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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Defense Threat Reduction Agency **Date:** May 2021

Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0605000BR / Counter Weapons of Mass Destruction Systems Development
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	0.000	15.332	15.650	14.063	-	14.063	-	-	-	-	-	-
MA: CWMD Cross-Cutting Technical and Information Sciences	0.000	5.462	0.000	0.000	-	0.000	-	-	-	-	-	-
RD: Nuclear Technologies and Capabilities Development	0.000	9.870	15.650	14.063	-	14.063	-	-	-	-	-	-

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)

	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	13.100	15.650	14.803	-	14.803
Current President's Budget	15.332	15.650	14.063	-	14.063
Total Adjustments	2.232	0.000	-0.740	-	-0.740
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	2.232	-			
• SBIR/STTR Transfer	-	-			
• Realignments	-	-	-0.740	-	-0.740

Change Summary Explanation

The decrease in FY 2022 from the previous President's Budget is due to re-phasing of funding from FY 2022 to FY 2023 and FY 2024 to better align funding to mission requirements.

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Threat Reduction Agency										Date: May 2021		
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0605000BR / <i>Counter Weapons of Mass Destruction Systems Development</i>				Project (Number/Name) MA / <i>CWMD Cross-Cutting Technical and Information Sciences</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
MA: <i>CWMD Cross-Cutting Technical and Information Sciences</i>	0.000	5.462	0.000	0.000	-	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In an October 29, 2018 memorandum, the Deputy Secretary of Defense directed the transfer of Mission Assurance Risk Management System (MARMS) program management responsibilities from the Department of Defense Chief Information Officer (DoD CIO) to the Defense Threat Reduction Agency (DTRA), in light of DTRA's role in conducting Joint Mission Assurance Assessments. Prior to FY 2020, funding for MARMS is captured in program element 0605170D8Z; beginning in FY 2021 funding for MARMS is captured in a newly established program element, 0605141BR.

A. Mission Description and Budget Item Justification

The Mission Assurance Risk Management System (MARMS) is a Department of Defense (DoD) risk management system that directly supports the Secretary of Defense's Mission Assurance (MA) responsibilities as defined in the DoD Directive (DoDD) 3020.40, Mission Assurance, with the objectives of creating resilience and supporting critical processes to enable the protection of assets and ensuring defense critical missions. MARMS will function as an integration framework spanning multiple security domains that will support risk-informed decision-making, resource investment, and improved synchronization at different levels within DoD. MARMS supports multiple Joint Capability Areas (JCA): Command and Control, Logistics, and Protection. MARMS is an acquisition category (ACAT) III software program and has a "high" impact value for each of the three security objectives (confidentiality, integrity, and availability) in accordance with DoD Instruction (DoDI) 8510.01 and the Committee on National Security Systems Instruction (CNSSI) 1253.

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

	FY 2020	FY 2021	FY 2022
Title: MA - Mission Assurance Risk Management System	5.462	0.000	0.000
Description: MARMS Requirements Definition Package (RDP)-1 defines multiple spirals of major technological improvements. Each spiral is comprised of multiple Capability Drops (CD) that defined specific capabilities. RDP-1 defines seven (7) capability drops focusing on the collection, analysis, warehousing, sharing, protection, and accessing of Defense Critical Infrastructure (DCI) and AntiTerrorism (AT) data supporting multiple types and levels of trusted users.			
FY 2021 Plans: N/A			
FY 2022 Plans: N/A			
FY 2021 to FY 2022 Increase/Decrease Statement:			

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Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) MA / CWMD Cross-Cutting Technical and Information Sciences

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
No change from the previous President's Budget.			
Accomplishments/Planned Programs Subtotals	5.462	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• 140/0605141BR: <i>Mission Assurance Risk Management System</i>	0.000	5.500	5.500	-	5.500	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Defense Threat Reduction Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) MA / CWMD Cross-Cutting Technical and Information Sciences
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
CD1 - Information Sharing and Lead Integration	MIPR	U.S. Army Futures Command : Picatinny Arsenal, NJ	-	2.629	Feb 2020	-		-		-		-	0.000	2.629	-
CD2 - Assessment Capability	C/CPFF	Alion Science & Technology : McLean, VA	-	0.690	Feb 2020	-		-		-		-	0.000	0.690	-
CD3 - Existing System Upgrades	MIPR	Naval Surface Warfare Center : Dahlgren, VA	-	0.700	Feb 2020	-		-		-		-	0.000	0.700	-
CD3 - Existing System Upgrades	MIPR	U.S Strategic Command (STRATCOM) : Offutt, NE	-	0.400	Feb 2020	-		-		-		-	0.000	0.400	-
CD4 - Workspace/Viewer on Secret Internet Protocol Router Network (SIPR) and CD5 - Workspace/Viewer on Joint Worldwide Intelligence Communications System (JWICS)	C/CPFF	TBD : TBD	-	0.560	Feb 2020	-		-		-		-	0.000	0.560	-
CD5 - Workspace/Viewer on Joint Worldwide Intelligence Communications System (JWICS)	C/CPFF	Institute for Defense Analysis : Washington, DC	-	0.390	Feb 2020	-		-		-		-	0.000	0.390	-
MARMS Hosting	MIPR	Acquisition, Logistics, and Technology Enterprise Systems and Services (ALTESS) : Radford, VA	-	0.093	Jan 2020	-		-		-		-	0.000	0.093	-
Subtotal			-	5.462		-		-		-		-	0.000	5.462	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Defense Threat Reduction Agency										Date: May 2021	
Appropriation/Budget Activity 0400 / 5				R-1 Program Element (Number/Name) PE 0605000BR / Counter Weapons of Mass Destruction Systems Development				Project (Number/Name) MA / CWMD Cross-Cutting Technical and Information Sciences			
	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals	-	5.462	0.000	-	-	-	0.000	5.462	N/A		

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) MA / CWMD Cross-Cutting Technical and Information Sciences

	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	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
Capability Drop 1: Information Sharing																												
Development																												
Modernization and Integration																												
Capability Drop 2: Assessment Capability																												
Development																												
Modernization and Integration																												
Capability Drop 3: System Upgrades																												
Development																												
Capability Drop 4: Workspace/Viewer on SIPR																												
Development																												
Capability Drop 5: Workspace/Viewer on JWICS																												
Development																												
Capability Drop 6: Cross Domain Solution - Low to High																												
Development																												

	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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
Capability Drop 1: Information Sharing																												
Development																												
Modernization and Integration																												
Capability Drop 2: Assessment Capability																												
Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) MA / CWMD Cross-Cutting Technical and Information Sciences

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Capability Drop 1: Information Sharing				
Development	4	2017	3	2019
Modernization and Integration	1	2020	4	2020
Capability Drop 2: Assessment Capability				
Development	1	2018	3	2019
Modernization and Integration	1	2020	4	2020
Capability Drop 3: System Upgrades				
Development	1	2018	4	2020
Capability Drop 4: Workspace/Viewer on SIPR				
Development	2	2018	4	2020
Capability Drop 5: Workspace/Viewer on JWICS				
Development	1	2019	4	2020
Capability Drop 6: Cross Domain Solution - Low to High				
Development	1	2020	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Threat Reduction Agency **Date:** May 2021

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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
RD: Nuclear Technologies and Capabilities Development	0.000	9.870	15.650	14.063	-	14.063	-	-	-	-	-	-
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.

DTRA's Enhanced Consequence Analysis (ECA) program performs Research, Development, Test, and Evaluation (RDT&E) 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 Inc 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, Development, Test, and Evaluation (RDT&E) 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 U.S. 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) project 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 Enhanced Consequence Analysis (ECA) project integrates NuCS capabilities and integrates these modeling and simulation (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 of United States and allied planning and decision making in the event of nuclear weapon use.

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

	FY 2020	FY 2021	FY 2022
Title: RD - Nuclear Technologies and Capabilities Development	9.870	15.650	14.063

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Threat Reduction Agency		Date: May 2021		
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / <i>Counter Weapons of Mass Destruction Systems Development</i>	Project (Number/Name) RD / <i>Nuclear Technologies and Capabilities Development</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>Description: Project RD supports the NuCS, NACT, and ECA projects conducting RDT&E to support U.S. and allied nuclear planning and decision-making requirements.</p> <p>FY 2021 Plans:</p> <ul style="list-style-type: none"> - Leverage and conduct conventional high explosive test events to evaluate U.S. IMS performance and validate geophysical models. - Continue to integrate data from IMS infrastructure and upgrade IMS technologies in support of DoD and Interagency nuclear-event response missions and treaty compliance. - Integrate IMS into appropriate DoD and interagency exercises to ensure stakeholder involvement in system optimization and to leverage, to the fullest extent possible, all IMS data streams in informing partner exercise activities. - Develop new and upgraded treaty-monitoring capabilities that will support nuclear-event response and strategic DoD missions. - Participate in international and interagency-sponsored technology development exchanges to ensure IMS research and engineering activities remain current and relevant. - Establish baseline of integrated nuclear weapon effects modeling and simulation capabilities that have completed V&V (document verification and validation activities and develop training materials for operators and subject-matter experts who develop and use planning and decision-making systems). - Deliver initial solution for calculating nuclear weapon effects to be integrated into existing planning and decision-support systems at U.S. and allied commands. <p>FY 2022 Plans:</p> <ul style="list-style-type: none"> - Improve and expand the NWE M&S capabilities available to be integrated in the NuCS and ECA programs for delivery to end-user programs. - Demonstrate newly-integrated NWE M&S capabilities and establish priorities for improving and delivering these capabilities through early user assessment engagements with end-users. - Continue to integrate improved NWE M&S capabilities into U.S. and allied planning and decision support systems in support of DoD nuclear planning requirements. - Conduct Research and Development in support of U.S. IMS sites globally. - Provide upgrades to U.S. IMS sites globally, as required. <p>FY 2021 to FY 2022 Increase/Decrease Statement: The decrease from FY 2021 to FY 2022 is due to reduced investment in nuclear and radiological effects enhanced consequence management in this program element.</p>				
Accomplishments/Planned Programs Subtotals		9.870	15.650	14.063

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Threat Reduction Agency	Date: May 2021
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Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / <i>Counter Weapons of Mass Destruction Systems Development</i>	Project (Number/Name) RD / <i>Nuclear Technologies and Capabilities Development</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 22/0602718BR/RD: <i>Counter Weapons of Mass Destruction Applied Research</i>	81.198	92.492	101.229	-	101.229	-	-	-	-	-	-
• 31/0603160BR/RD: <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>	62.407	50.816	50.417	-	50.417	-	-	-	-	-	-

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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Defense Threat Reduction Agency **Date:** May 2021

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
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Enhanced Consequence Analysis (ECA) capability development	C/CPFF	Booz Allen Hamilton : McLean, VA	-	-		-		2.100	Nov 2021	-		2.100	Continuing	Continuing	-
Nuclear Capabilities Service (NuCS) nuclear weapon effects models and integration development	C/CPFF	Applied Research Associates : Raleigh, NC	-	-		-		0.300	Nov 2021	-		0.300	Continuing	Continuing	-
Nuclear Capabilities Service (NuCS) nuclear weapon effects models and integration development	TBD	TBD : TBD	-	-		-		1.100	Mar 2022	-		1.100	Continuing	Continuing	-
TBD	C/CPAF	TBD : TBD	-	2.555		-		-		-		-	Continuing	Continuing	-
Subtotal			-	2.555		-		3.500		-		3.500	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Radionuclide sensor, station, laboratory and network improvements	FFRDC	Pacific Northwest National Laboratory : Richland, WA	-	1.550	Jan 2020	1.212	Jan 2021	1.236	Jan 2022	-		1.236	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	FFRDC	Sandia National Laboratory : Albuquerque, NM	-	1.850	Jan 2020	1.350	Jan 2021	1.377	Jan 2022	-		1.377	Continuing	Continuing	-
Radionuclide sensor, station, and network Improvements	MIPR	Air Force Technical Application Center : Patrick AFB, FL	-	0.500	Dec 2019	0.390	Feb 2021	0.398	Feb 2022	-		0.398	Continuing	Continuing	-
Radionuclide sensor, station, laboratory and network improvements	C/CPFF	General Dynamics Mission Systems, Inc. : Fairfax, VA	-	0.435	Nov 2019	0.446	Nov 2020	0.455	Nov 2021	-		0.455	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Defense Threat Reduction Agency **Date:** May 2021

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
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Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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
Station, and network Improvements	C/CPFF	Leidos Innovations Corp : Alexandria, VA	-	0.200	Apr 2020	0.240	Nov 2020	0.245	Nov 2021	-		0.245	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/CPFF	Pennsylvania State University : State College, PA	-	0.400	Feb 2020	0.450	Jan 2021	0.459	Jan 2022	-		0.459	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/CPFF	University of Alaska Fairbanks : Fairbanks, AK	-	0.143	Mar 2020	0.000		0.000		-		0.000	Continuing	Continuing	-
IMEA Software Development	C/CPFF	Applied Research Associates, Inc : Alexandria, VA	-	0.200	Jan 2020	0.200	Feb 2021	0.204	Feb 2022	-		0.204	Continuing	Continuing	-
IMS Gas Background Analysis	FFRDC	Argonne National Laboratory : Argonne, IL	-	0.200	Dec 2019	0.000		0.000		-		0.000	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	C/TBD	TBD : TBD	-	0.160	Mar 2020	0.500	Mar 2021	0.510	Mar 2022	-		0.510	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	MIPR	US Army Corps of Engineers : Vicksburg, MS	-	0.100	Dec 2019	0.300	Jan 2021	0.306	Jan 2022	-		0.306	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	MIPR	Missile Defense Agency : Fort Belvoir, VA	-	0.650	Mar 2020	0.000		0.000		-		0.000	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/TBD	University of Alaska : Fairbanks, AK	-	0.500	Feb 2020	0.500	Feb 2021	0.510	Feb 2022	-		0.510	Continuing	Continuing	-
Radionuclide sensor, station, and network Improvements	FFRDC	Savannah River National Laboratory : Savannah River Site Aiken, SC	-	0.404	Apr 2020	0.750	Mar 2021	0.765	Mar 2022	-		0.765	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Defense Threat Reduction Agency **Date:** May 2021

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
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Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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
Seismic and Infrasound sensor, station, and network Improvements	MIPR	DIA/MSIC : TBD	-	-		0.250	Mar 2021	0.255	Mar 2022	-		0.255	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	FFRDC	Lawrence Livermore National Laboratory : Livermore, CA	-	-		0.950	Jan 2021	0.969	Jan 2022	-		0.969	Continuing	Continuing	-
Nuclear weapon effects models and integrated NuCS core architecture development	C/CPFF	Applied Research Associates : Raleigh, NC	-	-		3.000	Jul 2021	0.000		-		0.000	Continuing	Continuing	-
Enhanced consequence analysis initial capability	C/CPFF	TBD : TBD	-	-		5.000	Jul 2021	0.000		-		0.000	Continuing	Continuing	-
Subtotal			-	7.292		15.538		7.689		-		7.689	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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
ECA T&E	C/CPFF	Booz Allen Hamilton : McLean, VA	-	-		-		1.200	Nov 2021	-		1.200	Continuing	Continuing	-
NuCS T&E	C/CPFF	Applied Research Associates : Raleigh, NC	-	-		-		0.500	Nov 2021	-		0.500	Continuing	Continuing	-
NuCS T&E	TBD	TBD : TBD	-	-		-		1.060	Mar 2022	-		1.060	Continuing	Continuing	-
Subtotal			-	-		-		2.760		-		2.760	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Defense Threat Reduction Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / <i>Counter Weapons of Mass Destruction Systems Development</i>	Project (Number/Name) RD / <i>Nuclear Technologies and Capabilities Development</i>
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	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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
Testing, verification, and validation activities and documentation development for 2022 production release																												
Develop training materials for 2022 production release																												
Develop and deliver capabilities planned for 2023 production release																												
Demonstrate modeling and simulation capabilities and enable early user assessment for 2023 production release																												
Testing, verification, and validation activities and documentation development for 2023 production release																												
Update and deliver training on released capabilities																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Defense Threat Reduction Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / <i>Counter Weapons of Mass Destruction Systems Development</i>	Project (Number/Name) RD / <i>Nuclear Technologies and Capabilities Development</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Enhanced Consequence Analysis (ECA)</i>				
Assessment of software readiness, strategic and operational planning networks, and DoD and Allied requirements	1	2020	4	2021
Development of initial ECA decision support capability and establishment of software development pipeline for future capability enhancements	3	2020	2	2021
Test and evaluation of ECA integrated nuclear weapon effects models in preparation for deployment on strategic and operational planning networks	4	2020	1	2025
Deployment of ECA decision support tools on DoD and Allied strategic and operational planning networks	1	2021	1	2023
Update ECA decision support tools and integrate new nuclear weapon effects models once mature and available to meet DoD and Allied planning requirements	2	2021	1	2025
Train users on the employment, assumptions, and limitation of ECA nuclear weapon decision support tools	4	2021	1	2025
<i>Nuclear Capabilities Services (NuCS)</i>				
Release initial cloud-compatible capabilities	1	2021	2	2021
Develop and deliver capabilities planned for 2022 production release	2	2021	2	2022
Demonstrate modeling and simulation capabilities and enable early user assessment for 2022 production release	1	2021	4	2022
Testing, verification, and validation activities and documentation development for 2022 production release	1	2021	4	2022
Develop training materials for 2022 production release	1	2021	4	2022
Develop and deliver capabilities planned for 2023 production release	2	2022	2	2023
Demonstrate modeling and simulation capabilities and enable early user assessment for 2023 production release	2	2022	3	2026

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Defense Threat Reduction Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / <i>Counter Weapons of Mass Destruction Systems Development</i>	Project (Number/Name) RD / <i>Nuclear Technologies and Capabilities Development</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Testing, verification, and validation activities and documentation development for 2023 production release	2	2022	3	2026
Update and deliver training on released capabilities	2	2022	3	2026