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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Office of the Secretary Of Defense **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 0604161D8Z / <i>Nuclear and Conventional Physical Security, Nuclear Forensics, Resilience, Survivability</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	102.020	6.328	6.229	13.549	-	13.549	12.933	15.353	15.603	15.897	Continuing	Continuing
163: <i>Nuclear and Conventional Physical Security</i>	85.970	6.328	6.229	5.616	-	5.616	4.865	5.778	5.871	5.982	Continuing	Continuing
042: <i>National Technical Nuclear Forensics</i>	16.050	0.000	0.000	7.933	-	7.933	8.068	9.575	9.732	9.915	Continuing	Continuing

Note

New Start (Y/N): No

A. Mission Description and Budget Item Justification

This Program Element supports the 2022 National Defense Strategy's four top-level defense priorities by: Defending the homeland, paced to the growing multi-domain threat posed by the People's Republic of China (PRC); Deterring strategic attacks against the United States, Allies, and partners; Deterring aggression, while being prepared to prevail in conflict when necessary – prioritizing the PRC challenge in the Indo-Pacific region, then the Russia challenge in Europe, and; Building a resilient Joint Force and defense ecosystem.

Nuclear and Conventional Physical Security/Nuclear Forensics, Resilience, and Survivability addresses the need to defend and deter against weapons of mass destruction threats and to safeguard personnel, prevent unauthorized access to equipment, installations, material, and documents, and to safeguard the foregoing against espionage, sabotage, damage, and theft. This program oversees advanced engineering development and rapid fielding throughout the DoD for an integrated and systemic approach to develop material solutions. Public Law, Presidential, and DoD guidance, and Combatant Command and Service requirements drive the priorities for these programs.

The Physical Security Enterprise and Analysis Group (PSEAG) is responsible for avoiding duplication of effort, ensuring systems integration, and promoting interoperability and sustainability. The material solutions either (a) lead to a Program of Record, (b) become technology insertions into existing programs; or (c) advance to being a certified Commercial/Government off-the-shelf product.

Per National Security Presidential Memorandum 35, the DoD leads the U.S. Government (USG) post-detonation National Technical Nuclear Forensics (NTNF) capability. Per DoD Directive S-2060.04, the Office of the Undersecretary of Defense for Acquisition & Sustainment (OUSD(A&S)) is the office responsible for developing and leading the DoD's NTNF capabilities. The DoD mission to collect and analyze post-detonation nuclear debris is critical to ensuring the USG can identify the source of nuclear material and holding those responsible for an attack is critical to our national defense and security. Internal and independent assessments indicate that new capabilities are needed to sustain an effective deterrent against an unattributed nuclear attack and meet the challenges of future threats. This PE is the only DoD RDT&E program focused on System Development and Demonstration for post-detonation NTNF capabilities.

This PE can fund travel to support the requirements of this program.

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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 0604161D8Z / <i>Nuclear and Conventional Physical Security, Nuclear Forensics, Resilience, Survivability</i>
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This appropriation will finance work, including staffing, performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct research, development, and test and evaluation efforts.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	6.482	6.229	14.288	-	14.288
Current President's Budget	6.328	6.229	13.549	-	13.549
Total Adjustments	-0.154	0.000	-0.739	-	-0.739
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.154	-			
• Defense-Wide Topline Adjustment	-	-	-0.739	-	-0.739

Change Summary Explanation

FY 2024 to FY 2025 increase is associated with internal reprogramming from Advanced Component Development & Prototypes (0603161D8Z) to System Development and Demonstration (0604161D8Z) in support of Project 042: National Technical Nuclear Forensics / System Development & Demonstration (SDD).

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Office of the Secretary Of Defense										Date: March 2024		
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0604161D8Z / Nuclear and Conventional Physical Security, Nuclear Forensics, Resilience, Survivability				Project (Number/Name) 163 / Nuclear and Conventional Physical Security			
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
163: Nuclear and Conventional Physical Security	85.970	6.328	6.229	5.616	-	5.616	4.865	5.778	5.871	5.982	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Physical Security Enterprise and Analysis Group (PSEAG) pursues the development of nuclear and conventional physical security materiel solutions in response to the stated needs and requirements of the Combatant Commands and Military Services. This program leverages commonalities in physical security requirements in order to closely balance and integrate the needs of users. The PSEAG is responsible for avoiding duplication of effort, ensuring systems integration, and promoting interoperability and sustainability. The materiel solutions either (a) lead to a Program of Record, (b) become technology insertions into existing programs; or (c) advance to being a certified Commercial/Government off-the-shelf product.

This PE can fund travel to support the requirements of this program.

This appropriation will finance work, including staffing, performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct RDT&E efforts.

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

	FY 2023	FY 2024	FY 2025
Title: Physical Security System Development & Demonstration	6.328	6.229	5.616
Description: Develop physical security components and systems to support valid requirements while eliminating duplication of effort, pursuing the use of government and commercial off-the-shelf products, ensuring systems integration, and promoting interoperability and sustainability.			
FY 2024 Plans:			
- Detect an adversary and assess their intentions by identifying and warning of unauthorized access to a specified area or installation, as well as equipment related to the notification and identification of explosive threats or hazards.			
- Control access to safeguard personnel and their families and to prevent unauthorized access to critical infrastructure and materials to validate and verify individuals entering or already within, a facility.			
- Invest in robust installation and transport security to prevent a weapon of mass destruction attack or the unauthorized access to key assets such as nuclear weapons and special nuclear material.			
- Improve the physical security profile of fixed sites and facilities, as well as critical items while in-transit.			

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Office of the Secretary Of Defense		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604161D8Z / <i>Nuclear and Conventional Physical Security, Nuclear Forensics, Resilience, Survivability</i>	Project (Number/Name) 163 / <i>Nuclear and Conventional Physical Security</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<ul style="list-style-type: none"> - Deter an adversary from accessing weapons of mass destruction or gaining unauthorized access to critical assets are at the heart of prevention. - Implement control measures that ensure access is limited to authorized persons is the foundation of physical security to delay or stop unauthorized entry/access to a specified/localized area. - Incorporate decision support systems to help management, operations, and planners make decisions, which may be rapidly changing and not easily specified in advance with a focus on command and control equipment, creation and enhancement of common operating pictures, and the establishment of common architectures / interface standards. <p><i>FY 2025 Plans:</i></p> <ul style="list-style-type: none"> - Detect, track, identify, and defeat uncrewed underwater vehicles where attribution and deterrence is considered. - Leverage Artificial Intelligence and Machine Learning to reduce nuisance and false alarm rates, detect insider threats, and/or improve detection and assessment of physical security threats. - Detect explosives at distances sufficient to protect people and resources at entry control points or other high value assets. - Develop insider threat detection systems to address the increased risk from internal adversaries. - Invest in exterior facing detection and wide area surveillance systems to address threats beyond restricted area perimeters to have sufficient time for response. - Identify innovative delay/denial solutions beyond high cost infrastructure upgrades to invest in lethal and non-lethal technology. - Improve network intrusion detection on physical security system networks to detect and prevent unauthorized access to a physical security systems or networks. <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> FY 2024 to FY 2025 decrease reflects minor deviation in budget priorities.</p>			
Accomplishments/Planned Programs Subtotals	6.328	6.229	5.616

C. Other Program Funding Summary (\$ in Millions) N/A
Remarks NA
D. Acquisition Strategy N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Office of the Secretary Of Defense **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604161D8Z / Nuclear and Conventional Physical Security, Nuclear Forensics, Resilience, Survivability	Project (Number/Name) 163 / Nuclear and Conventional Physical Security
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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
Physical Security - Product Development	Various	Various : Various	62.246	-		-		5.616		-		5.616	Continuing	Continuing	-
Joint Expeditious Subsurface-threat Sonar Capability	MIPR	Various : Various	0.849	4.319		-		-		-		-	Continuing	Continuing	-
Sonar Navigated Autonomous Grabber	MIPR	Various : Various	0.831	1.000		-		-		-		-	Continuing	Continuing	-
Small Arms Point Defense	MIPR	Various : Various	0.750	-		-		-		-		-	Continuing	Continuing	-
Waterside Defensive System	MIPR	Various : Various	1.494	-		-		-		-		-	Continuing	Continuing	-
Defender - Mobile Situational Awareness Tool	C/Various	Various : Various	-	-		1.141		-		-		-	Continuing	Continuing	-
Artificial Intelligence in Support of Installation Operations and Force Protection	C/Various	Various : Various	-	-		1.205		-		-		-	Continuing	Continuing	-
Platform for Integrated C3 and Responsive Defense	C/Various	Various : Various	-	-		2.249		-		-		-	Continuing	Continuing	-
Subtotal			66.170	5.319		4.595		5.616		-		5.616	Continuing	Continuing	N/A

Remarks
NA

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
Physical Security - Test & Evaluation	Various	Multiple : Multiple	18.244	-		-		-		-		-	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Office of the Secretary Of Defense **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604161D8Z / Nuclear and Conventional Physical Security, Nuclear Forensics, Resilience, Survivability	Project (Number/Name) 163 / Nuclear and Conventional Physical Security
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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			
Trace Comparative	MIPR	EOD Tech Division : Indian Head, MD	0.795	-		-		-		-		-	Continuing	Continuing	-
Standoff Suicide Bomber Detection Development	MIPR	EOD Tech Division : Indian Head, MD	0.761	-		-		-		-		-	Continuing	Continuing	-
Millimeter Wave Thermal Test & Evaluation	MIPR	EOD Tech Division : Indian Head, MD	-	1.009		1.307		-		-		-	Continuing	Continuing	-
Gas Chromatography Mass Spectrometry Systems Test & Evaluation	MIPR	EOD Tech Division : Indian Head, MD	-	-		0.327		-		-		-	Continuing	Continuing	-
Subtotal			19.800	1.009		1.634		-		-		-	Continuing	Continuing	N/A

Remarks
NA

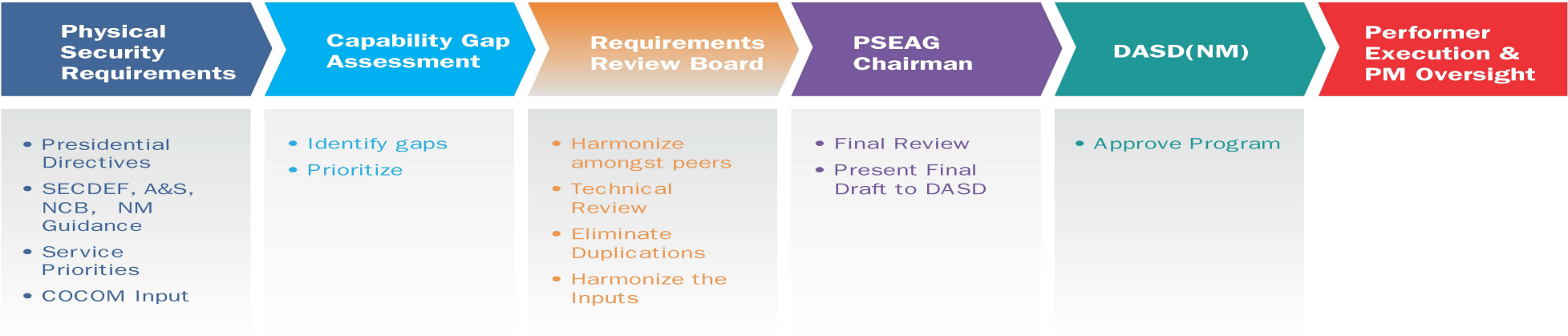
	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	85.970	6.328	6.229	5.616	-	5.616	Continuing	Continuing	N/A

Remarks
NA

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Office of the Secretary Of Defense		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604161D8Z / Nuclear and Conventional Physical Security, Nuclear Forensics, Resilience, Survivability	Project (Number/Name) 163 / Nuclear and Conventional Physical Security

	<h1>PSEAG REQUIREMENTS PROCESS</h1>	
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Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Office of the Secretary Of Defense		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604161D8Z / <i>Nuclear and Conventional Physical Security, Nuclear Forensics, Resilience, Survivability</i>	Project (Number/Name) 163 / <i>Nuclear and Conventional Physical Security</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Nuclear and Conventional Physical Security R&D</i>				
Various physical security R&D efforts to address Combatant Command and Service Needs	1	2023	4	2028

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Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604161D8Z / Nuclear and Conventional Physical Security, Nuclear Forensics, Resilience, Survivability	Project (Number/Name) 042 / National Technical Nuclear Forensics
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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
042: National Technical Nuclear Forensics	16.050	0.000	0.000	7.933	-	7.933	8.068	9.575	9.732	9.915	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

New Start (Y/N): No

FY 2024 to FY 2025 increase is associated with internal reprogramming from Advanced Component Development & Prototypes (0603161D8Z) to System Development and Demonstration (0604161D8Z).

A. Mission Description and Budget Item Justification

Per NSPM 35, the DoD leads the USG post-detonation NTNF capability. Per DoDD S-2060.04, OUSD(A&S) is the DoD office responsible for DoD's NTNF capabilities. This program is the only DoD RDT&E program focused on System Development & Demonstration for NTNF capabilities.

Collecting and analyzing post-detonation debris is critical to ensure the USG can identify the source of nuclear material and hold those involved or supporting an attack accountable is critical to our national defense and security. Swift and accurate forensic and attribution (identification) capabilities are vital to supporting the President and Secretary of Defense in developing an appropriate, and timely, national response to a nuclear event and to prevent future attacks. An effective NTNF capability ensures potential adversaries, or those who support them, know that they will be held accountable if they use proxies or other non-traditional delivery (e.g., false-flag operations) of nuclear weapons against the U.S., U.S. interests, or allies. Both internal and independent studies indicate that continued improvement to the USG's NTNF capabilities is needed to sustain a credible deterrent against an attempted or actual nuclear attack.

Additionally, this program sustains perishable U.S. technical expertise at the operational DoD laboratories required to respond to a post-detonation NTNF event. The DoD's laboratory capability in this area is limited by capacity and technical expertise. Increased support of the DoD's NTNF mission is crucial to prevent attrition of current capabilities and knowledge base, ensure that this critical and unique deterrence capability is not lost, putting the security of the nation and the ability to deter specific kinds of nuclear attack at risk, and meeting a higher standard of timeliness and confidence as directed.

This PE can fund travel to support the requirements of this program.

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

	FY 2023	FY 2024	FY 2025
Title: NTNF Capability Development	-	-	7.933

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Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604161D8Z / <i>Nuclear and Conventional Physical Security, Nuclear Forensics, Resilience, Survivability</i>	Project (Number/Name) 042 / <i>National Technical Nuclear Forensics</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: The development of capability to collect, analyze, and evaluate nuclear debris is critical to our national defense and security. Swift and accurate forensic analysis and contribution to USG attribution (identification) processes are vital to supporting the President and Secretary of Defense in developing an appropriate national response to a nuclear event and to prevent future attacks in a timely manner. Recent Russian nuclear threats related to Ukraine have sharpened the understanding of, and need for, robust nuclear forensics capabilities</p> <p>NTNF investments support development and retention of technical nuclear forensics expertise, improve CONUS and OCONUS ground and airborne debris collection, improve the fixed laboratory process, improve legacy NTNF capabilities, and support operationalization of new capabilities.</p> <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Execute a National-Level technical demonstration, or series of technical demonstrations, with Interagency Partners to test the full nuclear forensics process from sample collection to final technical assessment. - Operationalize deployed nuclear detection prompt signals sensors (the United States Prompt Detection System), connecting the in-field sensors to active operational centers so that their data feed can be continuously monitored. - Develop Thresher Prototype for New Airborne Sensor Collector. <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY 2024 to FY 2025 increase is associated with internal reprogramming from Advanced Component Development & Prototypes (0603161D8Z) to System Development and Demonstration (0604161D8Z).</p>			
Accomplishments/Planned Programs Subtotals	-	-	7.933

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

Remarks

D. Acquisition Strategy
N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Office of the Secretary Of Defense **Date:** March 2024

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604161D8Z / Nuclear and Conventional Physical Security, Nuclear Forensics, Resilience, Survivability	Project (Number/Name) 042 / National Technical Nuclear Forensics
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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
NTNF	Various	Various : Various	-	-		-		7.933		-		7.933	Continuing	Continuing	-
CNT	Sub Allot	JPEO CBD : Aberdeen, MD	16.050	-		-		-		-		-	-	-	-
Subtotal			16.050	-		-		7.933		-		7.933	Continuing	Continuing	N/A

Remarks
NTNF SDD requirements begin in FY 2025

	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	16.050	-	-	7.933	-	7.933	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Office of the Secretary Of Defense		Date: March 2024
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604161D8Z / Nuclear and Conventional Physical Security, Nuclear Forensics, Resilience, Survivability	Project (Number/Name) 042 / National Technical Nuclear Forensics

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
NTNF SDD																												
NTNF SDD																												

	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
NTNF SDD																												
NTNF SDD																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Office of the Secretary Of Defense		Date: March 2024
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
NTNF SDD				
NTNF SDD	4	2021	4	2026