Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Defense Threat Reduction Agency	Date: March 2024
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605000BR *I COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT*

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	38.815	14.044	14.414	14.841	-	14.841	15.069	17.522	17.860	18.323	Continuing	Continuing
RD: *NUCLEAR TECHNOLOGIES AND CAPABILITIES DEVELOPMENT*	38.815	14.044	14.414	14.841	-	14.841	15.069	17.522	17.860	18.323	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Counter Weapons of Mass Destruction (CWMD) Systems Development program element supports the development and demonstration of technologies and systems for the CWMD mission, including modeling and simulation (M&S) capabilities, verification and monitoring technologies, and decision support systems.

B. Program Change Summary ($ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	14.403	14.414	14.341	-	14.341
Current President's Budget	14.044	14.414	14.841	-	14.841
Total Adjustments	-0.359	0.000	0.500	-	0.500
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.359	0.000			
• Realignments	-	0.000	0.500	0.000	0.500

Change Summary Explanation

The increase from the previous President's Budget reflects realignments from Project RD in Program Element (PE) 0603160BR to Project RD in this PE for the transition of Nuclear, Chemical, Biological, Radiological, and high Explosive Analysis Toolsets to the systems demonstration phase.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Defense Threat Reduction Agency			Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT*	Project (Number/Name) RD / *NUCLEAR TECHNOLOGIES AND CAPABILITIES DEVELOPMENT*	

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
RD: *NUCLEAR TECHNOLOGIES AND CAPABILITIES DEVELOPMENT*	38.815	14.044	14.414	14.841	-	14.841	15.069	17.522	17.860	18.323	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports the development of capabilities for the Defense Threat Reduction Agency (DTRA) to counter proliferation and weapons of mass destruction (WMD) and to model the consequences of the use of nuclear weapons and integrate these capabilities for Combatant Command use. This project encompasses the following related areas.

DTRA's Enhanced Consequence Analysis (ECA) program performs research and development to improve the reliability and effectiveness of capabilities related to the consequence of execution of a nuclear weapon. This program delivers nuclear weapon effects (NWE) decision support tools for use during strategic and operational planning. The ECA program directly supports U.S. and allied warfighter planning requirements, including the Integrated Strategic Planning and Analysis Network Increment 5 (ISPAN Increment 5), an acquisition category (ACAT) 1A Major Automated Information System (MAIS) that supports developing nuclear and conventional force application plans.

DTRA's Nuclear Arms Control Technologies (NACT) program performs research and development to improve the sustainability, reliability, and effectiveness of capabilities related to its operational mission to install, operate, maintain, and sustain the waveform and radionuclide nuclear detonation detection stations and a radionuclide analysis laboratory comprising the majority of the U.S. portion of the International Monitoring System (IMS). This system delivers data continuously to the U.S. monitoring and verification community supporting warfighter and interagency nuclear-event response in support of the United States and Department of Defense (DoD). The NACT program directly supports U.S. and allied warfighter and national technical monitoring requirements and provides vital data used by the treaty monitoring community, warfighter planners, DoD, other U.S. Government agencies, and international agencies.

The Nuclear Capabilities Services (NuCS) program performs RDT&E to improve capabilities to model nuclear weapon effects (NWE) environments and simulate the response of systems and networks to these effects. Starting with NWE modeling & simulation (M&S) capabilities rooted in the DoD nuclear testing program, NuCS augments these legacy codes through integration of higher-fidelity reduced-order models built by DTRA applied research efforts that combine first-principle science & technology M&S and experimental research. Through technology updates to legacy codes and integration of new models, NuCS provide a standard source of NWE M&S capabilities for all DoD users. The ECA program integrates NuCS capabilities and these M&S capabilities with operational databases and systems and works with end-users to provide a user experience specifically designed for nuclear planning. Together, these programs support United States and allied planning and decision making in the event of nuclear weapon use.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Defense Threat Reduction Agency		Date: March 2024
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / *COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT*	**Project (Number/Name)** RD / *NUCLEAR TECHNOLOGIES AND CAPABILITIES DEVELOPMENT*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: RD - Nuclear Technologies and Capabilities Development	14.044	14.414	14.841
Description: Project RD supports the NuCS, NACT, and ECA programs, conducting RDT&E to support U.S. and allied nuclear planning and decision-making requirements. ***FY 2024 Plans:*** - Integrate nuclear weapon effects software capabilities prioritized by ECA users in a cloud-ready architecture that has been tested and evaluated to function under expected operational conditions. - Integrate new and requested capabilities into cloud-ready USSTRATCOM, UK/Ministry of Defense and North Atlantic Treaty Organization (NATO)/Supreme Headquarters Allied Powers Europe (SHAPE) nuclear planning tools. - Develop algorithms to enable transition of infrasound propagation models to DoD systems and develop prototype of next generation International Monitoring System (IMS) radionuclide lab analysis capability. - Deliver improved "state of health" IMS performance and predictive algorithms and monitoring arrays using artificial intelligence/ machine learning (AI/ML) techniques from legacy U.S. IMS data. - Demonstrate an emerging-threat monitoring capability that leverages current systems and complete comprehensive analyses of sensor data from DTRA/Department of State/National Nuclear Security Administration (NNSA) high-explosive experiments. ***FY 2025 Plans:*** - Integrate impacts to infrastructure capabilities into cloud-ready nuclear planning tools for USSTRATCOM, UK/Ministry of Defense, and North Atlantic Treaty Organization (NATO)/ Supreme Headquarters Allied Powers Europe (SHAPE). - Implement algorithms to enable transition of infrasound propagation models to DoD systems and complete Operational Test and Evaluation (OT&E) of next generation International Monitoring System (IMS) radionuclide lab analysis capability. - Complete installation of 32nd IMS station and deliver improved "state of health" IMS performance and predictive algorithms for monitoring arrays using artificial intelligence/machine learning (AI/ML) techniques. - Demonstrate emerging-threat monitoring capability that leverages current systems and extend comprehensive analyses of sensor data from DTRA/Department of State (DOS)/National Nuclear Security Administration (NSSA) (high-explosive experiments by leveraging machine learning techniques. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The increase from FY 2024 to FY 2025 reflects realignments from Project RD in Program Element (PE) 0603160BR to this project for the transition of Nuclear, Chemical, Biological, Radiological, and high Explosive Analysis Toolsets (NATs) to the systems demonstration phase.			
Accomplishments/Planned Programs Subtotals	14.044	14.414	14.841

Exhibit R-2A, RDT&E Project Justification: PB 2025 Defense Threat Reduction Agency		Date: March 2024
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / *COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT*	**Project (Number/Name)** RD / *NUCLEAR TECHNOLOGIES AND CAPABILITIES DEVELOPMENT*

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
• BA2/24/0602718BR: *COUNTER WEAPONS OF MASS DESTRUCTION APPLIED RESEARCH*	109.737	119.670	106.576	0.000	106.576	107.899	107.340	109.484	111.675	Continuing	Continuing
• BA3/35/0603160BR: *COUNTER WEAPONS OF MASS DESTRUCTION ADVANCED TECHNOLOGY DEVELOPMENT*	64.264	51.697	76.899	0.000	76.899	75.475	74.596	72.108	73.717	Continuing	Continuing

Remarks

D. Acquisition Strategy

Assess government, academic, and industrial performers and make selections based upon a "best fit for task" criteria. Common government awardees include DoD Service Laboratories and the Department of Energy National Laboratories.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Defense Threat Reduction Agency			Date: March 2024
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / *COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT*	**Project (Number/Name)** RD / *NUCLEAR TECHNOLOGIES AND CAPABILITIES DEVELOPMENT*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Enhanced Consequence Analysis (ECA) capability development	C/CPFF	Booz Allen Hamilton : McLean, VA	4.655	1.970	Mar 2023	1.861	Nov 2023	3.400	Nov 2024	0.000		3.400	Continuing	Continuing	0.000
Nuclear Capabilities Service (NuCS) nuclear weapon effects models and integration development	C/CPFF	Applied Research Associates : Raleigh, NC	1.400	1.535	Mar 2023	2.403	Dec 2023	3.487	Dec 2024	0.000		3.487	Continuing	Continuing	0.000
Nuclear, Chemical, Biological, Radiological and high-Explosive (NCBRE) Analysis Toolset (NATs) development	C/CPFF	Leidos : San Diego, CA	0.000	0.000		0.000		0.500	Dec 2024	0.000		0.500	Continuing	Continuing	0.000
		Subtotal	6.055	3.505		4.264		7.387		0.000		7.387	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Radionuclide sensor, station, laboratory and network improvements	FFRDC	Pacific Northwest National Laboratory : Richland, WA	3.998	1.785	Jan 2023	1.084	Dec 2023	0.919	Dec 2024	0.000		0.919	Continuing	Continuing	0.000
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	FFRDC	Sandia National Laboratory : Albuquerque, NM	4.471	1.589	Jan 2023	0.900	Dec 2023	1.043	Dec 2024	0.000		1.043	Continuing	Continuing	0.000
Radionuclide sensor, station, and network Improvements	MIPR	Air Force Technical Application Center : Patrick AFB, FL	1.288	0.350	Jan 2023	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000
Radionuclide sensor, station, laboratory and network improvements	C/CPFF	General Dynamics Mission Systems, Inc. : Fairfax, VA	1.336	0.750	Nov 2022	0.788	Nov 2023	0.788	Jan 2025	0.000		0.788	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Defense Threat Reduction Agency		Date: March 2024
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / *COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT*	**Project (Number/Name)** RD / *NUCLEAR TECHNOLOGIES AND CAPABILITIES DEVELOPMENT*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Station, and network Improvements	C/CPFF	Leidos Innovations Corp : Alexandria, VA	0.685	0.250	Mar 2023	0.750	Mar 2024	0.403	Nov 2024	0.000		0.403	Continuing	Continuing	0.000
Seismic and Infrasound sensor, station, and network Improvements	C/CPFF	Pennsylvania State University : State College, PA	1.309	0.275	Feb 2023	0.300	Feb 2024	0.400	Jan 2025	0.000		0.400	Continuing	Continuing	0.000
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	C/CPFF	University of Alaska Fairbanks : Fairbanks, AK	0.143	0.395	Mar 2023	0.411	Mar 2024	0.411	Mar 2025	0.000		0.411	Continuing	Continuing	0.000
Integrated Munitions Effects Assessment Software Development	C/CPFF	Applied Research Associates, Inc : Alexandria, VA	0.604	0.000		0.000		0.000		0.000		0.000	0.000	0.604	0.604
Radionuclide sensor, station, laboratory and network improvements	FFRDC	Argonne National Laboratory : Argonne, IL	0.200	0.602	Mar 2023	0.400	Mar 2024	0.400	Mar 2025	0.000		0.400	Continuing	Continuing	0.000
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	MIPR	University Affiliated Research Center, University of Alaska : Fairbanks, AK	1.170	0.695	Feb 2023	0.650	Jan 2024	0.760	Jan 2025	0.000		0.760	Continuing	Continuing	0.000
Seismic and Infrasound sensor, station, and network Improvements	MIPR	U.S. Army Corps of Engineers : Vicksburg, MS	0.706	0.000		0.000		0.000		0.000		0.000	0.000	0.706	0.706
Seismic and Infrasound sensor, station, and network Improvements	MIPR	Missile Defense Agency : Fort Belvoir, VA	0.650	0.000		0.000		0.000		0.000		0.000	0.000	0.650	0.650
Seismic and Infrasound sensor, station, and network Improvements	MIPR	Geophysical Detection for Non-Proliferation University Affiliated Research Center,	1.216	0.000		0.000		0.000		0.000		0.000	0.000	1.216	1.216

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Defense Threat Reduction Agency			Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT*	Project (Number/Name) RD / *NUCLEAR TECHNOLOGIES AND CAPABILITIES DEVELOPMENT*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		University of Alaska : Fairbanks, AK													
Radionuclide sensor, station, and network Improvements	FFRDC	Savanah River National Laboratory : Savannah River Site Aiken, SC	1.919	0.300	Mar 2023	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000
Seismic and Infrasound sensor, station, and network Improvements	MIPR	DIA/MSIC : Huntsville, AL	0.505	0.000		0.000		0.000		0.000		0.000	0.000	0.505	0.505
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	FFRDC	Lawrence Livermore National Laboratory : Livermore, CA	1.919	0.000		0.000		0.000		0.000		0.000	0.000	1.919	1.919
Radionuclide sensor, station, and network Improvements	C/CPFF	Draper : Cambridge, MA	3.000	0.300	Jan 2023	0.250	Feb 2024	0.224	Feb 2025	0.000		0.224	Continuing	Continuing	0.000
Enhanced consequence analysis initial capability	C/CPFF	TBD : TBD	5.000	0.000		0.000		0.000		0.000		0.000	0.000	5.000	5.000
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	C/CPFF	National Nuclear Center of Kazakhstan : Kazakhstan	0.000	0.550	Dec 2022	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000
Applied Research Associates : Albuquerque, NM	C/CPFF	Applied Research Associates : Albuquerque, NM	0.000	0.450	Dec 2022	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000
Seismic and Infrasound sensor, station, and network Improvements; comprehensive analysis of high explosive experiments	FFRDC	Lawrence Livermore National Laboratory : Livermore, CA	0.000	0.000		0.450	Dec 2023	0.275	Dec 2024	0.000		0.275	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Defense Threat Reduction Agency			Date: March 2024
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / *COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT*	**Project (Number/Name)** RD / *NUCLEAR TECHNOLOGIES AND CAPABILITIES DEVELOPMENT*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Seismic and Infrasound sensor, station, and network Improvements; comprehensive analysis of high explosive experiments	C/CPFF	Applied Research Associates : Arlington, VA	0.000	0.000		0.350	Feb 2024	0.111	Nov 2024	0.000		0.111	Continuing	Continuing	0.000
Seismic and Infrasound sensor, station, and network improvements; new station development and installation	C/CPFF	University of Alaska Fairbanks : Fairbanks, AK	0.000	0.000		0.000		1.048	Mar 2025	0.000		1.048	Continuing	Continuing	0.000
		Subtotal	30.119	8.291		6.333		6.782		0.000		6.782	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Enhanced Consequence Analysis (ECA) T&E	C/CPFF	Booz Allen Hamilton : McLean, VA	1.200	1.020	Mar 2023	1.982	Nov 2023	0.000		0.000		0.000	Continuing	Continuing	0.000
NuCS T&E	C/CPFF	Applied Research Associates : Raleigh, NC	1.192	1.116	Sep 2023	1.754	Sep 2024	0.589	Sep 2025	0.000		0.589	Continuing	Continuing	0.000
		Subtotal	2.392	2.136		3.736		0.589		0.000		0.589	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Reqn	Various : Various	0.249	0.112	Nov 2022	0.081	Nov 2023	0.083	Nov 2024	0.000		0.083	Continuing	Continuing	0.000
		Subtotal	0.249	0.112		0.081		0.083		0.000		0.083	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Defense Threat Reduction Agency			Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT*	Project (Number/Name) RD / *NUCLEAR TECHNOLOGIES AND CAPABILITIES DEVELOPMENT*	

	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	38.815	14.044		14.414		14.841		0.000		14.841	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Defense Threat Reduction Agency		Date: March 2024
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / *COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT*	**Project (Number/Name)** RD / *NUCLEAR TECHNOLOGIES AND CAPABILITIES DEVELOPMENT*

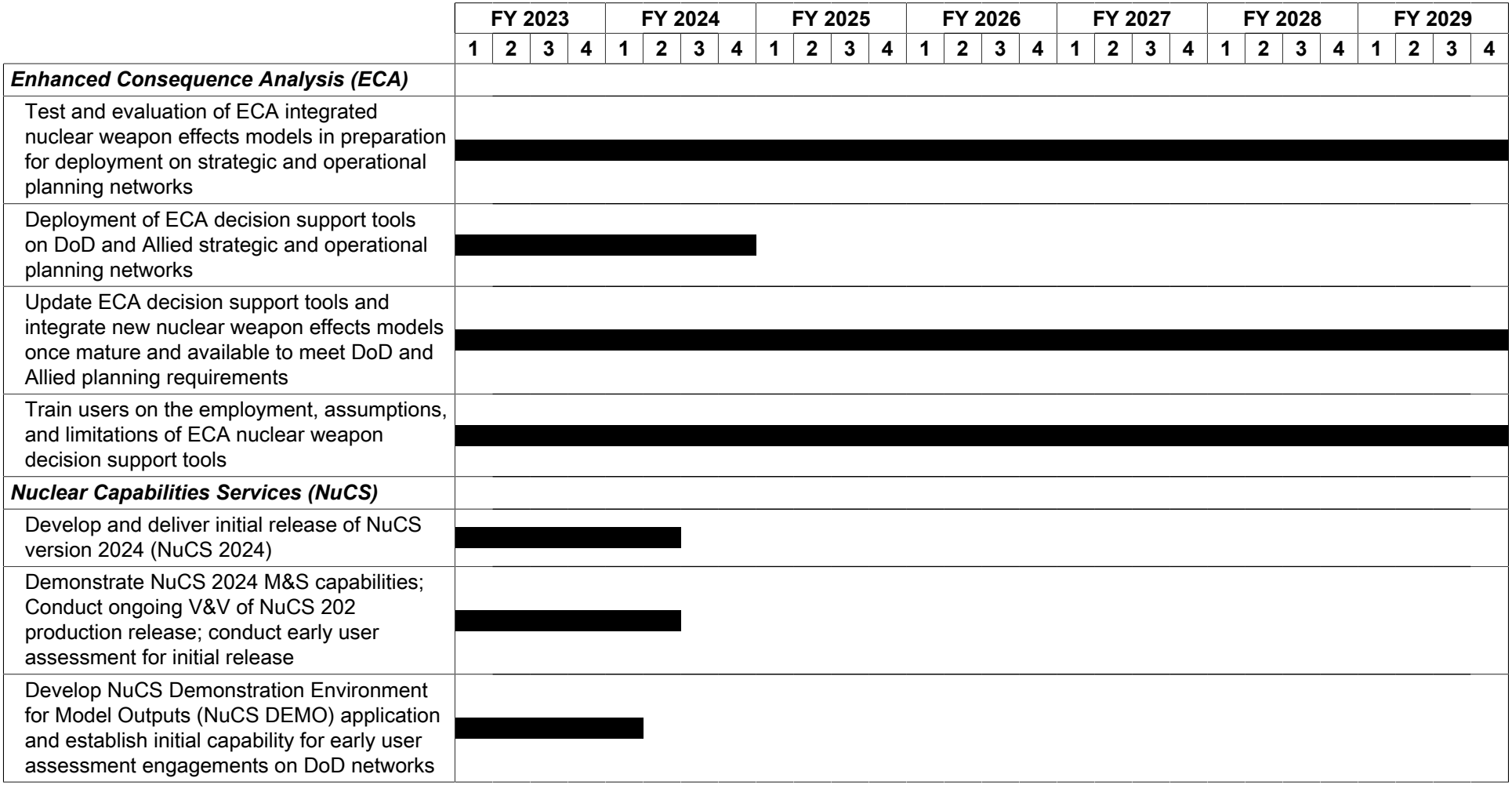

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Defense Threat Reduction Agency		Date: March 2024
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / *COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT*	**Project (Number/Name)** RD / *NUCLEAR TECHNOLOGIES AND CAPABILITIES DEVELOPMENT*

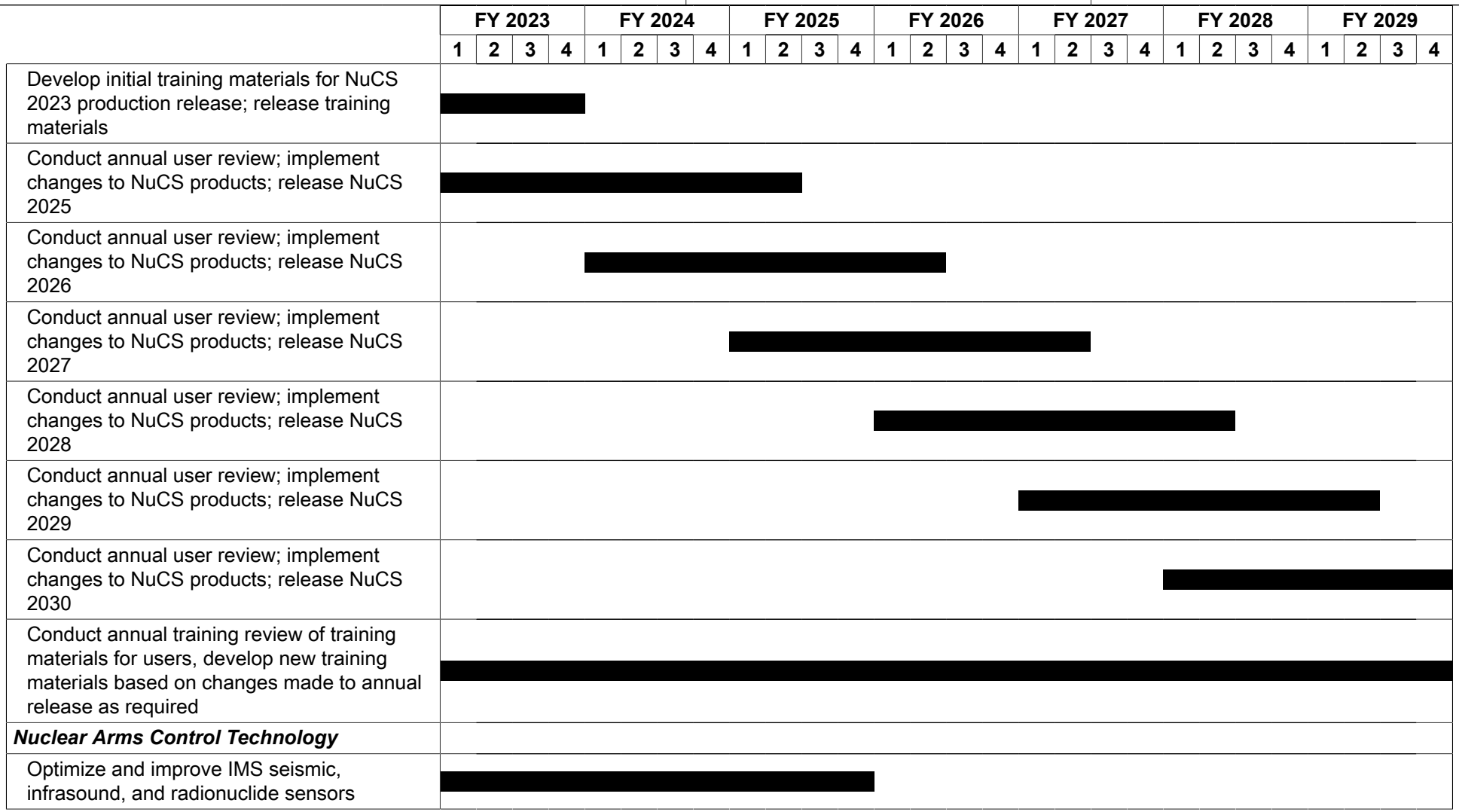

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Defense Threat Reduction Agency		Date: March 2024
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / *COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT*	**Project (Number/Name)** RD / *NUCLEAR TECHNOLOGIES AND CAPABILITIES DEVELOPMENT*

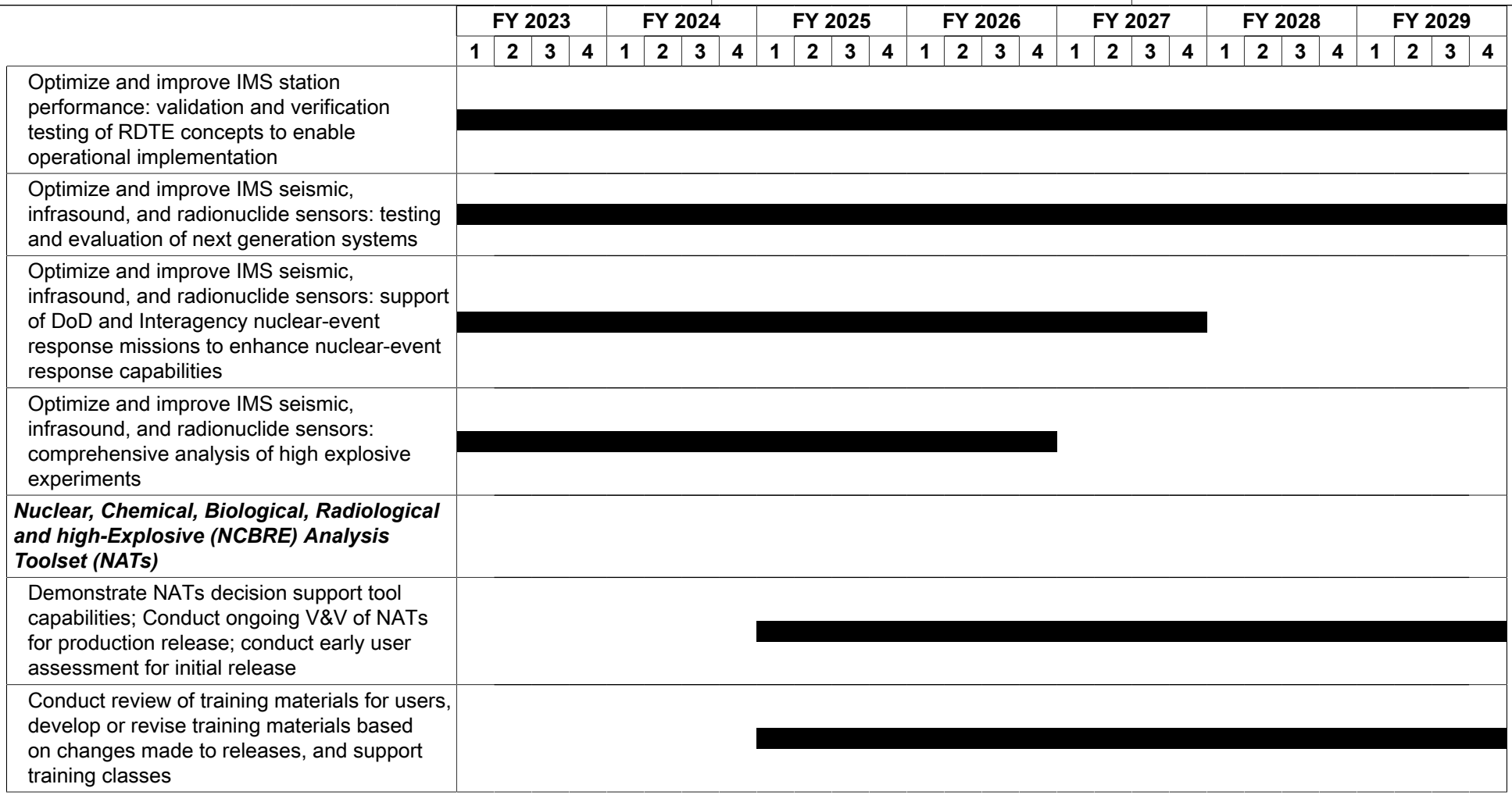

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Defense Threat Reduction Agency		Date: March 2024
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / *COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT*	**Project (Number/Name)** RD / *NUCLEAR TECHNOLOGIES AND CAPABILITIES DEVELOPMENT*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Enhanced Consequence Analysis (ECA)				
Test and evaluation of ECA integrated nuclear weapon effects models in preparation for deployment on strategic and operational planning networks	1	2023	4	2029
Deployment of ECA decision support tools on DoD and Allied strategic and operational planning networks	1	2023	4	2024
Update ECA decision support tools and integrate new nuclear weapon effects models once mature and available to meet DoD and Allied planning requirements	1	2023	4	2029
Train users on the employment, assumptions, and limitations of ECA nuclear weapon decision support tools	1	2023	4	2029
Nuclear Capabilities Services (NuCS)				
Develop and deliver initial release of NuCS version 2024 (NuCS 2024)	1	2023	2	2024
Demonstrate NuCS 2024 M&S capabilities; Conduct ongoing V&V of NuCS 202 production release; conduct early user assessment for initial release	1	2023	2	2024
Develop NuCS Demonstration Environment for Model Outputs (NuCS DEMO) application and establish initial capability for early user assessment engagements on DoD networks	1	2023	1	2024
Develop initial training materials for NuCS 2023 production release; release training materials	1	2023	4	2023
Conduct annual user review; implement changes to NuCS products; release NuCS 2025	1	2023	2	2025
Conduct annual user review; implement changes to NuCS products; release NuCS 2026	1	2024	2	2026
Conduct annual user review; implement changes to NuCS products; release NuCS 2027	1	2025	2	2027

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Defense Threat Reduction Agency		Date: March 2024
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / *COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT*	**Project (Number/Name)** RD / *NUCLEAR TECHNOLOGIES AND CAPABILITIES DEVELOPMENT*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Conduct annual user review; implement changes to NuCS products; release NuCS 2028	1	2026	2	2028
Conduct annual user review; implement changes to NuCS products; release NuCS 2029	1	2027	2	2029
Conduct annual user review; implement changes to NuCS products; release NuCS 2030	1	2028	2	2030
Conduct annual training review of training materials for users, develop new training materials based on changes made to annual release as required	1	2023	4	2029
Nuclear Arms Control Technology				
Optimize and improve IMS seismic, infrasound, and radionuclide sensors	1	2023	4	2025
Optimize and improve IMS station performance: validation and verification testing of RDTE concepts to enable operational implementation	1	2023	4	2029
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: testing and evaluation of next generation systems	1	2023	4	2029
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: support of DoD and Interagency nuclear-event response missions to enhance nuclear-event response capabilities	1	2023	4	2027
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: comprehensive analysis of high explosive experiments	1	2023	4	2026
Nuclear, Chemical, Biological, Radiological and high-Explosive (NCBRE) Analysis Toolset (NATs)				
Demonstrate NATs decision support tool capabilities; Conduct ongoing V&V of NATs for production release; conduct early user assessment for initial release	1	2025	4	2029
Conduct review of training materials for users, develop or revise training materials based on changes made to releases, and support training classes	1	2025	4	2029