Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*

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	-	75.614	31.720	34.091	-	34.091	24.272	23.859	24.118	24.345	0.000	238.019
035: *National Defense Cntr For Enviro Excellence*	-	6.423	6.204	7.787	-	7.787	7.859	7.927	8.004	8.069	0.000	52.273
DH6: *Installation Resilience*	-	-	3.013	3.023	-	3.023	2.017	2.019	2.021	2.041	0.000	14.134
E21: *Environmental Quality Technology Dem/Val*	-	69.191	22.503	23.281	-	23.281	14.396	13.913	14.093	14.235	0.000	171.612

A. Mission Description and Budget Item Justification

There is broad potential application for environmental quality technology (EQT) to be applied to multiple Army weapon systems and installations. However, technology must be demonstrated and validated (total ownership cost and performance data identified) before potential users will consider exploiting it. This Program Element (PE) includes Projects focused on validating the general military utility or cost reduction potential of technology when applied to different types of infrastructure, military equipment or techniques. It may include validations and proof-of-principle demonstrations in field exercises to evaluate upgrades or provide new operational capabilities. The validation of technologies will be in as realistic an operating environment as possible to assess performance or cost reduction potential. EQT demonstration/ validation is systemic and applicable across Department of Army sites and installation problems (e.g. unexploded ordnance detection and discrimination). This PE supports the Army's top modernization priorities by addressing potential obsolescence of legacy materials and current and emerging impacts on human health and the environment. All work is endorsed by potential users and supported by a state-of-the-art assessment to determine when the technology can transition to the user for implementation.

B. Program Change Summary ($ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	76.749	31.720	26.880	-	26.880
Current President's Budget	75.614	31.720	34.091	-	34.091
Total Adjustments	-1.135	0.000	7.211	-	7.211
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.135	-			
• Adjustments to Budget Years	-	-	7.211	-	7.211

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603779A *I Environmental Quality Technology - Dem/Val*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2023	FY 2024
Project: E21: *Environmental Quality Technology Dem/Val*		
Congressional Add: *Program Increase - Wire-Arc Additive Manufacturing (DEVCOM)*	20.000	-
Congressional Add: *Program Increase - Friction Stir Additive Manufacturing (DEVCOM)*	15.000	-
Congressional Add: *Program increase - Biopolymers for military infrastructure*	3.000	-
Congressional Add: *Program increase - Underwater cut and capture*	7.500	-
Congressional Add Subtotals for Project: E21	45.500	-
Congressional Add Totals for all Projects	45.500	-

Change Summary Explanation

Funding increased in projects 035 / National Defense Cntr For Enviro Excellence and E21 / Environmental Quality Technology Dem/Val for environmental technology demonstration and validation of solutions.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / *Environmental Quality Technology - Dem/Val*	Project (Number/Name) 035 / *National Defense Cntr For Enviro Excellence*	

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
035: *National Defense Cntr For Enviro Excellence*	-	6.423	6.204	7.787	-	7.787	7.859	7.927	8.004	8.069	0.000	52.273
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The National Defense Center for Environmental Excellence (NDCEE) was established by Congress in 1990 with a directive to "serve as a national leadership organization to address high priority environmental problems for the Department of Defense (DoD), other government organizations, and the industrial community." In May 2008, the Program was re-designated from the National Defense Center for Environmental Excellence to the National Defense Center for Energy and Environment to ensure that the Center's mission recognizes and addresses the strategic interdependence of energy and environmental technology requirements within an overall sustainability framework in support of our installations, weapons systems and war fighters. This name change also directly supports the DoD's proactive implementation of Executive Order 13423, "Strengthening Federal Environmental, Energy and Transportation Management." The NDCEE Program has evolved into a national resource for demonstrating, validating and transitioning innovative Environmental, Safety & Occupational Health and Energy (ESOHE) technologies. This Program is managed by the Army on behalf of the Assistant Secretary of Defense for Sustainment.

The United States (U.S.) Army's broadly encompassing and growing mobile, personal and stationary technological requirements include: infrastructure, alternative and synthetic energy, training lands, emerging contaminates, transportation, systems integration, personnel well-being, and others. Further, to train as we fight, validated ESOHE technologies need to be available and implemented at Army installations. The NDCEE will continue to demonstrate, validate, and transfer these technologies supporting our integrated environment, energy, safety, occupational health and energy objectives to enable mission, readiness, innovation, lethality and modernization to ensure our Soldiers maintain a technological advantage over our adversaries.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Conduct demonstration/validation of environmentally acceptable technologies that enhance military readiness and reduce production, operating, and/or disposal costs.	5.116	4.640	6.506
Description: NDCEE supports the demonstration and validation of mature (BA4) environment, safety, occupational health, and energy technologies that support the mission requirements. The objective is to invest in innovative technologies that support military mission/readiness, employ a high degree of technical fidelity, have a high potential for transition success, and align with modernization goals.			
FY 2024 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** 035 / *National Defense Cntr For Enviro Excellence*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Will fund the NDCEE program management during comprehensive NDCEE lifecycle, including project cultivation and identification, screening, selection, execution, reporting, and technology transfer. Includes contracting office support for contract closeouts, travel to conduct program management oversight, and program coordination and education to DoD stakeholders. ***FY 2025 Plans:*** Will fund the NDCEE program management during comprehensive NDCEE lifecycle, including project cultivation and identification, screening, selection, execution, reporting, and technology transfer. Includes contracting office support for contract closeouts, travel to conduct program management oversight, and program coordination and education to DoD stakeholders. Will continue to focus on emerging chemicals, climate change, and Per- and Polyfluoroalkyl Substances (PFAS) alternatives. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Increase due to the Army addressing emerging chemicals, climate change, PFAS alternatives, and waste to energy for burn pits.			
Title: NDCEE Government program management during contract negotiations and during project formulation, execution, and technology transfer. ***Description:*** Funds the NDCEE Government program management during comprehensive NDCEE lifecycle, including project cultivation and identification, screening, selection, execution, and technology transition. ***FY 2024 Plans:*** Will fund the NDCEE program management during comprehensive NDCEE lifecycle, including project cultivation and identification, screening, selection, execution, reporting, and technology transfer. Includes contracting office support for contract closeouts, travel to conduct program management oversight, and program coordination and education to DoD stakeholders. ***FY 2025 Plans:*** Will continue to focus on emerging chemicals, climate change, and PFAS alternatives. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Decrease funding reflect planned lifecycle for this effort for conducting demonstration/validation of environmentally acceptable technologies that enhance military readiness and reduce production, operating, and/or disposal costs.	1.307	1.564	1.281
Accomplishments/Planned Programs Subtotals	6.423	6.204	7.787

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** 035 / *National Defense Cntr For Enviro Excellence*

D. Acquisition Strategy

The NDCEE is a national asset focused on DoD applications that include technology transfer to appropriate DoD transition partners. The management strategy for the NDCEE ensures that all projects have a potential multi-service benefit and have a high potential for transition success. At the strategic level, the NDCEE Executive Advisory Board (EAB) is chaired by the DoD NDCEE Lead Agent on behalf of the Assistant Secretary of Defense for Sustainment and is representative of the services and DoD. The EAB and the Program Director are supported by the NDCEE Technical Advisory Group (TAG) to help ensure that NDCEE investments are maximized across DoD and the Services. At the tactical level, the three Focus Groups (environment, safety/occupational health, and energy) cultivate and recommend priority projects to the TAG and Project Selection Committee for funding. Transition Partners ensure that NDCEE's investments are carried forward in the next phases of the Research Development Test and Evaluation process, as identified in each funded project's Technology Transition Agreement.

NDCEE projects enable readiness for the Services under increasingly complex and demanding scenarios. The interdependency of national security with energy supply and costs, water supply and costs, environmental resiliency, and human health and safety are clear and NDCEE projects provide forward-looking solutions to these challenges. Failure to further fund and validate promising technologies that are at the mature or Commercial-off-the-Shelf stage, would result in lost modernization opportunities and validation before they go into a military environment. These initiatives need to be carried forward into an operational/realistic testing environment so that they can support mission readiness and training when ultimately fielded to the Services.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / *Environmental Quality Technology - Dem/Val*	Project (Number/Name) 035 / *National Defense Cntr For Enviro Excellence*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	MIPR	AEC : San Antonio, TX	25.807	1.307	Oct 2022	1.564		1.281	Jul 2025	-		1.281	Continuing	Continuing	Continuing
		Subtotal	25.807	1.307		1.564		1.281		-		1.281	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Testing and Evaluation	Various	Various : Various	55.974	5.116	Oct 2022	4.640	Oct 2022	6.506	Jul 2025	-		6.506	Continuing	Continuing	Continuing
		Subtotal	55.974	5.116		4.640		6.506		-		6.506	Continuing	Continuing	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	81.781	6.423		6.204		7.787		-		7.787	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** 035 / *National Defense Cntr For Enviro Excellence*

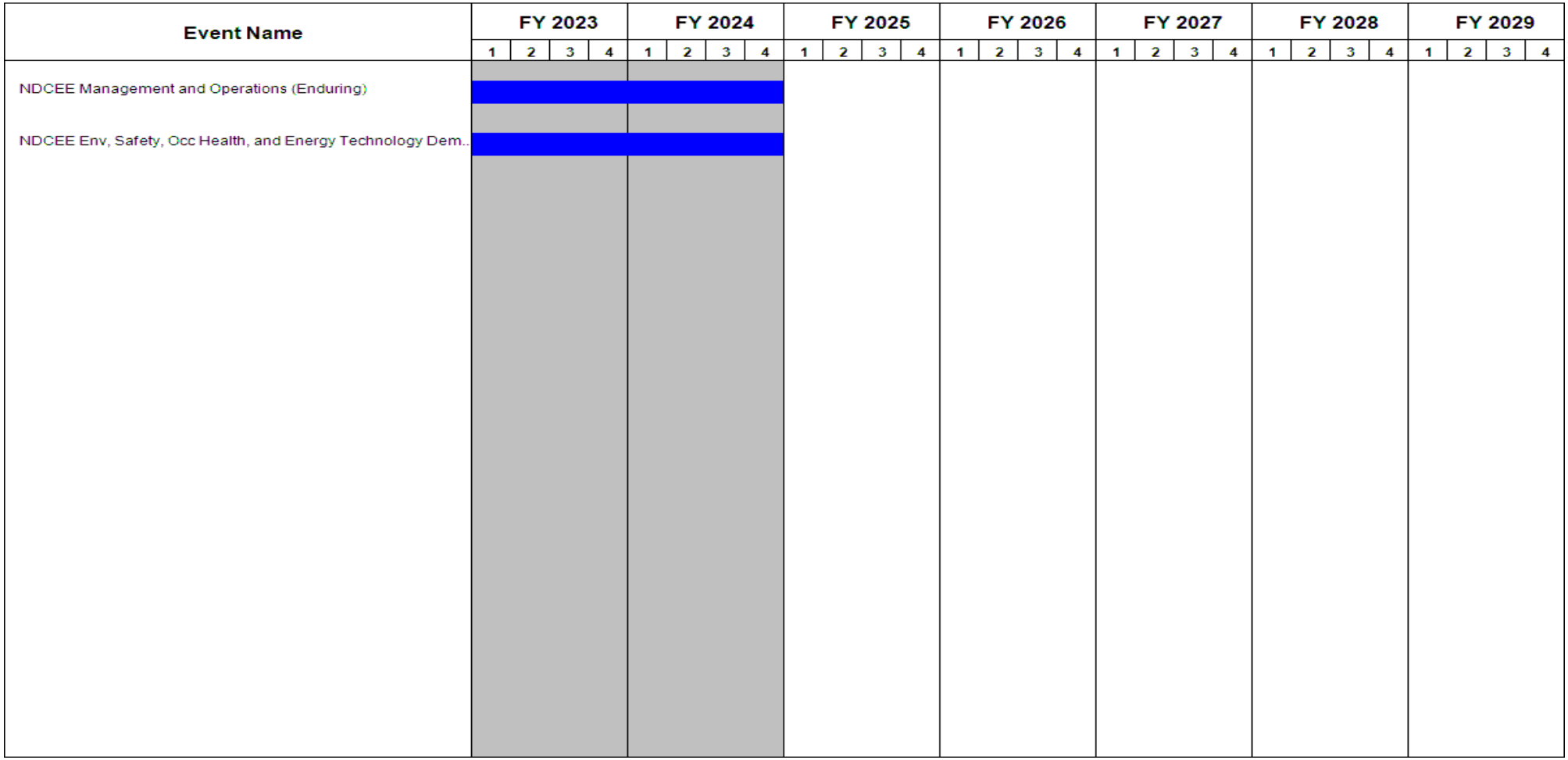

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** 035 / *National Defense Cntr For Enviro Excellence*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NDCEE Management and Operations (Enduring)	1	2019	4	2024
NDCEE Env, Safety, Occ Health, and Energy Technology Dem/Val (Enduring)	1	2019	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / *Environmental Quality Technology - Dem/Val*	Project (Number/Name) DH6 / *Installation Resilience*	

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
DH6: *Installation Resilience*	-	-	3.013	3.023	-	3.023	2.017	2.019	2.021	2.041	0.000	14.134
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project demonstrates and validates technologies to advance resiliency across Army installations, improving operations management, increasing efficient energy practices, and enhancing Army infrastructure. This Project demonstrates systems and tools which aim to better inform installation manager decisions on operational planning, management of facilities, and associated infrastructure components. This research will integrate developing technologies to provide the Army with new capabilities, decreased cost, and enhanced operations for resilient installations. This effort will streamline operations of critical infrastructure components and optimize developing systems to support Army objectives and provide actionable information to the user community.

The cited work is consistent with the Army Installations Strategy and the Army Climate Strategy.

Work in this Project is performed by the United States Army Engineer Research and Development Center.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Installation Composting for Land Resilience	-	3.013	3.023
Description: This effort will evaluate current compost operations for Best Management Practices and demonstrate efficacy for Army installations to operate compost systems to reduce Army cost associated with disposal of solid waste, enabling installations to have a set of tools and procedures unique to their environment. ***FY 2024 Plans:*** Will validate best management practices from current on-post compost operations and create standard operating procedures for other installations to follow; will begin validation of degradation of two compostable materials. ***FY 2025 Plans:*** Will begin demonstration of composting operations at 3 installations; will conduct climate resilience assessments for 12 sites to inform development of climate change guidance for Integrated Solid Waste Management (ISWM). ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase is an economic adjustment.			
Accomplishments/Planned Programs Subtotals	-	3.013	3.023

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** DH6 / *Installation Resilience*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / *Environmental Quality Technology - Dem/Val*	Project (Number/Name) DH6 / *Installation Resilience*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Installation Composting for Land Resilience	MIPR	US Army Engineer Research and Development Center : Champaign, IL	-	-		3.013		3.023	Oct 2025	-		3.023	0.000	6.036	-
		Subtotal	-	-		3.013		3.023		-		3.023	0.000	6.036	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		3.013		3.023		-		3.023	0.000	6.036	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** DH6 / *Installation Resilience*

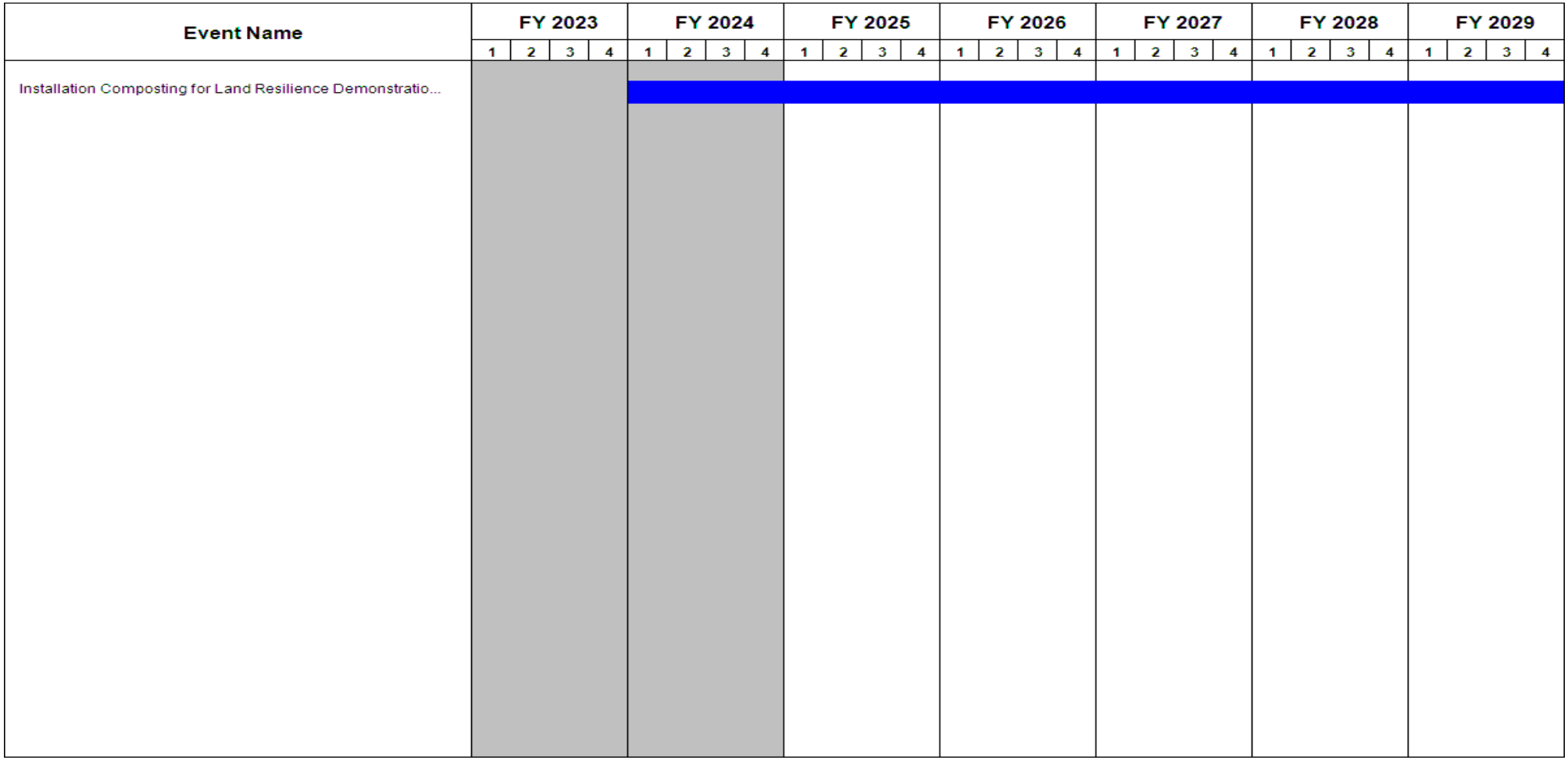

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** DH6 / *Installation Resilience*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Installation Composting for Land Resilience Demonstration and Validation	1	2024	4	2029

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / *Environmental Quality Technology - Dem/Val*	Project (Number/Name) E21 / *Environmental Quality Technology Dem/Val*	

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
E21: *Environmental Quality Technology Dem/Val*	-	69.191	22.503	23.281	-	23.281	14.396	13.913	14.093	14.235	0.000	171.612
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports Advanced Component Development and Prototypes of innovative environmental quality technologies that modernize materials and processes required for current and future operational sustainment and warfighter training capabilities. The Project showcases technologies that increase life safety, reduce Soldier and worker human health risks, enhance readiness and enable mission capabilities of the current and future force with a focus on eliminating the high priority issues associated with global warming, hexavalent chromium, cadmium and airborne lead through material substitution. The Project expedites technology transition from the laboratory to operational use by demonstrating modern materials and processes to fulfill or surpass the performance requirements outlined in Material Specifications, Depot Maintenance Work Requirements, Technical Manuals, Drawings and other technical data. Forward-looking materials and processes demonstrated under this project support the Cross Functional Teams and the Army's top modernization priorities by addressing potential obsolescence of legacy materials and current and emerging impacts on human health and the environment. Modernized materials and processes have the additional benefit of reducing the impacts due to climate change, future regulatory compliance and cleanup requirements while simultaneously increasing performance and standardization across the Army, resulting in significantly reduced life cycle costs incurred by acquisition, industrial base and installation end users.

Work in this Project is performed by the United States Army Futures Command (AFC), U.S. Army Combat Capabilities Development Command (DEVCOM) and U.S. Army Corps of Engineers (USACE).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Environmental quality technology demonstration and validation: Toxic Metal Reduction in Surface Finishing of Army Weapon Systems (DEVCOM)	2.360	1.445	1.972
Description: Increase operational readiness and reduce Soldier and worker human health risks by reducing or eliminating the use of cancer-causing hexavalent chromium, cadmium and associated toxic materials used in surface finishing processes for the current and future force. These Safer Alternatives for Readiness (SAFR) technologies will be used to provide superior corrosion and wear protection for components used on Future Vertical Lift and Next Generation Combat Vehicles and enable increased performance/extended barrel life for Long Range Precision Fire systems.			
FY 2024 Plans: Will demonstrate hybrid/wire arc additive manufacturing processes for manufacturing of large parts; will demonstrate hexavalent chromium-free post treatment sealers for zinc, zinc nickel, and aluminum anodize.			
FY 2025 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** E21 / *Environmental Quality Technology Dem/Val*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Will mature hexavalent chromium-free wear resistant plating processes; will demonstrate hexavalent chromium and cadmium-free electrical connectors. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase reflects planned lifecycle of this effort.			
Title: Environmental quality technology demonstration and validation: Airborne Lead Reduction from Army Weapon Systems (DEVCOM) ***Description:*** Sustain Soldier training readiness, maintain/restore training capability at ranges closed due to dangerous levels of lead exposure and increase life safety and protection of human health on Army installations by reducing or eliminating the use of toxic lead compounds - which are known to cause damage to central nervous, cardiovascular and immune systems with long-term effects for children, as well as potential developmental impacts, including IQ loss, behavioral issues and hearing loss - in rocket and missile propellants and primary explosives (primers/detonators/initiators) for the current and future force. These Safer Alternatives for Readiness (SAFR) will provide a domestic, readily available source for lead-free primary explosives used in all Long Range Precision Fires and Soldier Lethality systems. ***FY 2024 Plans:*** Will demonstrate alternatives to lead thiocyanate and antimony sulfide in primers; will support automated pilot scale production of lead-free primer/detonator formulations. ***FY 2025 Plans:*** Will demonstrate lead-free fuzes in end items; will demonstrate fully remote, automated loading processes for lead-free detonators. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase is an economic adjustment.	3.815	2.591	3.473
Title: Environmental quality technology demonstration and validation: Low Global Warming Potential (LGWP) Alternatives to Ozone Depleting Substances (ODS) (DEVCOM) ***Description:*** Evaluate low GWP ODS alternatives being developed by industry to assess their toxicity and flammability hazards and verify their acceptability in military unique refrigeration and fire suppression applications. These Safer Alternatives for Readiness (SAFR) technologies will support all Future Vertical Lift and Next Generation Combat Vehicle systems. ***FY 2024 Plans:***	0.459	0.156	0.210

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** E21 / *Environmental Quality Technology Dem/Val*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Will demonstrate secondary loop system to safely incorporate HFO-1234yf as an alternative low GWP refrigerant into mobile air conditioning units away from crew-occupied spaces; will demonstrate alternative, low/no GWP refrigerants for use in next generation refrigeration units for Multi-Temperature Refrigerated Container Systems (MTRCS). ***FY 2025 Plans:*** Will transition alternative, low/no GWP refrigerants for use in Multi-Temperature Refrigerated Container Systems (MTRCS). ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase is an economic adjustment.			
Title: Engineered Technologies for Risk Mitigation and Management of Perfluorooctane Sulfonate and Perfluorooctanoic Acid (PFOS/PFOA) on Army Installations (USACE) ***Description:*** Demonstrate and validate technologies such as 3D printed composite structures and advanced materials for remediation and monitoring of Per- and Polyfluoroalkyl Substances (PFAS), novel methods for PFAS destruction, rapid risk -based classification and characterization computational models, and monitoring and extraction technologies including PFAS sensors. ***FY 2024 Plans:*** Will down select and validate emerging technologies demonstrated in prior year to be efficient and scalable for removal of PFOS/PFOA contamination, technologies may include Thermal Desorption, Soil Washing (Multiple Technologies). Validation of selected PFOS/PFOA removal technologies across a variety of matrices comparing removal efficiency, cost balance, regulatory guidelines and limits of detection. ***FY 2025 Plans:*** Will demonstrate and validate treatment technologies to address PFAS-impacted soils and treatment matrices, comparing removal efficiency, cost balance, regulatory guidelines, and limits of detection. Will demonstrate risk analysis and decision making tools for the site specific selection of real time PFAS assessment/monitoring and the application specific selection of destructive technologies addressing Aqueous Film Forming Foam (AFFF) stockpiles and concentrated waste streams. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase reflects planned milestones for the validation of technologies at Army installations.	3.370	2.607	3.817
Title: Carbon Sequestration Toolkit for DoD Lands (USACE) ***Description:*** Demonstrate and validate a comprehensive secure web-based toolkit for maximized carbon storage and management across the DOD landscape. ***FY 2024 Plans:***	5.144	3.106	1.815

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** E21 / *Environmental Quality Technology Dem/Val*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Will evaluate model accuracy and precision by incorporating higher temporal and spatial resolution imagery and improved terrain and soil analytics. ***FY 2025 Plans:*** Will integrate model improvements such as higher resolution and improved terrain and soil analytics; will conduct sensitivity and error analysis on models to improve accuracy of carbon baseline. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding decrease reflects planned lifecycle of this effort.			
Title: Standards for Additive Construction: Requirements, Assessment and Documentation (USACE) ***Description:*** Validate unified facility criteria and standards for additive construction of DoD infrastructure to meet structural, serviceability and resiliency requirements and evaluate the additive construction technology and materials for carbon reduction impacts. ***FY 2024 Plans:*** Will test and evaluate Additive Construction methodologies and guidance for climate zones by characterizing material and fossil fuel usage, life-cycle assessments, and embodied energy/GHG emissions. ***FY 2025 Plans:*** Will complete lifecycle assessment of additive construction vs traditional methods, including greenhouse gases. Will submit Unified Facilities Criteria and Unified Facilities Guide Specification for Additive Construction. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding decrease reflects planned lifecycle of this effort.	2.405	5.632	0.757
Title: Mitigation of GHG Emissions for DOD Construction Materials and Infrastructure (USACE) ***Description:*** Demonstrate and validate sustainable and cost-effective DoD construction materials with 50% reduction in greenhouse gas emissions. ***FY 2024 Plans:*** Will initiate and develop innovative partnerships to transfer industry technology on reduced life-cycle embodied energy, carbon capture, and carbon sequestration to meet the needs of DoD applications. ***FY 2025 Plans:*** Will demonstrate and validate the use of advanced sustainable building materials, including concretes, bio-based materials, and asphalts to evaluate the reduction of embodied construction emissions by greater than 50% for life cycle durability and	6.138	5.436	6.049

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** E21 / *Environmental Quality Technology Dem/Val*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
environmental in military construction (MILCON). Will demonstrate and validate Life Cycle Assessment (LCA) technologies to evaluate the environmental impacts of Green House Gas (GHG) emission for whole building construction and sustainable concrete materials. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase is an economic adjustment.			
Title: Expeditionary Island Power (DEMO) ***Description:*** This effort demonstrates advanced operational energy storage technology that is interoperable with current and future Army, Joint and partner energy generation systems that support installations and contingency locations, streamlines the energy infrastructure, increases renewable energy, reduces fuel and logistics demand, and optimizes operational energy storage. ***FY 2024 Plans:*** Will demonstrate a secondary distribution center with microgrid at Ft Leonard Wood with the Army Prime Power School. ***FY 2025 Plans:*** Will demonstrate and validate energy storage and management technologies for a fleet modernization of the Deployable Power Generation Distribution System (DPGDS). Will demonstrate the secondary distribution center at the Engineer Research and Development Center's Contingency Basing Integration Training and Evaluation Center (CBITEC) at Fort Leonard Wood, MO with the Army Prime Power School. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Decrease funding reflect planned lifecycle for this effort.	-	1.530	1.503
Title: Efficient Buildings (Construction Scale Additive Manufacturing) (MOTCO) ***FY 2025 Plans:*** Will demonstrate additional construction scale additive construction methods on several select facilities. Will use findings on past energy assessments to improve existing facilities. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase reflects planned initiation of this effort.	-	-	2.004
Title: VEQT Transition Program (OAA IE&E) ***FY 2025 Plans:*** Will ensure mature and new technologies that have been successfully demonstrated and validated can be transitioned to multiple Army Installations to improve Soldier quality of life and to meet demands for multi-domain operations. Environmental technologies	-	-	1.681

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** E21 / *Environmental Quality Technology Dem/Val*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
help balance readiness demands of competition, crisis, and conflict while also creating opportunities to modernize and support the Army's force posture. This effort enables rapid transition of technologies to the field to ensure the Army maintains its competitive edge against our adversaries and supports all Environmental Safety and Occupational Health high priority requirements to protect the Army enterprise. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase reflects planned lifecycle of this effort.			
Accomplishments/Planned Programs Subtotals	23.691	22.503	23.281

	FY 2023	FY 2024
Congressional Add: Program Increase - Wire-Arc Additive Manufacturing (DEVCOM) ***FY 2023 Accomplishments:*** Congressional Interest Item	20.000	-
Congressional Add: Program Increase - Friction Stir Additive Manufacturing (DEVCOM) ***FY 2023 Accomplishments:*** Congressional Interest Item	15.000	-
Congressional Add: Program increase - Biopolymers for military infrastructure ***FY 2023 Accomplishments:*** Congressional Interest Item funding for soil strengthening technologies in uncontrolled environments.	3.000	-
Congressional Add: Program increase - Underwater cut and capture ***FY 2023 Accomplishments:*** Congressional Interest Item funding for high-pressure waterjet cut and capture technology.	7.500	-
Congressional Adds Subtotals	45.500	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• 06I: *Environmental Quality Technology Support*	0.473	0.307	0.330	-	0.330	-	-	-	-	0.000	1.110

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** E21 / *Environmental Quality Technology Dem/Val*

D. Acquisition Strategy

The project ultimately transitions successfully demonstrated environmental quality technologies to Army acquisition, industrial base and installation end users. All technology efforts address environmental requirements identified by the Army acquisition, industrial base and installation user communities. Efforts approved by senior Army environmental leadership receive Advanced Component Development and Prototype funding to fully demonstrate and validate the technology for transition to end users for follow on implementation.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** E21 / *Environmental Quality Technology Dem/Val*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Conduct Demonstrations	MIPR	Varies : Varies	68.727	23.691	Oct 2022	22.503	Oct 2023	23.281	Oct 2024	-		23.281	Continuing	Continuing	Continuing
Program Increase - Wire Arc Additive Manufacturing (DEVCOM)	TBD	TBD : TBD	11.000	20.000	Feb 2023	-		-		-		-	0.000	31.000	-
Program Increase - Friction Stir Additive Manufacturing (DEVCOM)	TBD	TBD : TBD	-	15.000	Feb 2023	-		-		-		-	0.000	15.000	-
Program increase - Underwater cut and capture	TBD	TBD : TBD	-	7.500		-		-		-		-	0.000	7.500	-
Program increase - Biopolymers for military infrastructure	TBD	TBD : TBD	-	3.000		-		-		-		-	0.000	3.000	-
		Subtotal	79.727	69.191		22.503		23.281		-		23.281	Continuing	Continuing	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	79.727	69.191		22.503		23.281		-		23.281	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** E21 / *Environmental Quality Technology Dem/Val*

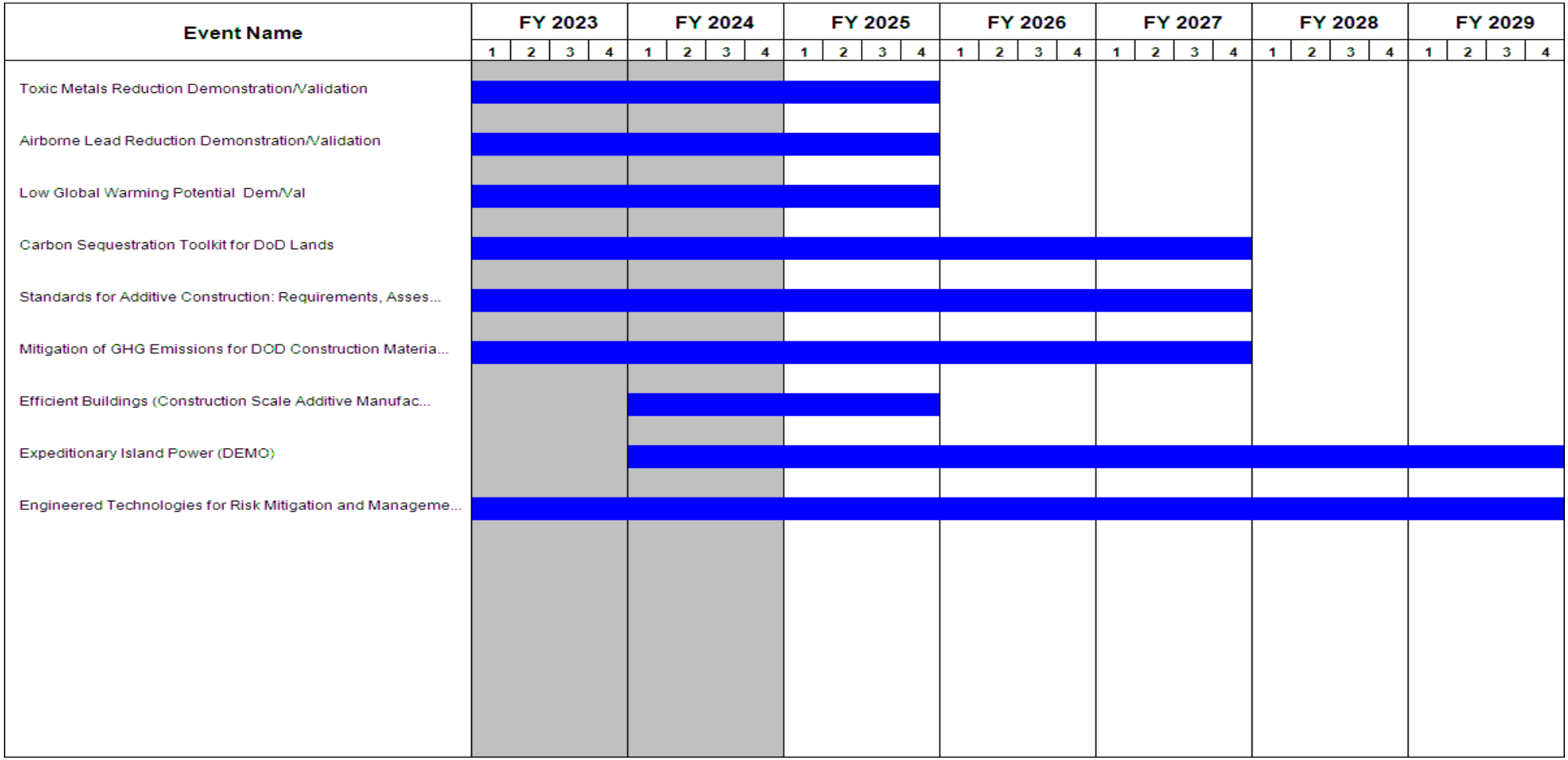

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** E21 / *Environmental Quality Technology Dem/Val*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Toxic Metals Reduction Demonstration/Validation	1	2015	4	2025
Airborne Lead Reduction Demonstration/Validation	1	2015	4	2025
Insensitive Munitions (IM) Wastewater Treatment	1	2019	4	2022
Fate and Risk Evaluation System for Contaminants	1	2020	4	2021
Environmental Toolkit for Expeditionary Operations	1	2020	4	2022
Low Global Warming Potential Dem/Val	1	2019	4	2025
Carbon Sequestration Toolkit for DoD Lands	1	2023	4	2027
Standards for Additive Construction: Requirements, Assessment and Documentation	1	2023	4	2027
Mitigation of GHG Emissions for DOD Construction Materials and Infrastructure	1	2023	4	2027
Efficient Buildings (Construction Scale Additive Manufacturing) (MOTCO)	1	2024	4	2025
Expeditionary Island Power (DEMO)	1	2024	4	2029
Engineered Technologies for Risk Mitigation and Management of Perfluorooctane Sulfonate and Perfluorooctanoic Acid (PFOS/PFOA) on Army Installations (USACE)	1	2022	4	2029