Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army											Date: March 2019	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 2: *Applied Research*					R-1 Program Element (Number/Name) PE 0602720A / *Environmental Quality Technology*							
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
Total Program Element	-	34.118	19.469	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	53.587
048: *Ind Oper Poll Ctrl Tec*	-	2.832	0.992	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.824
835: *Mil Med Environ Crit*	-	7.712	6.271	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	13.983
895: *Pollution Prevention*	-	2.374	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.374
896: *Base Fac Environ Qual*	-	8.200	4.206	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	12.406
F35: *Environmental Quality Applied Research (CA)*	-	13.000	8.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	21.000

Note

In Fiscal Year (FY) 2020 this Program Element (PE) is realigned with continuity of effort to the following PEs:
* 0602141A Lethality Technology
* 0602144A Ground Technology
* 0602146A Network C3I Technology

A. Mission Description and Budget Item Justification

This PE investigates and evaluates enabling tools and methodologies that support the long-term sustainment of Army training and testing activities. Specific focus is on maintaining regulatory compliance while limiting future Army liability to installation operations and training, and maintaining resilient and adaptive ranges. Project 048 improves the Army's ability to comply with requirements mandated by federal, state, and local environmental/health laws and to reduce the cost of this compliance. Project 835 develops enabling technologies for advanced life cycle analysis, advanced sensing, technologies to empower rapid fielding of next generation energetics, propellants and munitions with focus on the impacts of new materiel that will enter the Army inventory within the next decade and beyond, and enable decision making based on accurate environmental conditions in sparse data environments. Project 895 focuses on reducing hazardous waste generation through process modification and control, materials recycling and substitution, and developing technologies to predict and mitigate range and maneuver constraints associated with current and emerging weapon systems, doctrine, and regulations. Project 896 investigates technologies for ecosystem vulnerability assessment, and ecosystem analysis, monitoring, modeling, and mitigation to support sustainable use of Army lands to reduce or eliminate environmental constraints to military missions, and develops environmental sensor capabilities to enable rapid collection and analysis of data for real-time environmental situational awareness.

The work cited is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas, the Army Modernization Strategy, and supports the Army Strategy for the Environment.

All FY20 adjustments align program financial structure to Army Modernization Priorities in support of the National Defense Strategy.

Technologies developed in this PE are transitioned to PE 0603728A (Environmental Quality Technology Demonstrations).

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army	Date: March 2019
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 2: *Applied Research*	**R-1 Program Element (Number/Name)** PE 0602720A *I Environmental Quality Technology*

Work in this PE is performed by the Army Engineer Research and Development Center, Vicksburg, MS, and the Army Futures Command (AFC).

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	21.678	13.242	13.503	-	13.503
Current President's Budget	34.118	19.469	0.000	-	0.000
Total Adjustments	12.440	6.227	-13.503	-	-13.503
• Congressional General Reductions	-0.012	-0.008			
• Congressional Directed Reductions	-	-1.765			
• Congressional Rescissions	-	-			
• Congressional Adds	13.000	8.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-5.000	-			
• SBIR/STTR Transfer	-0.548	-			
• Adjustments to Budget Years	5.000	-	-13.503	-	-13.503

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2018	FY 2019
Project: F35: *Environmental Quality Applied Research (CA)*		
Congressional Add: *Coatings Technology*	3.000	-
Congressional Add: *Mobile Environmental Containment Sensors*	6.000	8.000
Congressional Add: *UAS for UXO Detection*	4.000	-
Congressional Add Subtotals for Project: F35	13.000	8.000
Congressional Add Totals for all Projects	13.000	8.000

Change Summary Explanation

FY18 increase related to congressional Increases totaling $13 Million.
FY19 increase related to congressional increases totaling $8 Million.
FY20 decrease related to science and technology financial restructuring.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 2	R-1 Program Element (Number/Name) PE 0602720A / *Environmental Quality Technology*	Project (Number/Name) 048 / *Ind Oper Poll Ctrl Tec*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
048: *Ind Oper Poll Ctrl Tec*	-	2.832	0.992	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.824

Note

In Fiscal Year (FY) 2020 this Project is being realigned to:
Program Element (PE) 0602144A Ground Technology
* Project BK7 Robotics for Engineer Operations Technology

A. Mission Description and Budget Item Justification

This Project designs and develops tools and methods to enable the Army to reduce or eliminate environmental impacts both in the United States and abroad. These new and innovative technologies are essential for the effective control and reduction of military unique hazardous and non-hazardous wastes on military installations and associated with contingency operations bases worldwide. To develop the required technologies, this Project has a focus on developing sustainable environmental protection technologies that help the Army maintain environmental compliance for sources of pollution such as production facilities, facility contamination, and other waste streams; a focus on Army-unique ecosystem vulnerability assessment, and ecosystem analysis, modeling, adaptation, and mitigation technologies for installations associated with air quality and endangered species management and their impacts on training and testing missions; a focus on designing and developing technologies for deployed forces with environmentally safe, operationally enhanced, and cost effective technologies or processes to achieve maximum diversion, minimization, or volume reduction of base camp and field waste; and a focus on the impacts of new materiel that will enter the Army inventory within the next decade and beyond. The resultant technologies reduce the impact of legal and regulatory environmental restrictions on installation facilities, training and testing lands and ranges, as well as provide a means to avoid fines and facility shutdowns within the United States and reduce environmental impacts to the Warfighter abroad.

All FY20 adjustments align program financial structure to Army Modernization Priorities in support of the National Defense Strategy.

The work cited is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas, the Army Modernization Strategy, and supports the Army Strategy for the Environment.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Sustainable Ranges and Lands	1.865	-	-
Description: This effort supports management of operations on ranges and training lands with the intent to reduce constraints and restrictions resulting from environmental regulations. Technologies are targeted toward solutions for environmental compliance and associated requirements, as well as solutions that will enhance training and testing operations.			
Title: Adaptive & Resilient Installations	0.967	0.992	-

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602720A / *Environmental Quality Technology*	**Project (Number/Name)** 048 / *Ind Oper Poll Ctrl Tec*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Description: This effort develops sustainable, cost efficient, and effective facilities; and provides technologies and techniques for achieving resilient and sustainable installation and base operations. ***FY 2019 Plans:*** Follow a system of systems approach to develop an integrated installation computational model which fuses data from existing systems and programs of record to capture management business processes. Business intelligence dashboards will integrate and support synthesis and reporting across business processes and at all echelons, and fully integrate information infrastructure that presents and provides decision-ready knowledge. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** This research effort was realigned to PE 0602144A (Ground Technology) / Project BK7 (Robotics for Engineer Operations Technology) in FY20 as part of the financial restructuring.			
Accomplishments/Planned Programs Subtotals	2.832	0.992	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 2	R-1 Program Element (Number/Name) PE 0602720A / *Environmental Quality Technology*	Project (Number/Name) 835 / *Mil Med Environ Crit*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
835: *Mil Med Environ Crit*	-	7.712	6.271	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	13.983

Note

In Fiscal Year (FY) 2020 this Project is being realigned to:
PE 0602144A Ground Technology:
* Project BL5 Expedient Passive Protection Technology
PE 0602146A Network C3I Technology:
* Project AR3 Intelligent Environmental Battlefield Awareness

A. Mission Description and Budget Item Justification

This Project investigates and develops tools and methods to enable the Army to reduce or eliminate environmental impacts both in the United States and abroad. These new and innovative technologies are essential for the effective control and reduction of military-unique hazardous and non-hazardous wastes associated with contingency operations worldwide. These new and innovative technologies empower rapid fielding of next generation energetics, propellants and munitions with focus on the impacts of new materiel that will enter the Army inventory within the next decade and beyond, and deliver the capability to shape and protect Army investments in next generation fires by delivering proactive, scientifically sound risk and environmental impact management strategies. This Project will also provide integrated knowledge of environmental factors in mission planning activities creating a unified, comprehensive and integrated battlefield landscape of future threats, opportunities and impacts to mission success in sparse data environments enabling mission planners to identify the industrial/commercial resources used as components of weapons development. These resultant technologies streamline the acquisition process, enabling rapid fielding of new materials, increase Army readiness through proactive hazard management strategies for military materials, enhance the Army's ability to improve decision-making based on accurate environmental conditions in sparse data environments, and reduce Army liabilities associated with unforeseen environmental impacts.

All FY20 adjustments align program financial structure to Army Modernization Priorities in support of the National Defense Strategy.

The work cited is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Life Cycle of Military Materials in the Environment	0.907	0.194	-
Description: This effort provides a quantitative means to determine the environmental and human health effects resulting from exposure to existing and emerging compounds and materials produced in Army industrial, field, and battlefield operations or disposed of through past activities. Results of this research will be integrated into the life cycle analysis process.			
FY 2019 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602720A / *Environmental Quality Technology*	**Project (Number/Name)** 835 / *Mil Med Environ Crit*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Investigate environmentally-friendly signature tonedown/alteration concepts for critical assets that integrate novel materials such as organics and nanomaterials, and characterize life cycle and environmental health and safety impacts of concealment/ countermeasure technologies. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** This research effort was realigned to PE 0602144A (Ground Technology) / Project BL5 (Expedient Passive Protection Technology) in FY20 as part of the financial restructuring.			
Title: Advanced Materials and Nanotechnology: Environmental Effects previously called Nanotechnology-Environmental Effects ***Description:*** This effort enables the Army's ability to field advanced nano-based technologies by appropriate identification and assessment of the environmental impacts of nanomaterials. The end result of this research is the development of tools that guide and influence the design of nanomaterials based on such factors as adverse effects on human health or on the environment.	3.062	-	-
Title: Risk Prediction and Decision Technologies ***Description:*** This effort enables the Army to predict and understand the fate and transport of Army-unique compounds and materials which improves the capability to detect, control, and remediate. This effort developed advanced engineering concepts utilizing advanced materials, biological processes, and nanomaterials in remediation processes.	3.743	-	-
Title: Rapid Risk Analysis of Fires ***Description:*** Develop proactive environment, safety, and occupational health risk assessment tools to ensure rapid fielding of energetics, propellants, and munitions. ***FY 2019 Plans:*** Develop robust procedures for the detection and quantification of carbon-based advanced materials at concentrations relevant to sustainability analysis; identify current and future trends in additive manufacturing technologies and materials of interest to the Army to evaluate environment, health, and safety impacts during development, transition, and acquisition. Proactive environment, safety, and occupational health risk assessment tools will facilitate rapid fielding of energetics propellants and munitions. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Effort ends in FY19	-	2.944	-
Title: Intelligent Environmental Battlefield Awareness ***Description:*** Develop technologies to provide geo-environmental infrastructure and hazard awareness in urban environments to provide decision-makers with data and information for mission planning.	-	2.002	-

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602720A / *Environmental Quality Technology*	**Project (Number/Name)** 835 / *Mil Med Environ Crit*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
FY 2019 Plans: Investigate environmental forensic methodologies to provide geo-chemical resources to mission planners. Quantify contaminant microbial degradation/transformation activity in arctic and subarctic climates as a function of soil geochemistry and environmental flux to model contaminate fate and transport prediction for intelligence preparation on the battlefield. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** This research effort was realigned to PE 0602146A (Network C3I Technology) / Project AR3 (Intelligent Environmental Battlefield Awareness) in FY20 as part of the financial restructuring.			
Title: Chemical Sensing in Contested Environments ***Description:*** Develop advanced environmental sensor technologies to enable rapid collection and analysis for persistent surveillance in contested areas. This project will provide significant advances in research and development of each of the component steps (improved selectivity for passive samplers, functionalization of printable adsorption components, novel signal generation techniques, sensor arrays, etc.) to enable rapid collection and analysis. ***FY 2019 Plans:*** Develop advanced environmental sensor technologies to enable rapid collection and analysis for persistent surveillance in contested areas ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Effort ends in FY19.	-	0.862	-
Title: FY 2019 SBIR / STTR Transfer ***Description:*** FY 2019 SBIR / STTR Transfer ***FY 2019 Plans:*** FY 2019 SBIR / STTR Transfer ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY 2019 SBIR / STTR Transfer	-	0.269	-
Accomplishments/Planned Programs Subtotals	7.712	6.271	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602720A / *Environmental Quality Technology*	**Project (Number/Name)** 835 / *Mil Med Environ Crit*

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 2	R-1 Program Element (Number/Name) PE 0602720A / *Environmental Quality Technology*	Project (Number/Name) 895 / *Pollution Prevention*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
895: *Pollution Prevention*	-	2.374	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.374

Note

Program ended after FY18.

A. Mission Description and Budget Item Justification

The Project develops pollution prevention technologies required to reduce/eliminate the environmental footprint resulting from the manufacture, maintenance, use, and surveillance of Army ordnance and other weapon systems. This Project researches and develops revolutionary technologies to eliminate or significantly reduce the environmental impacts that threaten the sustainment of production and maintenance facilities, training ranges and operational areas. The Project supports the transformation of the Army by ensuring that advanced energetic materials required for high-performance munitions (gun, rocket, missile propulsion systems, and warhead explosives) are devised to meet weapons lethality/survivability stretch goals in parallel with, and in compliance to, foreseeable sustainment requirements. Specific technology thrusts include environmentally-benign explosives developed with computer modeling using Department of Defense high-performance computing resources; novel energetics that capitalize on the unique behavior of nano-scale structures; chemically engineered explosive and propellant formulations produced with minimal environmental waste, long-storage lifetime, rapid/benign environmental degradation properties, and efficient extraction and reuse; and fuses, pyrotechnics, and initiators that are free from toxic chemicals. Other focus areas include toxic metal reductions from surface finishing processes, sustainable military paints and coatings to meet evolving environmental requirements and low global warming potential alternatives for refrigerants, fire suppressants and solvents.

The cited work is consistent with the Under Secretary of Defense, Research and Engineering priority focus areas and the Army Modernization Strategy and supports the Army Strategy for the Environment.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Pollution Prevention Technologies	2.374	-	-
Description: This effort develops pollution prevention technologies to reduce/eliminate the environmental footprint resulting from the manufacture, maintenance, use and surveillance of Army ordnance and other weapon systems.			
Accomplishments/Planned Programs Subtotals	2.374	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602720A / *Environmental Quality Technology*	**Project (Number/Name)** 895 / *Pollution Prevention*

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 2	R-1 Program Element (Number/Name) PE 0602720A / *Environmental Quality Technology*	Project (Number/Name) 896 / *Base Fac Environ Qual*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
896: *Base Fac Environ Qual*	-	8.200	4.206	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	12.406

Note

In Fiscal Year (FY) 2020 this Project is realigned to:
Program Element (PE) 060146A Network C3I Technology Project:
* Project AR5 Understanding the Environment as a Threat Technology

A. Mission Description and Budget Item Justification

This Project designs and develops tools as well as identification and assessment methodologies for ecosystem vulnerability assessment, analysis, monitoring, modeling, and mitigation to support real-time dynamic environmental situational awareness to enable the Army to reduce or eliminate environmental constraints to military use both in the United States and abroad and how the use of those resources impacts mission support. The Project investigates, designs, and develops novel methods and missions, providing the Army with the technical capability to manage, protect, and improve the biophysical characteristics; and the computational understanding of the Battlefield environment conditions and stressors in order to provide actionable information supporting situational awareness and influencing tactical operations. Technologies within this Project enable insertion of accurate environmental data into current intelligence and planning frameworks creating an integrated picture of the battlespace for operational decision making. This project also enhances environmental reconnaissance with advanced environmental sensing technologies to enable rapid collection and analysis of environmental data providing situational awareness for mission response.

All FY20 adjustments align program financial structure to Army Modernization Priorities in support of the National Defense Strategy.

The work cited is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Sustainable Ranges and Lands	4.010	-	-
Description: This effort provides ecosystem vulnerability assessment, analysis, monitoring, modeling, and mitigation technologies to support sustainable use of Army facilities, training lands, firing ranges, and airspace to reduce or eliminate environmental constraints to military missions. This effort targets integrated military land-appropriate management and control technologies for selected high priority Army land management issues including Threatened and Endangered Species (TES), Species at Risk (SAR), and invasive species. This effort enables effective management of training lands by understanding the cumulative impacts of training and non-training land use activities on critical natural resources under current and potential future climate conditions.			
Title: Military Materials in the Environment	4.190	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602720A / *Environmental Quality Technology*	**Project (Number/Name)** 896 / *Base Fac Environ Qual*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Description: This effort develops models to predict chemical behavior in simple and complex environmental media (e.g. soils, water). These models will allow for improved understanding of how compounds and materials will move, bind, and degrade when introduced into the environment.			
Title: Rapid Risk Analysis of Fires ***Description:*** Develop proactive assessment tools to shape and protect Army investments in next generation fires by delivering science based risk and environmental impact management strategies. ***FY 2019 Plans:*** Explore potential environmental, health and safety hazards associated with emerging chemical and material developments to counter advanced conventional threats. Standardize methods for predicting ecological hazards of military materials early in the acquisition development process enabling potential replacement chemicals and other materials. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Effort ends in FY19.	-	2.206	-
Title: Understanding the Environment as a Threat ***Description:*** This effort advances the state of the science associated with computational understanding of the Battlefield environment conditions and stressors in order to provide actionable information supporting situational awareness for mission planning. ***FY 2019 Plans:*** Investigate computational chemistry predictions of the physical and chemical properties of insensitive munitions compounds and their degradation products, to determine their fate and effects in arid and semiarid environments and to provide actionable information supporting situational awareness and influence tactical operations. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** This research effort was realigned to PE 0602146A (Network C3I Technology) / Project AR5 (Understanding the Environment as a Threat Technology) in FY20 as part of the financial restructuring.	-	2.000	-
Accomplishments/Planned Programs Subtotals	8.200	4.206	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602720A / *Environmental Quality Technology*	**Project (Number/Name)** 896 / *Base Fac Environ Qual*

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army												Date: March 2019
Appropriation/Budget Activity 2040 / 2					R-1 Program Element (Number/Name) PE 0602720A / *Environmental Quality Technology*				Project (Number/Name) F35 / *Environmental Quality Applied Research (CA)*			
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
F35: *Environmental Quality Applied Research (CA)*	-	13.000	8.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	21.000

A. Mission Description and Budget Item Justification

Congressional increases supporting the investigation and evaluation of enabling tools and methodologies that support the long-term sustainment of Army training and testing activities

The work cited is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by the Army Engineer Research and Development Center, Vicksburg, Mississippi.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019
Congressional Add: Coatings Technology ***FY 2018 Accomplishments:*** Coatings Technology	3.000	-
Congressional Add: Mobile Environmental Containment Sensors ***FY 2018 Accomplishments:*** Mobile Environmental Containment Sensors ***FY 2019 Plans:*** Mobile Environmental Containment Sensors	6.000	8.000
Congressional Add: UAS for UXO Detection ***FY 2018 Accomplishments:*** UAS for UXO Detection	4.000	-
Congressional Adds Subtotals	13.000	8.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A