Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Army	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	14.190	19.561	13.387	-	13.387	12.166	13.490	10.950	10.772	0.000	94.516
035: *National Defense Cntr For Enviro Excellence*	-	4.685	6.484	5.272	-	5.272	5.374	6.508	6.644	6.712	0.000	41.679
E21: *Environmental Quality Technology Dem/Val*	-	9.505	13.077	8.115	-	8.115	6.792	6.982	4.306	4.060	0.000	52.837

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	14.731	15.132	16.263	-	16.263
Current President's Budget	14.190	19.561	13.387	-	13.387
Total Adjustments	-0.541	4.429	-2.876	-	-2.876
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.571			
• Congressional Rescissions	-	-			
• Congressional Adds	-	8.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.541	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-2.876	-	-2.876

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2019	FY 2020
Project: 035: *National Defense Cntr For Enviro Excellence*		

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Army	Date: February 2020
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 2019	FY 2020
Congressional Add: *Program increase - biopolymers for military infrastructure*	-	3.000
Congressional Add Subtotals for Project: 035	-	3.000
Project: E21: *Environmental Quality Technology Dem/Val*		
Congressional Add: *Environmental quality technology demonstration and validation: Congressional Add - Protective Coatings/ Biopolymers*	-	5.000
Congressional Add Subtotals for Project: E21	-	5.000
Congressional Add Totals for all Projects	-	8.000

Change Summary Explanation

FY 2021 funding decrease is due to a realignment to Army Modernization Priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
035: *National Defense Cntr For Enviro Excellence*	-	4.685	6.484	5.272	-	5.272	5.374	6.508	6.644	6.712	0.000	41.679
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." The NDCEE Program is a national resource for developing and disseminating advanced environmental technologies. The NDCEE is used to: demonstrate environmentally acceptable technology to industry; validate new technology prior to transferring that technology; and assist in the training of potential users as part of that technology transfer process. The NDCEE is a DoD resource for environmental quality management and technology validation. This Project is managed by the Army on behalf of the Assistant Secretary of Defense for Sustainment. In May 2008, the Project name 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 United States (U.S.) Army's broadly encompassing and growing mobile, personal and stationary advanced energy technology requirements include infrastructure, alternative and synthetic fuels, surety, renewables, storage, distribution, advanced power, micro-grids, transportation, systems integration and others. Further, to train as we fight, validated energy and environmental 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, safety, occupational health and energy objectives in consideration of mission, readiness, innovation, lethality and modernization.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Conduct demonstration/validation of environmentally acceptable technologies that enhance military readiness and reduce production, operating, and/or disposal costs.	4.495	3.212	5.072
Description: Supports the demonstration and validation of mature (BA4) environment, safety, occupational health, and energy technologies that support the Army's Environmental Quality Technology mission. 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 2020 Plans: Will conduct demonstration/validation of environment, safety, occupational health, and energy technologies that support military mission/readiness, employ a high degree of technical fidelity, have a high potential for transition success, and align with			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
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 2019	FY 2020	FY 2021
modernization goals. Will conduct project selection process for potential FY 2021 new starts. Technologies will be selected by the NDCEE project selection committee and approved by the NDCEE Lead Agent. ***FY 2021 Plans:*** Will conduct demonstration/validation of environment, safety, occupational health, and energy 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. Will conduct project selection process for potential FY 2022 new starts. Technologies will be selected by the NDCEE project selection committee and approved by the NDCEE Lead Agent. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase is due to programmatic economic factors and success of FY19 projects and increased recognition and value of the program.			
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 2020 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 2021 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 2020 to FY 2021 Increase/Decrease Statement:*** Programmatic Economic Factors.	0.190	0.119	0.200
Title: FY 2020 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2020 Plans:***	-	0.153	-

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
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 2019	FY 2020	FY 2021
Funding transferred in accordance with Title 15 USC 638			
FY 2020 to FY 2021 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC 638			
Accomplishments/Planned Programs Subtotals	4.685	3.484	5.272

	FY 2019	FY 2020
Congressional Add: Program increase - biopolymers for military infrastructure	-	3.000
FY 2020 Plans: Program increase - biopolymers for military infrastructure		
Congressional Adds Subtotals	-	3.000

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 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 2021 Army			Date: February 2020
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 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	MIPR	AEC : San Antonio, TX	24.916	0.190	Nov 2018	0.119	Nov 2018	0.200	Nov 2018	-		0.200	Continuing	Continuing	Continuing
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.153		-		-		-	0.000	0.153	-
		Subtotal	24.916	0.190		0.272		0.200		-		0.200	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Testing and Evaluation	Various	Various. : Various	35.624	4.495	Nov 2018	6.212	Nov 2018	5.072	Nov 2018	-		5.072	Continuing	Continuing	Continuing
		Subtotal	35.624	4.495		6.212		5.072		-		5.072	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	60.540	4.685		6.484		5.272		-		5.272	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army		Date: February 2020
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*

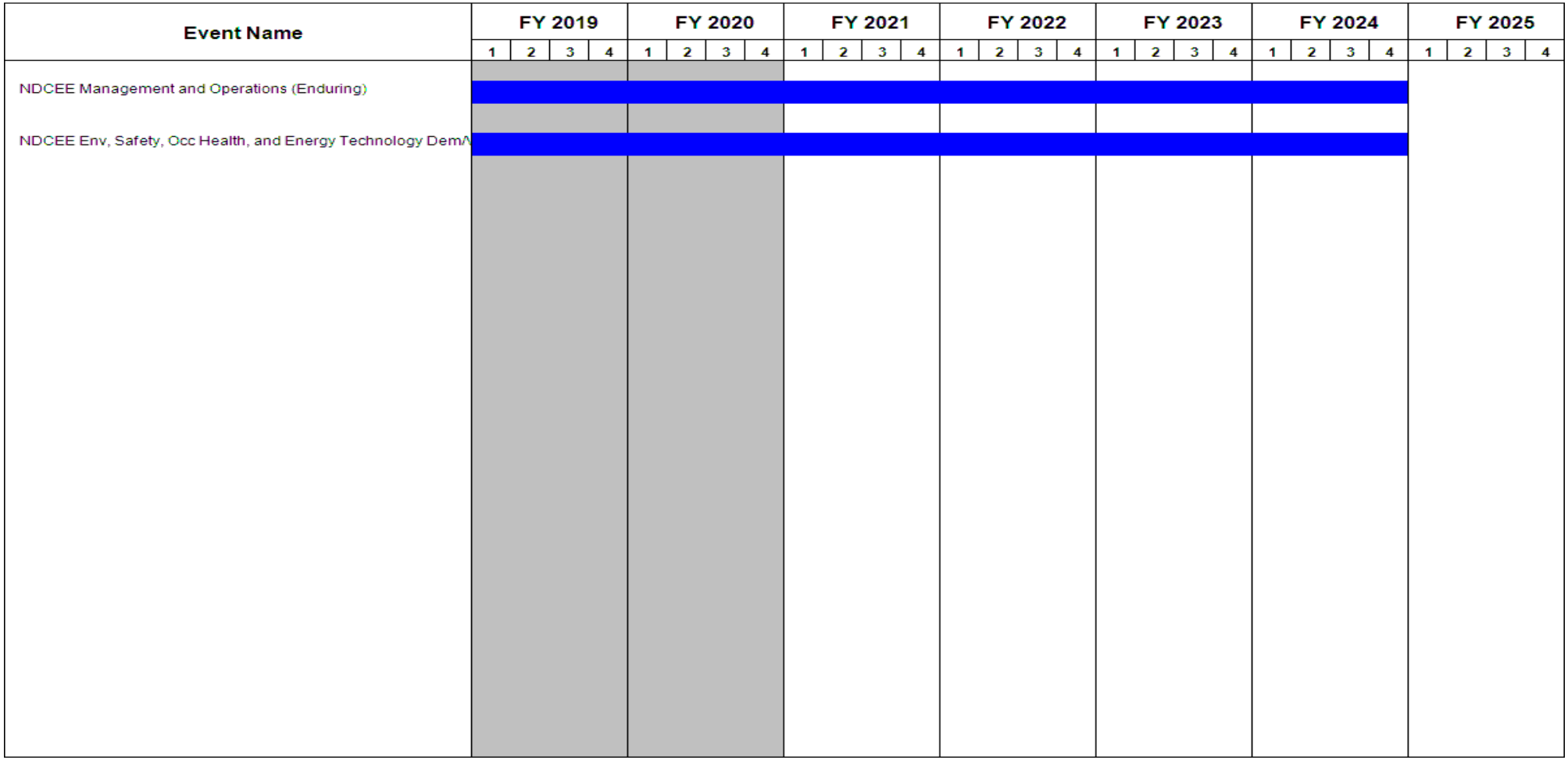

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** 035 / *National Defense Cntr For Enviro Excellence*

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 2021 Army			Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
E21: *Environmental Quality Technology Dem/Val*	-	9.505	13.077	8.115	-	8.115	6.792	6.982	4.306	4.060	0.000	52.837
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 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 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 2019	FY 2020	FY 2021
Title: Environmental quality technology demonstration and validation: Toxic Metal Reduction in Surface Finishing of Army Weapon Systems (CCDC)	2.954	2.173	3.154
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 surface coating 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 2020 Plans: Will demonstrate zinc-nickel alternatives to cadmium for use on fasteners, electrical connectors and in brush plating; will qualify portable cold spray system and trivalent chromium electroplating as hard chrome alternatives.			
FY 2021 Plans: Will complete demonstration of cold spray gun barrels with increased barrel life; will validate hexavalent chromium-free aluminum anodizing process at pilot scale and demonstrate on relevant aircraft.			
FY 2020 to FY 2021 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
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 2019	FY 2020	FY 2021
Economic adjustment			
Title: Environmental quality technology demonstration and validation: Airborne Lead Reduction from Army Weapon Systems (CCDC) ***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 lead-free formulations will provide a domestic, readily available source for primary explosives used in all Long Range Precision Fires and Soldier Lethality systems. ***FY 2020 Plans:*** Will demonstrate lead-free primer in small/medium caliber ammunition; will complete flight weight demonstration of reduced-lead double-base propellants for Hydra rockets. ***FY 2021 Plans:*** Will demonstrate lead-free fuze (combining primer and detonator) in hand grenade configuration; will demonstrate lead-free minimum signature rocket propellants in heavy-weight motors. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY20 decrease aligns program requirements with Army modernization priorities.	1.837	1.659	2.232
Title: Environmental quality technology demonstration and validation: Low Global Warming Potential (LGWP) Alternatives to Ozone Depleting Substances (ODS) (CCDC) ***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, including Future Vertical Lift and Next Generation Combat Vehicle. ***FY 2020 Plans:*** Will validate and promulgate the demonstrated refrigerant flammability test method. ***FY 2021 Plans:*** Will conduct vehicle-scale demonstrations for alternative, low GWP extinguishing agents with high potential to meet safety and performance requirements for occupied crew compartments. ***FY 2020 to FY 2021 Increase/Decrease Statement:***	0.250	0.191	0.226

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
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 2019	FY 2020	FY 2021
Economic adjustment.			
Title: Environmental quality technology demonstration and validation: ESOH Impacts of Short-Term Noise Assessment Procedures (USACE) ***Description:*** Demonstrate and validate the technologies, including the underlying computational algorithms, for the impact of short-term noise assessment procedures on environmental footprint and Soldier readiness. When completed the program will: 1) have validated short-term noise assessment procedures, including uncertainty metrics and 2) have on-line, self-guided training modules for Sustainable Range Program range officers on performing and interpreting short-term noise assessment results.	0.250	-	-
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. ***FY 2020 Plans:*** Will continue operation of Fenton oxidation pilot demonstration system at MCAAP with ramp up to 500 gpd total capacity. Will adjust operations and perform manufacturing trials to optimize treatment. Will document cost savings for Fenton oxidation of IM wastewaters. Will install pilot demonstration unit for continuous precipitation and membrane concentration of IM wastewaters at MCAAP. ***FY 2021 Plans:*** Will install pilot demonstration unit for continuous precipitation and membrane concentration of IM wastewaters at MCAAP. Will work with local authorities to verify release limits and treatment optimization. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Economic adjustment.	1.681	1.604	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.	1.275	0.794	0.505

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
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 2019	FY 2020	FY 2021
FY 2020 Plans: Will demonstrate software and sensors package for environmental baseline evaluation capabilities with engineer soldiers. Perform demonstration of ETEO at an ARMY installation with Directorate of Public Works; Directorate of Plans, Training, Mobilization, and Security; and Directorate of Emergency Services on developed platform and prepare a technical/functional assessment report. During this phase, a two-day field demonstration will be conducted. The demonstration will be conducted to test the installation?s ability to detect the presence of environmental contaminants in soils with the sensor suite to transfer that data into an EBS using ETEO software and to quickly understand the resulting information and its implication to operations. ***FY 2021 Plans:*** Will develop instructional videos for all current ETEO tools and software to streamline training use of ETEO for current and future users. Test and demonstrate a new sensor as a potential replacement for the PET kit. Reduce the amount of consumables in the ETEO toolkit. Will demonstrate new auto-fill capabilities in the reporting software to decrease Soldiers time populating Environmental Baseline Surveys. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Economic adjustment.			
Title: Environmental quality technology demonstration and validation: Fate and Risk Evaluation System for Contaminants (FRESCO?) ***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. ***FY 2020 Plans:*** 1) Will finalize integration of upgraded existing components, perform testing and debugging ? existing component integration and testing will be finalized in FY20. 2) Will add new capabilities to FRESCO?, perform testing and debugging ? since the development of ARAMS? and TREECS?, new fate and transport models and databases have been developed. Soils Model, Vadose Zone Model, and Channel Model will be upgraded to give greater support in evaluating the fate and transport of EC. 3) Will validate FRESCO? System using existing army data ? the project team will work with our Technology Transition Agreement (TTA) partners to select an applicable demonstration site that will allow us to demonstration and validate the full system features. ***FY 2021 Plans:*** 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.The	1.258	1.469	1.093

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
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 2019	FY 2020	FY 2021
FRESCO System will be further validated using existing Army data - the project team will work with our Technology Transition Agreement (TTA) partners to select an applicable demonstration site that will allow us to demonstration and validate the full system features. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding change due to economic adjustment.			
Title: FY 2020 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2020 Plans:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC 638	-	0.187	-
Accomplishments/Planned Programs Subtotals	9.505	8.077	8.115

	FY 2019	FY 2020
Congressional Add: Environmental quality technology demonstration and validation: Congressional Add - Protective Coatings/Biopolymers ***FY 2020 Plans:*** Environmental quality technology demonstration and validation: Congressional Add - Protective Coatings/Biopolymers	-	5.000
Congressional Adds Subtotals	-	5.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• 06I: *Environmental Quality Technology Support*	0.921	0.562	0.444	-	0.444	0.450	0.480	0.298	0.130	0.000	3.285

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 a valid Army Environmental Requirements and Technology Assessments (AERTA) requirement. Efforts approved by senior Army

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
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*

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 2021 Army			Date: February 2020
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 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.187		-		-		-	0.000	0.187	-
		Subtotal	-	-		0.187		-		-		-	0.000	0.187	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Conduct Demonstrations	MIPR	Varies : Varies	27.292	9.505	Oct 2018	12.890	Oct 2019	8.115	Oct 2020	-		8.115	Continuing	Continuing	Continuing
		Subtotal	27.292	9.505		12.890		8.115		-		8.115	Continuing	Continuing	N/A

	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	27.292	9.505		13.077		8.115		-		8.115	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army		Date: February 2020
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*

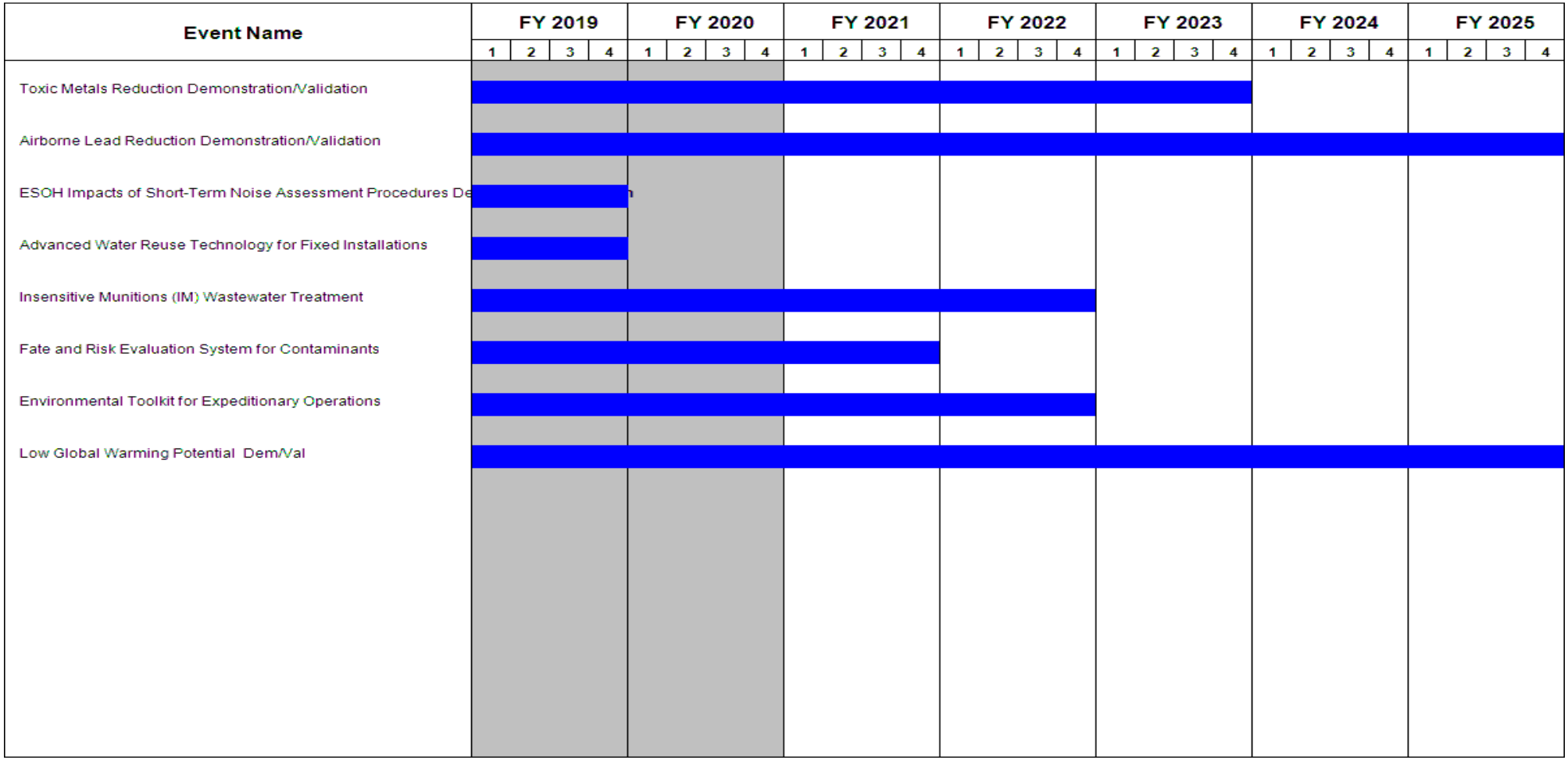

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603779A / *Environmental Quality Technology - Dem/Val*	**Project (Number/Name)** E21 / *Environmental Quality Technology Dem/Val*

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	2025
ESOH Impacts of Short-Term Noise Assessment Procedures Demonstration/Validation	1	2016	4	2019
Advanced Water Reuse Technology for Fixed Installations	1	2016	4	2019
Insensitive Munitions (IM) Wastewater Treatment	1	2018	4	2022
Fate and Risk Evaluation System for Contaminants	1	2019	4	2021
Environmental Toolkit for Expeditionary Operations	1	2019	4	2022
Low Global Warming Potential Dem/Val	1	2019	4	2025