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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603161D8Z I <i>Nuclear and Conventional Physical Security Equipment RDT&E 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
Total Program Element	397.789	39.855	76.764	63.162	-	63.162	55.700	48.229	47.263	48.151	Continuing	Continuing
162: <i>Nuclear and Conventional Physical Security</i>	333.949	30.569	28.686	26.217	-	26.217	25.829	24.247	24.643	25.107	Continuing	Continuing
040: <i>National Technical Nuclear Forensics Systems</i>	63.840	9.286	39.154	29.238	-	29.238	24.004	19.951	18.511	18.858	Continuing	Continuing
058: <i>Innovative Technologies</i>	0.000	0.000	6.034	4.794	-	4.794	2.857	0.929	0.925	0.942	Continuing	Continuing
064: <i>Nuclear Survivability</i>	0.000	0.000	2.890	2.913	-	2.913	3.010	3.102	3.184	3.244	Continuing	Continuing

Note

New Start (Y/N): N

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 Department of Defense (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

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Office of the Secretary Of Defense	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 0603161D8Z / <i>Nuclear and Conventional Physical Security Equipment RDT&E ACD &P</i>
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DoD research, development, and test and evaluation (RDT&E) program focused on Advanced Component Development and Prototypes for post-detonation NTNF capabilities. Without fully supporting these requirements, the DoD’s ability to meet this critical deterrence need will be significantly degraded.

The DoD, through the Innovative Technologies program, will partner with the National Nuclear Security Administration (NNSA) to develop technology aimed at preventing would-be proliferants from advancing nuclear weapons related efforts. Additionally, the DoD seeks to support current and future counter-proliferant missions by leveraging the expertise within the national laboratories. The program goal is to ensure DoD’s operational units are paired with the NNSA technology experts to develop requirements early in the process to reduce the time of fielding a technology.

Nuclear Survivability will invest in innovative radiation hardening techniques to modernize microelectronics for strategic and space systems and increase the reliability of mission critical systems. This program will result in achieving key metrics, including improved understanding of radiation effects on advanced Complementary Metal Oxide Semiconductor (CMOS) technologies; Radiation Hardened/Strategic Radiation Hardened parts qualified and available for space and strategic modernization; Improved mission critical systems reporting; and improved testing procedure guidance for extreme radiation environments.

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. 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	40.706	76.764	67.160	-	67.160
Current President's Budget	39.855	76.764	63.162	-	63.162
Total Adjustments	-0.851	0.000	-3.998	-	-3.998
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.851	-			
• Program Adjustment	-	-	-3.998	-	-3.998

Change Summary Explanation

FY 2024 to FY 2025 decrease 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 / 4					R-1 Program Element (Number/Name) PE 0603161D8Z / Nuclear and Conventional Physical Security Equipment RDT&E A CD&P					Project (Number/Name) 162 / 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
162: Nuclear and Conventional Physical Security	333.949	30.569	28.686	26.217	-	26.217	25.829	24.247	24.643	25.107	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 research, development, and test and evaluation efforts.

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

	FY 2023	FY 2024	FY 2025
Title: Physical Security System Development & Demonstration Advanced Component Development & Prototypes	30.569	28.686	26.217
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.			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2025 Office of the Secretary Of Defense		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / Nuclear and Conventional Physical Security Equipment RDT&E A CD&P	Project (Number/Name) 162 / Nuclear and Conventional Physical Security

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> The FY 2024 to FY 2025 funding decrease represents program adjustments to align with higher priority National Defense Strategy requirements.</p>			
Accomplishments/Planned Programs Subtotals	30.569	28.686	26.217

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

UNCLASSIFIED

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / Nuclear and Conventional Physical Security Equipment RDT&E A CD&P	Project (Number/Name) 162 / 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 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			
Physical Security - Closed Out Efforts	Various	Various : Various	269.549	-		-		-		-		-	-	-	-
Physical Security Enterprise & Analysis Program	Various	Multiple Performers : Multiple Locations	2.651	30.569		28.686		26.217		-		26.217	Continuing	Continuing	-
Automated Installation Entry Multiple Authentication Fast Lanes	MIPR	Various : Various	2.027	-		-		-		-		-	-	-	-
Deep Learning Real Time Adaptive Learning Monitoring of Sound Velocity Profile	MIPR	Various : Various	1.530	-		-		-		-		-	-	-	-
Development, Test and Evaluation of an Electronic Security Systems Information Management System	MIPR	Various : Various	1.444	-		-		-		-		-	-	-	-
Electronic Harbor Security System-Sensor Track Fusion	MIPR	NIWC, Pacific : NIWC, Pacific	0.854	-		-		-		-		-	-	-	-
Enterprise Ready Tactical Assault Kit	MIPR	Various : Various	2.307	-		-		-		-		-	-	-	-
Improved UUV Detection and Tracking Using the AN/WQX-2 Sonar	MIPR	Various : Various	1.950	-		-		-		-		-	-	-	-
Next Generation Electronic Security System	MIPR	Various : Various	1.200	-		-		-		-		-	-	-	-
Self Homing and Event Triggered / Assessment DroneAerial PS Assessment	MIPR	Various : Various	1.275	-		-		-		-		-	-	-	-

UNCLASSIFIED

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / Nuclear and Conventional Physical Security Equipment RDT&E A CD&P	Project (Number/Name) 162 / 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 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			
Wide Area Surveillance & Detection System with Radar	MIPR	Various : Various	1.386	-		-		-		-		-	-	-	-
Sonar Navigated Autonomous Grabber	MIPR	Various : Various	1.446	-		-		-		-		-	-	-	-
Automated Neural Classification of Seismic and Acoustic Sensors	MIPR	Various : Various	1.237	-		-		-		-		-	-	-	-
Subtotal			288.856	30.569		28.686		26.217		-		26.217	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			
Prior Years Completed Efforts	Various	Various Performers : Various Locations	21.555	-		-		-		-		-	-	-	-
PSEAG Interoperability	MIPR	TBD : TBD	0.455	-		-		-		-		-	-	-	-
Subtotal			22.010	-		-		-		-		-	-	-	N/A

Remarks

NA

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			
Prior Years Completed Efforts	Various	Multiple Performers : Multiple Locations	15.127	-		-		-		-		-	-	-	-
Test & Evaluation of Maritime Application Environment Radar	MIPR	NIWC, Atlantic : NIWC, Atlantic	0.650	-		-		-		-		-	-	-	-

UNCLASSIFIED

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / Nuclear and Conventional Physical Security Equipment RDT&E A CD&P	Project (Number/Name) 162 / 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			
Subtotal			15.777	-		-		-		-		-	-	-	N/A

Remarks
NA

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			
Prior Years - Completed Efforts	Various	Multiple Performers : Multiple Locations	7.306	-		-		-		-		-	-	-	-
Subtotal			7.306	-		-		-		-		-	-	-	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	333.949	30.569	28.686	26.217	-	26.217	Continuing	Continuing	N/A

Remarks
NA

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Office of the Secretary Of Defense		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / Nuclear and Conventional Physical Security Equipment RDT&E A CD&P	Project (Number/Name) 162 / Nuclear and Conventional Physical Security



- Presidential Directives
- SECDEF, AT&L, NCB, NM Guidance
- Service Priorities
- COCOM Input

- Identify gaps
- Prioritize

- Harmonize amongst peers
- Technical Review
- Eliminate Duplications
- Harmonize the Inputs

- Final Review
- Present Final Draft to DASD

- Approve Program

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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 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / <i>Nuclear and Conventional Physical Security Equipment RDT&E A CD&P</i>	Project (Number/Name) 162 / <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>				
Nuclear and Conventional Physical Security	1	2023	4	2028

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2025 Office of the Secretary Of Defense										Date: March 2024		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603161D8Z / Nuclear and Conventional Physical Security Equipment RDT&E A CD&P				Project (Number/Name) 040 / National Technical Nuclear Forensics Systems			
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
040: National Technical Nuclear Forensics Systems	63.840	9.286	39.154	29.238	-	29.238	24.004	19.951	18.511	18.858	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 Advanced Component Development & Prototypes for NTNF capabilities.

Collecting and analyzing post-detonation debris is critical to ensure the USG can identify the source of nuclear material and holding 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	9.286	39.154	29.238
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.			

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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 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / <i>Nuclear and Conventional Physical Security Equipment RDT&E A CD&P</i>	Project (Number/Name) 040 / <i>National Technical Nuclear Forensics Systems</i>

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

NTNF investments support development and retention of technical nuclear forensics expertise, improve CONUS and OCONUS collection, improve the fixed laboratory process, improving legacy NTNF capabilities, and supporting operationalization of new capabilities.

FY 2024 Plans:

- Increase R&D towards achieving unmanned air collect capabilities leveraging the Harvester Particulate Airborne Collection System, and develop NextGen, Thresher, prototype design.
- Funding to prepare for a National-Level Exercise currently planned for FY 2025.
- Hiring additional contractors to work at the DoD operational laboratories, as well as, procuring needed equipment specific to post-detonation sample analysis.
- Further develop and transition technologies to address prompt detection gaps, including the United States Prompt Diagnostics System and developing uncrewed aerial and ground collection.
- Continue to advance DoD NTNF laboratory and collection capabilities to shorten timelines and improve confidence levels in reporting to national level decision makers.
- Exercise component and collective collection and analysis to both assess readiness to inform improvements and demonstrate USG NTNF capability to contribute to strategic deterrence.

FY 2025 Plans:

- Support the collection, analysis, and evaluation of ground and airborne post-detonation debris samples.
- Collection: Improve ground collection equipment to strengthen communications and improve CONUS mission timelines and the refurbishment of Harvester particulate collection pods for deployment on uncrewed platforms (e.g., MQ-9) to improve OCONUS mission timelines.
- Analysis: Improve and exercise debris and prompt signals analysis capability at DoD laboratories to improve analysis and attribution timelines.
- Evaluation: Expand the debris diagnostic and prompt evaluation capability to speed the attribution process.
- Improve the Quality Assurance process for assuring that the surrogate samples used in NTNF exercises best match anticipated real-world NTNF ground and airborne samples.
- Perform a scoping study on the necessary information technology infrastructure to easily facilitate the transfer of Restricted Data classified information between interagency partners.
- Improve the information technology infrastructure to enhance interagency data transfer.

FY 2024 to FY 2025 Increase/Decrease Statement:

FY 2023	FY 2024	FY 2025

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2025 Office of the Secretary Of Defense		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / <i>Nuclear and Conventional Physical Security Equipment RDT&E A CD&P</i>	Project (Number/Name) 040 / <i>National Technical Nuclear Forensics Systems</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
FY 2024 to FY 2025 decrease is associated with internal reprogramming from Advanced Component Development & Prototypes (0603161D8Z) to System Development and Demonstration (0604161D8Z).			
Accomplishments/Planned Programs Subtotals	9.286	39.154	29.238

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 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / Nuclear and Conventional Physical Security Equipment RDT&E A CD&P	Project (Number/Name) 040 / National Technical Nuclear Forensics Systems
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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			
National Nuclear Technical Forensics Product Development	Various	Multiple Performers : Multiple Locations	62.518	9.091		38.959		29.238		-		29.238	Continuing	Continuing	-
Subtotal			62.518	9.091		38.959		29.238		-		29.238	Continuing	Continuing	N/A

Remarks
NA

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			
Nuclear Testing, Diagnostics, Forensics and Stockpile Stewardship Course	IA	DOE : Livermore, CA	1.322	0.195		0.195		-		-		-	Continuing	Continuing	-
Subtotal			1.322	0.195		0.195		-		-		-	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	63.840	9.286	39.154	29.238	-	29.238	Continuing	Continuing	N/A

Remarks
NA

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Office of the Secretary Of Defense		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / Nuclear and Conventional Physical Security Equipment RDT&E A CD&P	Project (Number/Name) 040 / National Technical Nuclear Forensics Systems

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

National Technical Nuclear Forensics	
National Technical Nuclear Forensics	

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Office of the Secretary Of Defense		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / <i>Nuclear and Conventional Physical Security Equipment RDT&E A CD&P</i>	Project (Number/Name) 040 / <i>National Technical Nuclear Forensics Systems</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>National Technical Nuclear Forensics</i>				
National Technical Nuclear Forensics	1	2023	4	2028

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2025 Office of the Secretary Of Defense **Date:** March 2024

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / Nuclear and Conventional Physical Security Equipment RDT&E A CD&P	Project (Number/Name) 058 / Innovative Technologies
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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
058: <i>Innovative Technologies</i>	0.000	0.000	6.034	4.794	-	4.794	2.857	0.929	0.925	0.942	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The Innovative Technologies program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

A. Mission Description and Budget Item Justification

The DoD, in partnership with the NNSA, provides technical capability to understand and defeat nuclear threat devices, including improvised nuclear devices, radiological dispersal devices, and lost or stolen foreign nuclear weapons, as well as to develop foundational technologies supporting nuclear counterproliferation efforts.

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

	FY 2023	FY 2024	FY 2025
Title: Innovative Technologies	-	6.034	4.794
Description: The DoD, through the Innovative Technologies program, will partner with the NNSA to develop technology aimed at preventing would-be proliferants from advancing nuclear weapons related efforts. Additionally, the DoD seeks to support current and future counter-proliferant missions by leveraging the expertise within the national laboratories. The program goal is to ensure DoD's operational units are paired with the NNSA technology experts to develop requirements early in the process to reduce the time of fielding a technology.			
FY 2024 Plans: The Innovative Technologies program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.			
FY 2025 Plans: The Innovative Technologies program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.			
FY 2024 to FY 2025 Increase/Decrease Statement: FY 2024 to FY 2025 decrease is the result of planned internal program adjustments.			
Accomplishments/Planned Programs Subtotals	-	6.034	4.794

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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 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / <i>Nuclear and Conventional Physical Security Equipment RDT&E A CD&P</i>	Project (Number/Name) 058 / <i>Innovative Technologies</i>

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

Remarks

D. Acquisition Strategy
N/A

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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 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / Nuclear and Conventional Physical Security Equipment RDT&E A CD&P	Project (Number/Name) 058 / Innovative Technologies

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

Advance Innovative Technologies	
Advance Innovative Technologies	

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Office of the Secretary Of Defense		Date: March 2024
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / <i>Nuclear and Conventional Physical Security Equipment RDT&E A CD&P</i>	Project (Number/Name) 058 / <i>Innovative Technologies</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Advance Innovative Technologies</i>				
Advance Innovative Technologies	1	2024	4	2028

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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 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / Nuclear and Conventional Physical Security Equipment RDT&E A CD&P	Project (Number/Name) 064 / Nuclear Survivability
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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
064: Nuclear Survivability	0.000	0.000	2.890	2.913	-	2.913	3.010	3.102	3.184	3.244	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Nuclear Survivability will invest in innovative radiation hardening techniques to modernize microelectronics for strategic and space systems and increase the reliability of mission critical systems. This program will result in achieving key metrics, including improved understanding of radiation effects on advanced CMOS technologies; Radiation Hardened/Strategic radiation hardened parts qualified and available for space and strategic modernization; Improved mission critical systems reporting; and improved testing procedure guidance for extreme radiation environments.

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

	FY 2023	FY 2024	FY 2025
<p>Title: Nuclear Survivability Research & Development</p> <p>Description: Many DoD mission-critical systems must survive and operate through one or more nuclear weapons effects (NWE) environments. This requires assured DoD access to NEW-survivable components, materials, and the test and evaluation infrastructure to validate system performance.</p> <p>This program will result in achieving key metrics, including improved understanding of radiation effects on advanced CMOS technologies; Radiation Hardened/Strategic radiation hardened parts qualified and available for space and strategic modernization; Improved mission critical systems reporting; and improved testing procedure guidance for extreme radiation environments.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Sponsor R&D to better understand the effects of extreme radiation environments on state-of-the-art microelectronics to support nuclear modernization and improve radiation hardening by design. - Modernize the reporting infrastructure for the CBRN Mission Critical Reports in accordance with requirements from DoDI 3150.09. - Sponsor sustainment of trusted sources of supply and critical production lines for strategic radiation hardened microelectronics. - Increase access and reduce cost for technologies and materials that provide increased levels of survivability to the effects of nuclear weapons. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Sponsor R&D to better understand the effects of extreme radiation environments on state-of-the-art microelectronics to support nuclear modernization and improve radiation hardening by design. 	-	2.890	2.913

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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 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / Nuclear and Conventional Physical Security Equipment RDT&E A CD&P	Project (Number/Name) 064 / Nuclear Survivability

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<ul style="list-style-type: none"> - Sponsor R&D to improve radiation hardening techniques leveraging novel additive manufacturing technology. - Sponsor comparative study on electromagnetic pulse hardening techniques for critical infrastructure in support of Executive Order 13865 requirements. - Increase access and reduce cost for technologies and materials that provide increased levels of survivability to the effects of nuclear weapons. <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> FY 2024 to FY 2025 increase supports R&D to improve radiation hardening techniques and a comparative study on electromagnetic pulse hardening techniques.</p>			
Accomplishments/Planned Programs Subtotals	-	2.890	2.913

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

N/A

Remarks

D. Acquisition Strategy

N/A

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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 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / Nuclear and Conventional Physical Security Equipment RDT&E A CD&P	Project (Number/Name) 064 / Nuclear Survivability

	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

Nuclear Survivability																												
Nuclear Survivability																												

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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 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / <i>Nuclear and Conventional Physical Security Equipment RDT&E A CD&P</i>	Project (Number/Name) 064 / <i>Nuclear Survivability</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Nuclear Survivability</i>				
Nuclear Survivability	1	2024	4	2028