/or Other Transaction Authority (OTA) agreements to develop, test and evaluate a replacement for the current commercial system, and maintain the existing Biological Warfare diagnostic capability.

MOD MED for AUTOINJ will ensure post-marketing commitments and requirements resulting from U.S. Food & Drug Administration (FDA) approval are fulfilled and will be the responsibility of both the performer and the government. AUTOINJ uses contracts and Other Transaction Authority (OTA) agreements in which the performer shall be responsible for conducting activities to meet post-approval FDA requirements.

Special Purpose Unit Rapid Capability Development and Deployment (SPU RCDD)

The SPU RCDD overall acquisition strategy allows for rapid prototyping and testing of novel and modified COTS and or GOTS systems against mission critical capabilities to enhance mission success. SPU RCDD will use developmental testing and USSOCOM combat and functional evaluations to rapidly develop items that close SPECAT capability gaps. This will be accomplished through competitive contracting vehicles such as Multiple Award Indefinite Delivery Indefinite Quantify Task Orders, the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA), and Commercial Solutions Opening (CSO). SPU RCDD will use Government Agencies for test and evaluation, and technical support.

Weapons of Mass Destruction - 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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program												Date: March 2024			
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / Chemical and Biological Defense (Operational Systems Development)						Project (Number/Name) UN7 / Understand (Op Sys Dev)			

Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
MOD CBRN IS - SW S - Modernization	Various	Various : N/A	-	12.619	Apr 2023	0.000		0.000		-		0.000	0.000	12.619	0.000
CSC2 - SW S - Continuous Engineering	Various	Various : N/A	-	0.000		11.681	Dec 2023	10.868	Mar 2025	-		10.868	Continuing	Continuing	0.000
CSC2 - SW S - Modernization CBRN Warning & Reporting	C/CPIF	Various : N/A	-	0.000		2.137	Jan 2024	0.000		-		0.000	0.000	2.137	0.000
EMBD - HW GFPP - Obsolescence Support in Production	SS/CPIF	Chemring Detection Systems, Inc. : Charlotte, NC	-	0.526	Dec 2022	0.000		0.000		-		0.000	0.000	0.526	0.000
EMBD - HW SB - Obsolescence Support in Production	SS/CPIF	Chemring Detection Systems, Inc. : Charlotte, NC	-	0.915	Sep 2023	0.000		0.000		-		0.000	0.000	0.915	0.000
MOD SEN - HW C - Government Team Labor	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	-	1.740	Nov 2022	0.992	Nov 2023	1.769	Dec 2024	-		1.769	Continuing	Continuing	0.000
MOD SEN - HW C - System Modernization	Various	Various : N/A	-	2.439	Nov 2022	4.953	Nov 2023	2.969	Dec 2024	-		2.969	Continuing	Continuing	0.000
MOD SEN - HW SB - Sub-System/Support Equipment Development	Various	Various : N/A	-	2.121	Mar 2023	0.000		2.586	Dec 2024	-		2.586	Continuing	Continuing	0.000
MOD MED - HW C - Product Management	Various	Various : N/A	-	2.177	Nov 2022	3.520	Dec 2023	3.898	Dec 2024	-		3.898	Continuing	Continuing	0.000
MOD MED - HW C - Autoinjector Office of Regulatory Affairs	MIPR	U.S. Army Medical Research and Development Command	-	0.244	Nov 2022	0.794	Nov 2023	0.248	Dec 2024	-		0.248	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / Chemical and Biological Defense (Operational Systems Development)	Project (Number/Name) UN7 / Understand (Op Sys Dev)
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
		(USAMRDC) : Fort Detrick, MD													
MOD MED - HW C - Autoinjector Post Marketing Requirements/ Committments	C/CPFF	Emergent Biosolutions : Gaithersburg, MD	-	0.000		0.000		0.624	Dec 2024	-		0.624	Continuing	Continuing	0.000
MOD MED - HW C - Next Generation Diagnostic System 1 (NGDS 1)	C/CPFF	BioFire Dx : Salt Lake City, UT	-	3.001	Nov 2022	2.160	Dec 2023	1.260	Dec 2024	-		1.260	Continuing	Continuing	0.000
MOD MED - HW S - Tech Refresh	Various	TBD : N/A	-	0.000		4.792	Mar 2024	8.837	Dec 2024	-		8.837	Continuing	Continuing	0.000
MOD MED - HW SB - Assay Development	TBD	TBD : N/A	-	0.000		0.000		0.352	Dec 2024	-		0.352	Continuing	Continuing	0.000
MOD MED - HW C - Alternative Autoinjector Manufacturer Capability (AUTOINJ)	C/CPFF	TBD : N/A	-	0.000		0.000		1.087	Dec 2024	-		1.087	Continuing	Continuing	0.000
SPU RCDD - HW C - Prototype development	Various	Various : N/A	-	1.724	Dec 2022	1.613	Dec 2023	1.630	Dec 2024	-		1.630	Continuing	Continuing	0.000
WMD CST - HW S - Product Development Team Labor	Various	Various : N/A	-	0.000		0.853	Nov 2023	0.640	Nov 2024	-		0.640	Continuing	Continuing	0.000
Subtotal			-	27.506		33.495		36.768		-		36.768	Continuing	Continuing	N/A

Remarks
MOD MED: Tech Refresh will be an OTA.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / Chemical and Biological Defense (Operational Systems Development)	Project (Number/Name) UN7 / Understand (Op Sys Dev)
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Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MOD CBRN IS - ES S - milCloud	MIPR	Various : N/A	-	2.093	Sep 2023	0.000		0.000		-		0.000	0.000	2.093	0.000
CSC2 - ES C - Product Support	MIPR	Various : N/A	-	0.000		3.763	Jan 2024	10.764	Nov 2024	-		10.764	Continuing	Continuing	0.000
MOD SEN - ES C - Science and Engineering Support	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	-	0.192	Nov 2022	0.000		0.000		-		0.000	0.000	0.192	0.000
MOD SEN - ES C - Obsolescent Management	Various	Various : N/A	-	0.271	Feb 2023	3.408	Nov 2023	1.500	Dec 2024	-		1.500	Continuing	Continuing	0.000
WMD CST - ES C - Science & Engineering Support	MIPR	Naval Air Warfare Center (Aircraft Division) : Patuxent River, MD	-	0.120	Jan 2023	0.190	Nov 2023	0.190	Nov 2024	-		0.190	Continuing	Continuing	0.000
WMD CST - ES C - Government Product Development Team Labor	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	-	0.384	Feb 2023	0.190	Nov 2023	0.000	Nov 2024	-		0.000	0.000	0.574	0.000
Subtotal			-	3.060		7.551		12.454		-		12.454	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program											Date: March 2024				
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / Chemical and Biological Defense (Operational Systems Development)					Project (Number/Name) UN7 / Understand (Op Sys Dev)				

Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Target Value of Contract
MOD CBRN IS - OTH S - System Testing	MIPR	Various : N/A	-	1.500	Sep 2023	0.000		0.000		-		0.000		0.000	1.500	0.000
CSC2 - DTE S - System update T&E	TBD	U.S. Navy Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	-	0.000		0.952	Oct 2023	0.962	Nov 2024	-		0.962	Continuing	Continuing	0.000	
EMBD - DTE C - Obsolescence Support in Production testing and verification	MIPR	U.S. Naval Surface Warfare Center (NSWC) : Dahlgren, VA	-	0.475	Feb 2023	0.000		0.000		-		0.000	0.000	0.475	0.000	
MOD SEN - DTE C - Component Test and Evaluation	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	-	0.745	Apr 2023	0.750	Nov 2023	1.135	Dec 2024	-		1.135	Continuing	Continuing	0.000	
WMD CST - OTH C - CBRN COTS Component	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	-	1.120	Feb 2023	1.680	Nov 2023	0.744	Nov 2024	-		0.744	Continuing	Continuing	0.000	
WMD CST - OTH C - CBRN COTS Component	MIPR	Naval Air Warfare Center (Aircraft Division) : Patuxent River, MD	-	1.504	Jan 2023	0.367	Nov 2023	0.000	Nov 2024	-		0.000	0.000	1.871	0.000	
Subtotal			-	5.344		3.749		2.841		-		2.841	Continuing	Continuing	N/A	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / Chemical and Biological Defense (Operational Systems Development)	Project (Number/Name) UN7 / Understand (Op Sys Dev)
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Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MOD CBRN IS - PM/MS S - Program Management Support	Various	Various : N/A	-	1.900	Jun 2023	0.000		0.000		-		0.000	0.000	1.900	0.000
CSC2 - PM/MS S - Program Management Office Support	Various	Various : N/A	-	0.000		1.952	Oct 2023	3.347	Oct 2024	-		3.347	Continuing	Continuing	0.000
EMBD - PM/MS S - Program Management Support	MIPR	Various : N/A	-	0.060	Mar 2023	0.000		0.000		-		0.000	0.000	0.060	0.000
MOD SEN - PM/MS C - Program Management Support	Various	Various : N/A	-	0.878	Jan 2023	1.563	Nov 2023	1.541	Dec 2024	-		1.541	Continuing	Continuing	0.000
MOD MED - PM/MS C - Management Services	Various	Various : N/A	-	0.341	Nov 2022	1.707	Dec 2023	1.952	Dec 2024	-		1.952	Continuing	Continuing	0.000
SPU RCDD - PM/MS C - Program Management Support	Various	Various : N/A	-	0.210	Dec 2022	0.222	Dec 2023	0.218	Dec 2024	-		0.218	Continuing	Continuing	0.000
WMD CST - PM/MS S - Program Management Support	MIPR	Various : N/A	-	0.303	Dec 2022	0.364	Nov 2023	0.175	Nov 2024	-		0.175	Continuing	Continuing	0.000
Subtotal			-	3.692		5.808		7.233		-		7.233	Continuing	Continuing	N/A

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	39.602	50.603	59.296	-	59.296	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) UN7 / <i>Understand (Op Sys Dev)</i>
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
MOD SEN - DT/OT for refreshed components and obsolescence management within MOD SEN																												
MOD MED - Diagnostic System Upgrades / Assay Development																												
MOD MED - NGDS 1 Tech Refresh																												
MOD MED - ATNAA Redesign for Reliability																												
MOD MED - Autoinjector (D4) Post Marketing Commitments and Requirements (PMRs/PMCs)																												
MOD MED - Autoinjector (RAD-A) Post Marketing Commitments and Requirements (PMRs/PMCs)																												
SPU RCDD - Enhanced Warfighter Augmented Training (EWAT)																												
SPU RCDD - Individual CWMD Uniform Pack (ICUP)																												
WMD CST - Upgrade Fielded Systems																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) UN7 / <i>Understand (Op Sys Dev)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MOD CBRN IS - Validation, Verification and Accreditation	1	2023	4	2023
MOD CBRN IS - Modernization	1	2023	4	2023
MOD CBRN IS - Configuration Management and Test and Evaluation	1	2023	4	2023
MOD CBRN IS - Cyber Security Compliance	1	2023	4	2023
MOD CBRN IS - Continuous Engineering/SW Codes Updates	1	2023	4	2023
MOD CBRN IS - Operating system architecture updates	1	2023	4	2023
CSC2 - SWP Execution Phase Decision Approval	3	2023	3	2023
CSC2 - MVP	1	2024	1	2024
CSC2 - Capability Drop - MVCR/ Capability Release 1	3	2024	3	2024
CSC2 - Capability Drop - Continuous Capability Releases (every 3 months)	4	2024	4	2028
CSC2 - Continuous Engineering & Software Updates	1	2025	4	2028
CSC2 - Continuous Software DT/OT	2	2024	4	2028
CSC2 - Cyber Security Compliance	2	2024	4	2028
CSC2 - Service Computing Environment Integration	2	2024	4	2028
EMBD - FRP Production	1	2023	3	2027
EMBD - Initial Operational Capability	2	2023	2	2023
EMBD - Full Operational Capability	2	2029	2	2029
MOD SEN - DT/OT for refreshed components and obsolescence management within MOD SEN	1	2023	4	2029
MOD MED - Diagnostic System Upgrades / Assay Development	1	2023	4	2029
MOD MED - NGDS 1 Tech Refresh	1	2024	4	2029
MOD MED - ATNAA Redesign for Reliability	2	2024	2	2027

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) UN7 / <i>Understand (Op Sys Dev)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
MOD MED - Autoinjector (D4) Post Marketing Commitments and Requirements (PMRs/PMCs)	1	2028	4	2029
MOD MED - Autoinjector (RAD-A) Post Marketing Commitments and Requirements (PMRs/PMCs)	4	2028	4	2029
SPU RCDD - Enhanced Warfighter Augmented Training (EWAT)	1	2023	4	2025
SPU RCDD - Individual CWMD Uniform Pack (ICUP)	1	2023	4	2024
WMD CST - Upgrade Fielded Systems	1	2023	4	2029

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) PT7 / <i>Protect (Op Sys Dev)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
PT7: <i>Protect (Op Sys Dev)</i>	-	19.649	26.818	22.815	0.000	22.815	15.610	14.319	13.717	10.220	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Protect Operational System Development Project provides the Joint Force the continued readiness of fielded collective and individual protective capabilities and provides size, weight and power improvements to reduce logistical burden on the warfighter and services.

Efforts included in this Project are:

- (1) Modernization Protection Collective Protection (MODPROT CP), and
- (2) Modernization Protection Individual Protection (MODPROT IP)

The Modernization Protection Collective Protection (MODPROT CP) effort addresses modernization and obsolescence across the DoD CP portfolio to increase readiness, sustainability, reliability, and affordability of these systems. MODPROT CP modernizes decades old collective protection equipment reducing costs, shortening lead times, and updating key components to extend service life and ensure affordable and procurable to warfighters. MODPROT CP will conduct system filter surveillance testing to improve system sustainment, develop a design guide for ground vehicle platforms, modernize mobile platform filters, modernize liners and closures for collective protection shelters, and explore new filter media technology transitions.

The Modernization Protection Individual Protection (MODPROT IP) project addresses obsolescence issues with IP equipment and the need to modernize fielded IP with capabilities to meet or exceed the Services requirements. MODPROT IP will conduct modernization efforts and reverse engineering of maintenance and repair procedures for the Joint Services Mask Leakage Tester (JSMLT), upgrade fielded protection systems to enhance respiratory and ocular protection of aircrew systems, modernize fielded filters, and explore updates to fielded personal protective equipment (PPE).

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

	FY 2023	FY 2024	FY 2025
Title: 1) MODPROT CP	10.026	13.468	9.035
Description: Upgrades, improvements, and modernizations to fielded collective protection (CP) systems			
FY 2024 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) PT7 / <i>Protect (Op Sys Dev)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Continue M48A1 Filter Redesign. Continue Collective Protection (CP) Modernization for Ships and Buildings and begin shipboard system installation. Continue Mobile Platform Filter Modernization to reduce logistics costs. Continue conducting CP system filter surveillance testing to improve system sustainment.</p> <p>FY 2025 Plans: Complete M48A1 Filter Redesign. Continue CP Modernization for Ships and Buildings including installing a prototype system on a ship. Continue conducting CP system filter surveillance testing to improve system sustainment. Continue Mobile Platform Filter Modernization at a decreased effort. Continue Liners Closures and Barriers as well as new filter media transitions.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease in FY25 due to less testing needed in Mobile Platform Filter Modernization. Also the M93/M59 Gas Particulate Filter Unit (GPFU), M14 Protective Entrance (PE), and Contaminated Filter Changeout projects will complete in FY24.</p>			
<p>Title: 2) MODPROT IP</p> <p>Description: Upgrades, improvements, and modernizations to fielded individual protection (IP) systems</p> <p>FY 2024 Plans: Continue modernization of the Joint Mask Leakage Tester (JSMLT). Continue Fixed Wing Aircraft/Aircrew Personal Protective Equipment (PPE) optimization effort for multiple airframes. Finalize Second Generation Filter Engineering Change Proposal (ECP). Initiate performance characterization for whole life of Individual Protective Equipment (IPE) products. Initiate Chemical Biological Incident Response Force (CBIRF) Class 3 Modernization. Initiate Chemical Biological Radiological and Nuclear Response Enterprise Personal Protective Equipment (CRE PPE) Unit Modernization.</p> <p>FY 2025 Plans: Continue modernization of the Joint Mask Leakage Tester (JSMLT) from multiple configurations to one configuration for ground and aviation face seal testing. Continue Fixed Wing Aircraft/Aircrew Personal Protective Equipment (PPE) optimization effort for multiple airframes. Update technical data for 4th generation filters to meet additional objective requirements for Toxic Industrial Chemicals/Toxic Industrial Materials (TIC/TIMs) through the incorporation of Metal Organic Framework (MOF) technology. Continue Chemical Biological Radiological and Nuclear Response Enterprise Personal Protective Equipment (CRE PPE) Unit Modernization.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to technical data updates for 4th generation filters.</p>	9.623	13.350	13.780
Accomplishments/Planned Programs Subtotals	19.649	26.818	22.815

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) PT7 / <i>Protect (Op Sys Dev)</i>

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

Line Item	FY 2023	FY 2024	FY 2025	FY 2025	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Cost To	
			Base	OCO	Total					Complete	Total Cost
• PT5: <i>Protect (SDD)</i>	86.221	97.975	41.664	-	41.664	25.670	15.951	34.836	58.658	Continuing	Continuing
• PHM036: <i>Modernization Protection Collective Protection (MODPROT CP)</i>	1.385	-	-	-	-	-	1.375	2.517	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

Modernization Protection Collective Protection (MODPROT CP)

The MODPROT CP approach leverages mature technology from contractor developed components to address and replace obsolete components of various fielded collective protection systems. Modernization efforts will 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 to meet applicable military standards will validate both Government and contractor furnished improvements. The improvements will be added into the specific systems' updated Technical Data Packages (TDPs) to be used in Engineering Change Proposals (ECPs) and provided to the item managers.

Modernization Protection Individual Protection (MODPROT IP)

The MODPROT IP effort will leverage 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 (TDP) to be used in Engineering Change Proposals (ECP) and provided to the item managers.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program												Date: March 2024			
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>						Project (Number/Name) PT7 / <i>Protect (Op Sys Dev)</i>			

Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MODPROT CP - HW C - Collective Protection Modernization for Ships	Various	Various : N/A	-	6.604	Nov 2022	8.604	Nov 2023	4.720	Nov 2024	-		4.720	Continuing	Continuing	0.000
MODPROT CP - HW C - Filter Redesign & Modernization, Filter Life Extension Residual Life Indicator (RLI)	MIPR	Various : N/A	-	0.721	Nov 2022	1.167	Nov 2023	0.671	Nov 2024	-		0.671	Continuing	Continuing	0.000
MODPROT IP - HW C - Filter Prototypes, JSMLT Modernization, and CBIRF & CRE Modernization	Various	Various : N/A	-	4.022	Mar 2023	4.576	Nov 2023	2.251	Nov 2024	-		2.251	Continuing	Continuing	0.000
Subtotal			-	11.347		14.347		7.642		-		7.642	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MODPROT CP - ES C - IPT, Technical, Engineering and Logistics Support	MIPR	Various : N/A	-	0.459	Nov 2022	1.652	Nov 2023	2.063	Nov 2024	-		2.063	Continuing	Continuing	0.000
MODPROT IP - ES C - IPT, Engineering, Technical, Logistics Support	MIPR	Various : N/A	-	1.273	Nov 2022	1.318	Nov 2023	1.800	Nov 2024	-		1.800	Continuing	Continuing	0.000
Subtotal			-	1.732		2.970		3.863		-		3.863	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / Chemical and Biological Defense (Operational Systems Development)	Project (Number/Name) PT7 / Protect (Op Sys Dev)
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Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MODPROT CP - DTE C - CP Modernization Testing	Various	Various : N/A	-	1.465	Oct 2022	1.219	Nov 2023	0.673	Nov 2024	-		0.673	Continuing	Continuing	0.000
MODPROT IP - DTE C - Fixed Wing Aircraft/Aircrew PPE Optimization Effort	MIPR	Various : N/A	-	1.960	Nov 2022	3.497	Nov 2023	3.735	Nov 2024	-		3.735	Continuing	Continuing	0.000
MODPROT IP - DTE C - CRE PPE Testing	MIPR	Various : N/A	-	0.000		0.000		3.817	Nov 2024	-		3.817	Continuing	Continuing	0.000
MODPROT IP - DTE C - Filter Prototype Testing	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	-	1.018	Mar 2023	3.141	Nov 2023	0.794	Jul 2025	-		0.794	Continuing	Continuing	0.000
MODPROT IP - DTE C - Base X305 Testing	MIPR	Various : N/A	-	0.374	Apr 2023	0.000		0.000		-		0.000	0.000	0.374	0.000
Subtotal			-	4.817		7.857		9.019		-		9.019	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MODPROT CP - PM/MS C - Program Management Support	MIPR	Various : N/A	-	0.777	Feb 2023	0.826	Nov 2023	0.908	Nov 2024	-		0.908	Continuing	Continuing	0.000
MODPROT IP - PM/MS C - Program Management Support	MIPR	Various : N/A	-	0.976	Nov 2022	0.818	Nov 2023	1.383	Nov 2024	-		1.383	Continuing	Continuing	0.000
Subtotal			-	1.753		1.644		2.291		-		2.291	Continuing	Continuing	N/A

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) PT7 / <i>Protect (Op Sys Dev)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MODPROT CP - M48A1 Filter Redesign	1	2023	4	2025
MODPROT CP - Collective Protection Modernization for Ships and Buildings	1	2023	4	2027
MODPROT CP - Contaminated Filter Changeout Procedures	1	2023	4	2023
MODPROT CP - Collective Protection Design Guide	1	2024	4	2026
MODPROT CP - Liners/Closures Modernization	1	2024	2	2029
MODPROT CP - Filter Service Life Analysis	1	2024	4	2029
MODPROT CP - Mobile Platform Filter Modernization	1	2025	4	2027
MODPROT CP - Next Generation Filter	1	2028	4	2029
MODPROT IP - JSMLT Modernization	1	2023	4	2026
MODPROT IP - Fixed Wing Aircraft/Aircrew PPE Optimization Effort	1	2023	4	2029
MODPROT IP - Tent Permeation Testing	3	2023	4	2024
MODPROT IP - Second Generation Filter Technology Modernization DT	1	2024	4	2025
MODPROT IP - Third Generation Filter Prototype DT	1	2024	2	2028
MODPROT IP - CBIRF Class 3 Modernization	2	2024	4	2024
MODPROT IP - IPE Shelf life Extension Testing	2	2024	4	2024
MODPROT IP - CRE PPE Modernization	2	2024	4	2029
MODPROT IP - Second Generation Filter ECP	4	2025	1	2027
MODPROT IP - Third Generation Filter Technology ECP	4	2027	2	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) MT7 / <i>Mitigate (Op Sys Dev)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
MT7: <i>Mitigate (Op Sys Dev)</i>	-	4.977	3.074	1.987	0.000	1.987	1.819	1.845	1.862	1.034	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Mitigate Operational System Development Project provides the Joint Force continued readiness of fielded personnel and materiel contamination mitigation and chemical agent therapeutic capabilities and provides size, weight and power improvements to reduce logistical burden on the warfighter.

Efforts included in this Project are:

- (1) Improved Nerve Agent Treatment Centrally Acting (INATS CA),
- (2) Modernization Decontamination (MODPROT DE), and
- (3) Modernization Hazard Mitigation (MOD HM)

The Improved Nerve Agent Treatment System Centrally Acting (INATS CA) includes modernization of Soman Nerve Agent Pretreatment Pyridostigmine (SNAPP; pyridostigmine bromide [PB] tablets). In FY25, the INATS CA program will submit to the FDA for approval, documents supporting PB Extended Release tablets in blister packs. These tablets will provide a single tablet per day dose alternative to the current SNAPP dosing regimen for the pretreatment against soman nerve agent poisoning. Program funding will support post marketing requirements for the PB Extended Release tablets and on-going Stability Studies.

Modernization Decontamination (MODPROT DE) addresses modernization and obsolescence across the Department of Defense (DoD) DE portfolio to increase readiness, sustainability, reliability, and affordability of these systems. Beginning with the obsolescence and technical data concerns, beginning with the M26 Joint Services Transportable Decontamination System-Small Scale (JSTDS-SS) through validation and verification of Technical Manual (TM) changes as well as technical data for spare and repair parts; the M12A1 Power Driven Decontamination Apparatus (PDDA) by updating technical references and performing the necessary validation and verification before publishing an updated TM. In FY25, the program name changes to Modernization Hazard Mitigation (MOD HM) to accurately reflect the capability and applicability of the system.

The Modernization Hazard Mitigation (MOD HM) effort addresses modernization and obsolescence across the Department of Defense (DoD) HM portfolio to increase readiness, sustainability, reliability, and affordability of these systems. Modernization Hazard Mitigation (MOD HM) addresses modernization and obsolescence across the hazard mitigation portfolio to increase readiness, sustainability, reliability, and affordability of these systems. The effort will address obsolescence and technical data concerns through validations and verification of technical data and updating of Technical Manuals (TM). This project was funded in FY24 under the Modernization Decontamination (MODPROT DE) effort, and was renamed MOD HM to accurately reflect the capability and applicability of the system. In FY25, MOD HM will continue modernization efforts to extend service life and sustainment support of the M26 Joint Services Transportable Decontamination System-Small Scale (JSTDS-SS).

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) MT7 / <i>Mitigate (Op Sys Dev)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Title: 1) INATS CA - SNAPP</p> <p>Description: Soman Nerve Agent Pre-Treatment Pyridostigmine (SNAPP) Shelf Life Modernization</p> <p>FY 2024 Plans: Completing on-going stability activities and initiating New Drug Application (NDA) package preparation for FDA submission.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: In FY24 activities are completing due to the acceleration of the program.</p>	0.775	0.506	-
<p>Title: 2) INATS CA - PB Tablet</p> <p>Description: Pyridostigmine Bromide (PB) Extended Release Tablet Development</p> <p>FY 2024 Plans: Continue Extended Release Tablet Development.</p> <p>FY 2025 Plans: Continue Stability Studies and any Post-Marketing requirements assigned by the FDA.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: In FY25 activities costs increasing slightly due to FDA/NDA submission as well as Prescription Drug User Fee Act (PDUFA) fees.</p>	3.154	0.369	0.897
<p>Title: 3) MODPROT DE</p> <p>Description: Upgrades, improvements, and modernizations to fielded decontamination systems</p> <p>FY 2024 Plans: Complete the M12 Pressure Accumulator Project. Continue M26 modernization efforts to extend service life and sustainment support, to include Technical Manual (TM) updates with verification and validation. Initiate and complete the M295 and M100 Performance Characterization Project.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: MODPROT DE program funding transferred to the Modernization Hazard Mitigation (MOD HM) funding line under this project. Decrease of funding from FY24 MODPROT DE to FY25 MOD HM is due to completion of the Tactical Decontamination Outdoor Testing during FY24 and no further testing required in FY25.</p>	1.048	2.199	-
<p>Title: 4) MOD HM</p>	-	-	1.090

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) MT7 / <i>Mitigate (Op Sys Dev)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Description: Upgrades, improvements, and modernizations to fielded decontamination systems			
FY 2025 Plans: Continue M26 modernization efforts to extend service life and sustainment support. Continue M12A1 Power Driven Decontamination Apparatus (PDDA) effort. Complete the Decontamination Kits Characterization Project, which seeks to expand the proven capabilities of the M295 and M100 decontamination kits, begin testing the decontamination kits against the highest priority threats. Initiate the Real Time Shelf Life set-aside program for the Decontamination Family of Systems General Purpose Decontaminant (DFoS GPD) to assess the effect that storage has on its chemistry and performance.			
FY 2024 to FY 2025 Increase/Decrease Statement: Program funding transferred due to program name change from Modernization Decontamination (MODPROT DE) to Modernization Hazard Mitigation (MOD HM) to accurately reflect the capability and applicability of the system.			
Accomplishments/Planned Programs Subtotals	4.977	3.074	1.987

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2023	FY 2024	FY 2025			FY 2026	FY 2027	FY 2028	FY 2029	Cost To	
			Base	OCO	Total					Complete	Total Cost
• MT5: <i>Mitigate (SDD)</i>	66.596	88.441	65.958	-	65.958	68.516	80.822	100.320	97.781	Continuing	Continuing
• JD0050: <i>Decontamination Family of Systems (DFoS)</i>	4.795	6.062	4.878	-	4.878	3.891	5.965	4.996	-	Continuing	Continuing
• PHM040: <i>Improved Nerve Agent Treatment System Centrally Acting (INATS CA)</i>	-	-	-	-	-	-	31.678	39.322	40.108	Continuing	Continuing

Remarks

D. Acquisition Strategy

Improved Nerve Agent Treatment Centrally Acting (INATS CA)

The Improved Nerve Agent Treatment System Centrally Acting (INATS CA) BA7 program consists of modernization efforts for the FDA-approved Soman Nerve Agent Pretreatment Pyridostigmine (SNAPP), a medical pre-treatment against nerve agent poisoning, and the development of a novel pyridostigmine bromide (PB) once-a-day tablet that will allow the services an alternative to the currently used SNAPP product. Both efforts utilize contracts and Other Transactional Agreements (OTAs) in which the performer shall be responsible for conducting development and testing activities consistent with current Food and Drug Administration (FDA) regulations. The

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) MT7 / <i>Mitigate (Op Sys Dev)</i>

contractor shall work with the current SNAPP sponsor, the Office of Regulatory Affairs (ORA), to submit all relevant data and forms to the FDA, or in the case of the novel PB once-a-day tablet, work with the commercial sponsor of the product on FDA engagements as they will hold all approvals and/or licenses.

Modernization Hazard Mitigation (MOD HM)

The MOD HM effort 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 (TDPs) to be used in Engineering Change Proposals (ECPs) and provided to the item managers.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program												Date: March 2024			
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0607384BP / Chemical and Biological Defense (Operational Systems Development)						Project (Number/Name) MT7 / Mitigate (Op Sys Dev)			

Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
INATS CA - HW C - Shelf Life Modernization (SNAPP)	C/CPFF	CMC Pharma : Cleveland, OH	-	0.705	Dec 2022	0.330	Nov 2023	0.000		-		0.000	0.000	1.035	0.000
INATS CA - HW C - PB Extended Release	C/FP	Amneal Pharmaceuticals : Hauppauge, NY	-	2.031	Dec 2022	0.329	Oct 2023	0.822	Dec 2024	-		0.822	Continuing	Continuing	0.000
INATS CA - HW C - Direct Product Support	Various	JPM CBRN Medical, JPEO-CBRND : Fort Detrick, MD	-	0.629	Dec 2023	0.080	Nov 2023	0.036	Dec 2024	-		0.036	Continuing	Continuing	0.000
INATS CA - HW C - SBIR/STTR	Various	JPEO Chem, Bio, Rad, and Nuc Defense (JPEO-CBRND) : Aberdeen Proving Ground, MD	-	0.081	Dec 2022	0.040	Nov 2023	0.000		-		0.000	0.000	0.121	0.000
MODPROT DE - HW C - M26 Tech Data Package; Modernization Update / M12A1 TM Update	Various	Various : N/A	-	0.790	Oct 2022	1.735	Nov 2023	0.000		-		0.000	0.000	2.525	0.000
MOD HM - HW C - M26 Modernization, Decon Kits, M333 Real Time Shelf Life Project	Various	Various : N/A	-	0.000		0.000		0.896	Nov 2024	-		0.896	Continuing	Continuing	0.000
Subtotal			-	4.236		2.514		1.754		-		1.754	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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 DE - DTE C - IPT, Engineering, Technical, Logistics Support	MIPR	Various : N/A	-	0.137	Oct 2022	0.329	Nov 2023	0.000		-		0.000	0.000	0.466	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Chemical and Biological Defense Program **Date:** March 2024

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / Chemical and Biological Defense (Operational Systems Development)	Project (Number/Name) MT7 / Mitigate (Op Sys Dev)
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Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MOD HM - ES S - IPT, Engineering, Technical, Logistics Support	Various	Various : N/A	-	0.000		0.000		0.084	Nov 2024	-		0.084	Continuing	Continuing	0.000
Subtotal			-	0.137		0.329		0.084		-		0.084	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
INATS CA - PM/MS C - Management Services	Various	JPEO Chem, Bio, Rad, and Nuc Defense (JPEO-CBRND) : Aberdeen Proving Ground, MD	-	0.483	Dec 2022	0.096	Nov 2023	0.039	Dec 2024	-		0.039	Continuing	Continuing	0.000
MODPROT DE - PM/MS C - Program Management Support	Various	Various : N/A	-	0.121	Nov 2022	0.135	Nov 2023	0.000		-		0.000	0.000	0.256	0.000
MOD HM - PM/MS C - Program Management Support	Various	Various : N/A	-	0.000		0.000		0.110	Nov 2024	-		0.110	Continuing	Continuing	0.000
Subtotal			-	0.604		0.231		0.149		-		0.149	Continuing	Continuing	N/A

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	4.977	3.074	1.987	-	1.987	Continuing	Continuing	N/A

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Chemical and Biological Defense Program		Date: March 2024
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / <i>Chemical and Biological Defense (Operational Systems Development)</i>	Project (Number/Name) MT7 / <i>Mitigate (Op Sys Dev)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
INATS CA - SNAPP Modernization - BA7	1	2023	4	2024
INATS CA - PB Extended Release Long Term Stability	1	2023	4	2024
INATS CA - PB Extended Release Tablet Development - BA7	1	2023	1	2024
MODPROT DE - M12A1 TM Update	1	2023	4	2023
MODPROT DE - M26 JSTDS-SS TDP	1	2023	4	2023
MODPROT DE - M26 JSTDS-SS Modernization	1	2023	4	2024
MODPROT DE - M295 & M100 Performance Characterization	1	2024	4	2024
MODPROT DE - M12 Pressure Accumulator	1	2024	4	2024
MOD HM - Decontamination Kits Characterization	1	2025	4	2025
MOD HM - M26 Control Panel Modernization	1	2025	4	2025
MOD HM - M26 Obsolescence Mitigation	1	2025	4	2025
MOD HM - M26 Equipment Assessment	1	2025	4	2025
MOD HM - M12 Modernization	1	2025	4	2029
MOD HM - M26 JSTDS-SS Modernization	1	2025	4	2029