Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army	Date: April 2022
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	20.906	22.921	31.249	-	31.249	25.335	22.510	21.201	20.692	0.000	164.814
035: *National Defense Cntr For Enviro Excellence*	-	8.086	11.313	6.661	-	6.661	6.826	6.890	6.963	7.031	0.000	53.770
E21: *Environmental Quality Technology Dem/Val*	-	12.820	11.608	24.588	-	24.588	18.509	15.620	14.238	13.661	0.000	111.044

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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	20.906	11.921	0.000	-	0.000
Current President's Budget	20.906	22.921	31.249	-	31.249
Total Adjustments	0.000	11.000	31.249	-	31.249
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	11.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	31.249	-	31.249

Congressional Add Details ($ in Millions, and Includes General Reductions)

	FY 2021	FY 2022
Project: 035: *National Defense Cntr For Enviro Excellence*		

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army	Date: April 2022
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 2021	FY 2022
Congressional Add: *Program increase - biopolymers for military infrastructure*	3.000	3.000
Congressional Add: *Program increase - underwater cut and capture demonstration*	-	3.000
Congressional Add Subtotals for Project: 035	3.000	6.000
Project: E21: *Environmental Quality Technology Dem/Val*		
Congressional Add: *Program increase - wire-arc additive manufacturing (DEVCOM)*	-	5.000
Congressional Add: *Environmental quality technology demonstration and validation: Congressional Add - High Pressure Waterjet Technology (USACE)*	5.000	-
Congressional Add Subtotals for Project: E21	5.000	5.000
Congressional Add Totals for all Projects	8.000	11.000

Change Summary Explanation

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
035: *National Defense Cntr For Enviro Excellence*	-	8.086	11.313	6.661	-	6.661	6.826	6.890	6.963	7.031	0.000	53.770
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 2021	FY 2022	FY 2023
Title: Conduct demonstration/validation of environmentally acceptable technologies that enhance military readiness and reduce production, operating, and/or disposal costs.	4.886	4.932	5.353
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 2022 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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 2021	FY 2022	FY 2023
Funding will be provided for projects selected the previous year and still require funds; projects are generally completed within two years. The NDCEE Program Management Office will coordinate the project selection process for potential FY 2022 new project starts. Technologies will be selected by the NDCEE project selection committee and approved by the NDCEE Executive Agent. ***FY 2023 Plans:*** Funding will be provided for projects selected the previous year and still require funds; projects are generally completed within two years. The NDCEE Program Management Office will coordinate the project selection process for potential FY 2023 new project starts. Technologies will be selected by the NDCEE project selection committee and approved by the NDCEE Executive Agent. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase in funding due to projected slight cost increases to support the demonstration and validation of mature (BA4) environment, safety, occupational health, and energy technologies that support the mission requirements.			
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 2022 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 2023 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 2022 to FY 2023 Increase/Decrease Statement:*** Amount grows from 200K in 2022 to 1262K in 2023. The increase funds additional technology projects to address new PFAS and climate change requirements for the DOD. Scope of NDCEE Program also increased to include safety and occupational health as a result of NDCEE advisory board and OSD guidance.	0.200	0.193	1.308
Title: SBIR Title/ STTR Title Adjustment ***Description:*** Funding transferred in accordance with Title 15 USC ?638	-	0.188	-

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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 2021	FY 2022	FY 2023
FY 2022 Plans: Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638			
Accomplishments/Planned Programs Subtotals	5.086	5.313	6.661

	FY 2021	FY 2022
Congressional Add: Program increase - biopolymers for military infrastructure ***FY 2021 Accomplishments:*** Biopolymers for military infrastructure ***FY 2022 Plans:*** Congressional Interest Item	3.000	3.000
Congressional Add: Program increase - underwater cut and capture demonstration ***FY 2022 Plans:*** Congressional Interest Item	-	3.000
Congressional Adds Subtotals	3.000	6.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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*

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 2023 Army		Date: April 2022
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 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	MIPR	AEC : San Antonio, TX	25.233	0.200	Nov 2018	0.204	Nov 2018	1.308	Oct 2022	-		1.308	Continuing	Continuing	Continuing
SBIR/STTR Transfer	TBD	Various : Various	-	3.000		0.188		-		-		-	0.000	3.188	-
		Subtotal	25.233	3.200		0.392		1.308		-		1.308	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Testing and Evaluation	Various	Various : Various	46.337	4.886	Nov 2018	4.921	Nov 2018	5.353	Oct 2022	-		5.353	Continuing	Continuing	Continuing
Program Increase - biopolymers for military infrastructure	TBD	TBD : TBD	-	-		3.000	Sep 2022	-		-		-	0.000	3.000	-
Program Increase - underwater cut and capture demonstration	TBD	TBD : TBD	-	-		3.000	Sep 2022	-		-		-	0.000	3.000	-
		Subtotal	46.337	4.886		10.921		5.353		-		5.353	Continuing	Continuing	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	71.570	8.086		11.313		6.661		-		6.661	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
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*

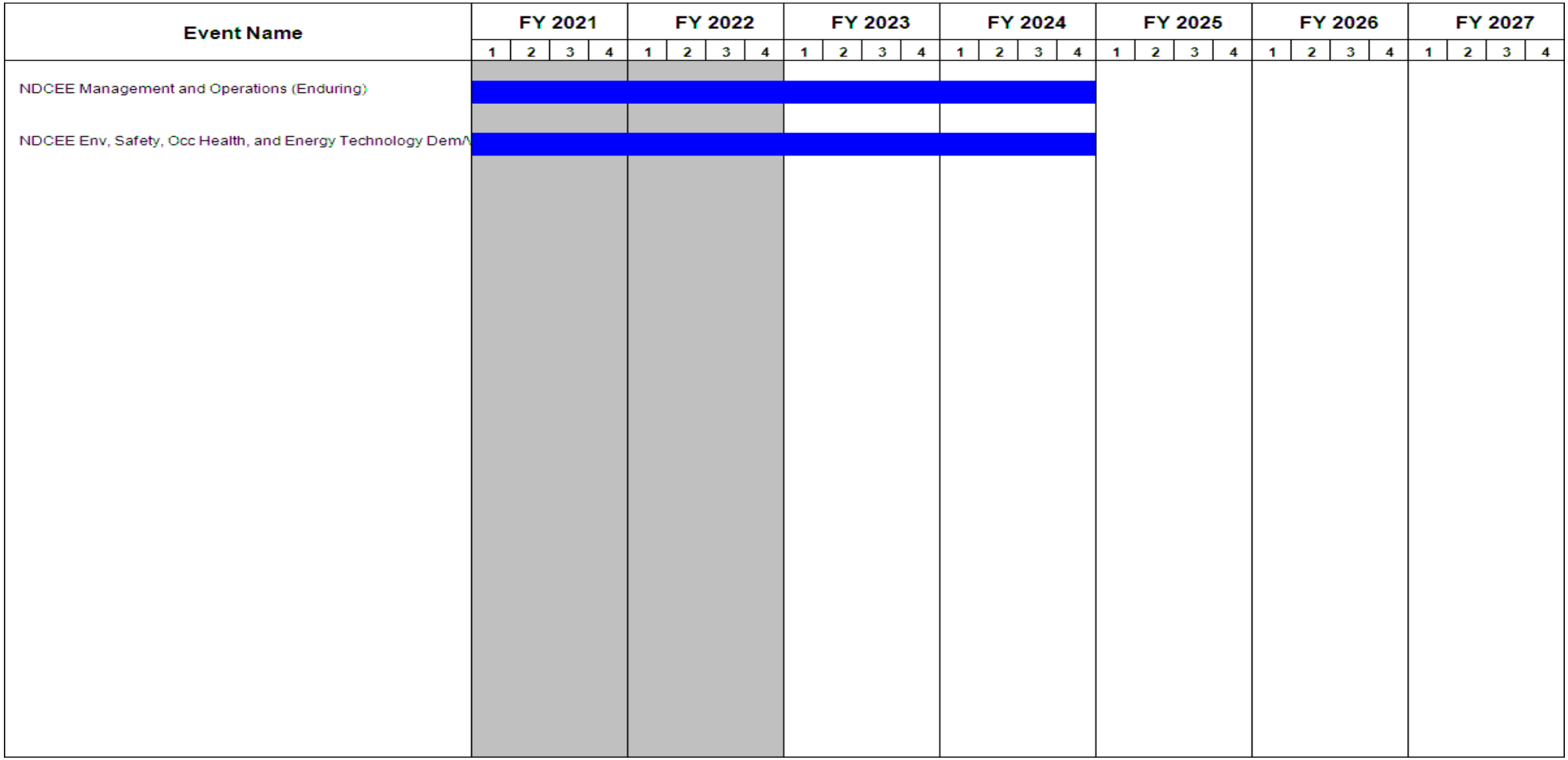

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** 035 / *National Defense Cntr For Enviro Excellence*

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 2023 Army			Date: April 2022
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
E21: *Environmental Quality Technology Dem/Val*	-	12.820	11.608	24.588	-	24.588	18.509	15.620	14.238	13.661	0.000	111.044
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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Environmental quality technology demonstration and validation: Toxic Metal Reduction in Surface Finishing of Army Weapon Systems (DEVCOM)	3.154	2.286	2.435
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 2022 Plans: Will complete fatigue and performance testing needed to approve zinc-nickel alternatives to cadmium in aircraft components; will validate performance of hybrid additive manufacturing techniques using wear resistant materials and high strength alloys to replace hard chrome plating in crew-served machine guns.			
FY 2023 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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 2021	FY 2022	FY 2023
Will demonstrate mixed mating of zinc-nickel and cadmium plated electrical connectors; will conduct testing to enable modernization of surface finishing and electroplating processes to support next generation clean manufacturing technologies. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funds decrease reflects technology area ramping down toward completion in FY 2023.			
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 2022 Plans:*** Will demonstrate alternative fuze system using qualified lead-free primary explosives in artillery round configuration; will conduct flight-weight motor testing for lead-free minimum signature rocket propellants. ***FY 2023 Plans:*** Will demonstrate a lead-free primer in medium caliber ammunition; will support pilot production, static and ground flight test for lead-free extruded rocket motor. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase reflects technology area ramping up to include higher fidelity live-fire testing.	2.232	2.326	4.365
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 2022 Plans:***	0.226	0.221	0.262

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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 2021	FY 2022	FY 2023
Will demonstrate alternative, low GWP refrigerant agents with high potential to meet safety and performance requirements for mobile refrigeration systems. ***FY 2023 Plans:*** Will demonstrate alternative, low/no GWP refrigerant agents with high potential to meet safety and performance requirements for next generation mobile air conditioning systems. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Economic Adjustment			
Title: Environmental quality technology demonstration and validation: Insensitive Munitions (IM) Wastewater Treatment (USACE) ***Description:*** Demonstrate and validate optimized scalable wastewater treatment system basic technology for the destructive treatment of existing and emerging insensitive munitions (IM) contaminated production wastewater generated during Army ammunition plant munitions production.	0.905	-	-
Title: Environmental quality technology demonstration and validation: Environmental Toolkit for Expeditionary Operations (USACE) ***Description:*** Conduct pilot-scale demonstration and validation studies to determine the effectiveness of basic technologies/ methods developed for rapidly collecting environmental data in the field for the purposes of reducing impact of environmental requirements on installations. Demonstrate the ability of ETEO software to communicate easily with new, commercially available sensors through simple device driver (with minimal or no development). Assess available chemical databases on the new sensor for their ability to detect and quantify environmental contaminants. Demonstrate the operational ETEO software and sensors at designated locations. ***FY 2022 Plans:*** Will perform demonstrations of the ETEO sensor suite and software in austere locations. Will validate kits with USACE Forward Engineering Support Teams and National Guard units. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Completed task and finalized transition of product in FY22.	0.505	0.539	-
Title: Environmental quality technology demonstration and validation: Fate and Risk Evaluation System for Contaminants (FRESCO)	0.798	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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 2021	FY 2022	FY 2023
Description: FRESCO will ensure Solider readiness through reduction in training range down time. Validation of FRESCO will provide the capability to model and forecast contaminant fate and health risks associated with new military materials in the environment, pursuant to unfilled technology gap identified in DoD Instruction Number 4715.18.			
Title: Decontamination Effluent Treatment System (DETS) Demonstration/Validation (USACE) ***Description:*** Demonstrate and validate the Decontamination Effluent Treatment System (DETS), an optimized scalable system for the treatment of Chemical, Biological, Radioactive, & Nuclear (CBRN) decontamination wastewater, while exploring enhancements to improve performance. ***FY 2022 Plans:*** Will demonstrate Decontamination Effluent Treatment System and test it on simulants and actual chemical and radiological substrates. In addition, the DETS will be tested on biological constituents. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decontamination Effluent Treatment System (DETS) Demonstration/Validation (USACE) completed in FY22	-	0.594	-
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 PFAS, novel methods for PFAS destruction, rapid risk ?based classification and characterization computational models, and monitoring and extraction technologies including PFAS sensors. ***FY 2022 Plans:*** Will demonstrate capability of PFAS Effluent Treatment System (PETS) to decontaminate existing PFAS contaminated fire suppression infrastructure. ***FY 2023 Plans:*** Will validate PFAS Effluent Treatment System (PETS) to decontaminate existing PFAS contaminated fire suppression infrastructure and begin demonstration of capabilities such as Thermal Desorption, Soil Washing (Multiple Technologies) to effectively remove PFOS/PFOA contamination in a variety of matrices. Will Demonstrate PFOS/PFOA removal technologies across a variety of matrices comparing removal efficiency, cost balance, regulatory guidelines and limits of detection. ***FY 2022 to FY 2023 Increase/Decrease Statement:***	-	0.400	4.190

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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 2021	FY 2022	FY 2023
Increase in FY23 resources is to demonstrate Perfluorooctane sulfonic acid (PFOS) removal technology for additional Army installation for resources impacting readiness, affecting installation drinking water supplies, and impacting training lands.			
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 2023 Plans:*** Will demonstrate visualization model for carbon sequestration potential across DoD installation lands using spatial data, high-resolution data inputs, and terrain and soil analytics. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** New effort selected to achieve the Army Climate Strategy goals.	-	-	5.129
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 2023 Plans:*** Will validate specifications and requirements for additive construction by conducting materials and structural testing with focus on meeting strength, serviceability and durability requirements. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increase to demonstrate green construction technologies that assist the Army to achieve Climate Strategy goals.	-	-	2.052
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 2023 Plans:*** Will evaluate drivers for embodied energy and provide action plans for criteria changes with positive quantifiable impacts on MILCON embodied energy. ***FY 2022 to FY 2023 Increase/Decrease Statement:***	-	-	6.155

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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 2021	FY 2022	FY 2023
Funding increase to demonstrate green construction technologies that help the Army achieve Climate Strategy goals.			
Title: FY 2022 SBIR/STTR Transfer	-	0.242	-
Description: Funding transferred in accordance with Title 15 USC ?638			
FY 2022 Plans: Funding transferred in accordance with Title 15 USC ?638			
FY 2022 to FY 2023 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC ?638			
Accomplishments/Planned Programs Subtotals	7.820	6.608	24.588

	FY 2021	FY 2022
Congressional Add: Program increase - wire-arc additive manufacturing (DEVCOM)	-	5.000
FY 2022 Plans: Congressional Interest Item		
Congressional Add: Environmental quality technology demonstration and validation: Congressional Add - High Pressure Waterjet Technology (USACE)	5.000	-
FY 2021 Accomplishments: Congressional Interest Item		
Congressional Adds Subtotals	5.000	5.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• 06I: *Environmental Quality Technology Support*	0.428	0.444	0.491	-	0.491	0.306	-	-	-	0.000	1.669

Remarks

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 2023 Army			Date: April 2022
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*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FY22 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.242	Mar 2022	-		-		-	0.000	0.242	-
		Subtotal	-	-		0.242		-		-		-	0.000	0.242	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Conduct Demonstrations	MIPR	Varies : Varies	49.541	12.820	Oct 2020	6.366	Oct 2021	24.588	Oct 2022	-		24.588	Continuing	Continuing	Continuing
Program Increase - Wire-arc additive manufacturing (DEVCOM)	TBD	TBD : TBD	-	-		5.000	Apr 2022	-		-		-	0.000	5.000	-
		Subtotal	49.541	12.820		11.366		24.588		-		24.588	Continuing	Continuing	N/A

	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	49.541	12.820		11.608		24.588		-		24.588	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
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*

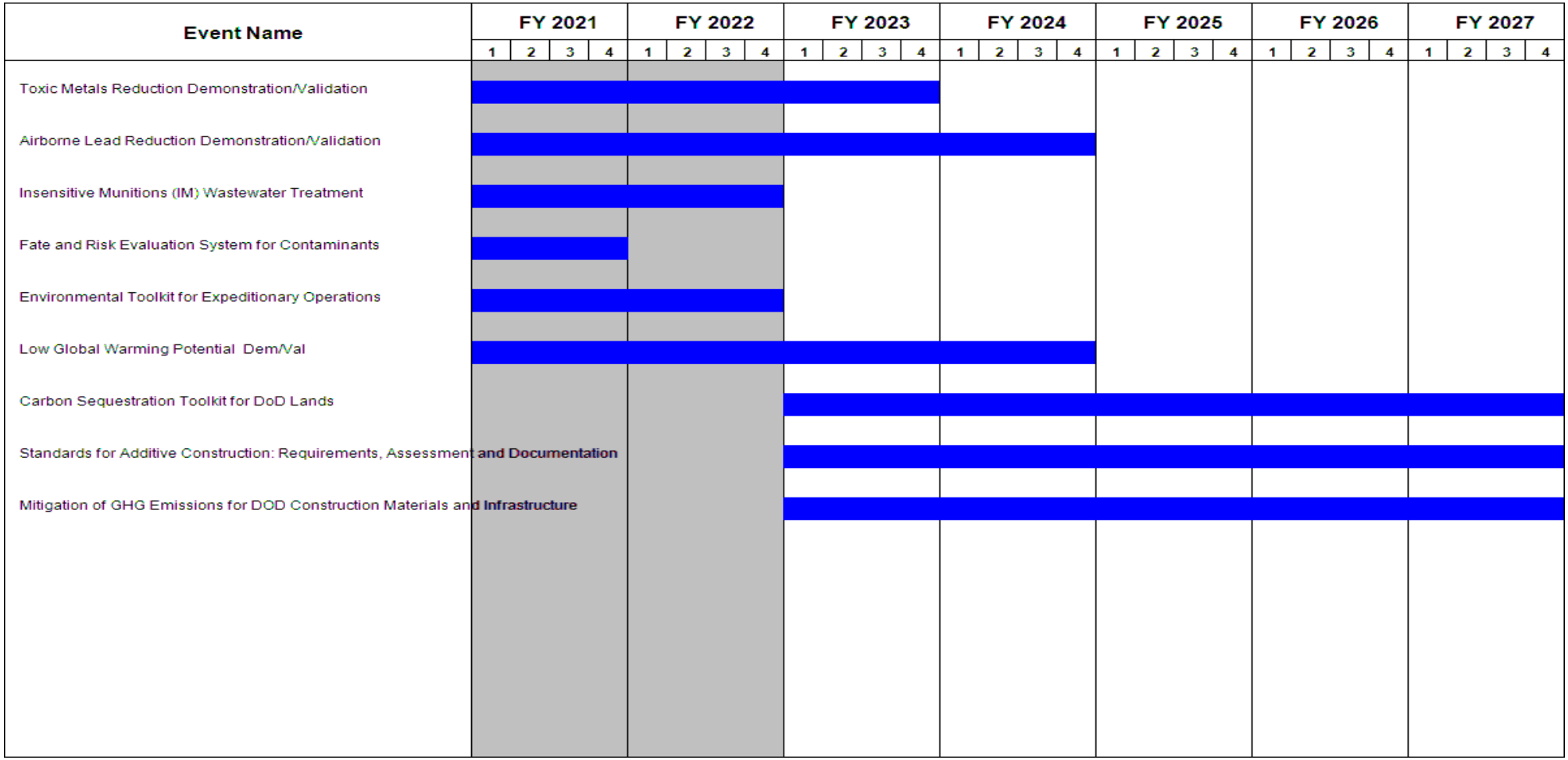

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** E21 / *Environmental Quality Technology Dem/Val*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Toxic Metals Reduction Demonstration/Validation	1	2015	4	2023
Airborne Lead Reduction Demonstration/Validation	1	2015	4	2024
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	2024
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