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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Army **Date:** February 2016

Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
2040: Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)					PE 0603779A / Environmental Quality Technology - Dem/Val							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	7.529	8.813	7.785	-	7.785	8.213	9.021	9.099	9.320	Continuing	Continuing
035: National Defense Cntr For Enviro Excellence	-	2.480	2.776	2.548	-	2.548	3.366	3.391	3.372	3.384	Continuing	Continuing
E21: POLLUTION PREVENTION TECHNOLOGY DEM/VAL	-	5.049	6.037	5.237	-	5.237	4.847	5.630	5.727	5.936	Continuing	Continuing

A. Mission Description and Budget Item Justification

There is a broad application potential 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 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; i.e., applies to a class of systems (e.g., vehicles or aircraft) or to a Department of Army-wide, multiple site/installation problem (e.g., unexploded ordnance detection and discrimination). This program will address, and eventually resource, programs in each of the Army environmental quality technology pillars (military materials in the environment, sustainable ranges and lands, compliance, and pollution prevention). All work must be endorsed by potential users and supported by a state-of-the-art assessment (i.e., "technology is heading for user to implement").

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	7.826	8.813	9.120	-	9.120
Current President's Budget	7.529	8.813	7.785	-	7.785
Total Adjustments	-0.297	0.000	-1.335	-	-1.335
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.297	-			
• Adjustments to Budget Years	-	-	-1.335	-	-1.335

Change Summary Explanation

FY 2017 decrease attributed to realignment to higher priority Army efforts.

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Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>				Project (Number/Name) 035 / <i>National Defense Cntr For Enviro Excellence</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
035: <i>National Defense Cntr For Enviro Excellence</i>	-	2.480	2.776	2.548	-	2.548	3.366	3.391	3.372	3.384	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Not applicable for this item.

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 program is managed by the Army on behalf of the Office of the Assistant Deputy Under Secretary of Defense for Environment. In May 2008, the program name was redesignated from the National Defense 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."

Our 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 our installations. The NDCEE will continue to demonstrate, validate, and transfer these technologies supporting our integrated environment, safety, occupational health and energy objectives with full consideration of the triple bottom line of mission, environment and community.

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

	FY 2015	FY 2016	FY 2017
Title: Management and operation of the NDCEE.	0.288	-	-
Description: Consists of the management and operation expenses required to operate the NDCEE program by the prime contractor.			
FY 2015 Accomplishments:			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Provided management and operation of the NDCEE.				
<p>Title: Industrial base integration, operation of the NDCEE environmental technology facility, and environmental information analysis.</p> <p>Description: Funds the industrial base integration, operation of the NDCEE environmental technology facility, and environmental information analysis by the NDCEE prime contractor.</p> <p>FY 2015 Accomplishments: Funded industrial base integration, operation of the NDCEE environmental technology facility, and environmental information analysis.</p>		0.293	-	-
<p>Title: Conduct demonstration/validation of environmentally acceptable technologies that enhance military readiness and reduce production, operating, and/or disposal costs.</p> <p>Description: Supports the demonstration and validation of environmental, safety, occupational health, and energy technologies that support the Army's Environmental Quality Technology mission. The objective is to determine if the technology is ready for implementation that will enhance military readiness and reduce production, operating, and/or disposal costs.</p> <p>FY 2015 Accomplishments: Conducted demonstration/validation of environmentally acceptable technologies that enhance military readiness and reduce production, operating, and/or disposal costs. Technologies demonstrated consist of technologies selected by the NDCEE Technical Working Group and approved by the NDCEE Executive Advisory Board.</p> <p>FY 2016 Plans: Conduct demonstration/validation of environmentally acceptable technologies that enhance military readiness and reduce production, operating, and/or disposal costs. Technologies to be demonstrated will consist of technologies selected by the NDCEE Technical Working Group.</p> <p>FY 2017 Plans: Will conduct demonstration/validation of environmentally acceptable technologies that enhance military readiness and reduce production, operating, and/or disposal costs. Technologies to be demonstrated will consist of technologies selected by the NDCEE Technical Working Group and approved by the NDCEE Executive Advisory Board.</p>		0.991	1.709	1.569
<p>Title: NDCEE Government program management during contract negotiations and during project formulation, execution, and technology transfer.</p>		0.908	1.067	0.979

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Description: Funds the government program management office for the NDCEE. This consists of personnel assisting in contract negotiations and during project formulation, execution, and technology transfer.</p> <p>FY 2015 Accomplishments: Funded NDCEE Government program management during contract negotiations and during project formulation, execution, and technology transfer.</p> <p>FY 2016 Plans: Fund NDCEE Government program management during contract negotiations and during project formulation, execution, and technology transfer.</p> <p>FY 2017 Plans: Will fund NDCEE Government program management during contract negotiations and during project formulation, execution, and technology transfer.</p>			
Accomplishments/Planned Programs Subtotals	2.480	2.776	2.548

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 organizations. The NDCEE fosters an outreach program to describe its products and capabilities that include publication of results and participation in professional meetings, symposia, conferences, and appropriate coordination with industry. The management strategy for the NDCEE centers on a DoD Executive Advisory Board (EAB) chaired by the DoD NDCEE Executive Agent on behalf of the Deputy Undersecretary of Defense for Installations and Environment and composed of senior DoD leadership to oversee NDCEE operations. The EAB is supported by the NDCEE Technical Working Group (TWG) that includes senior level staff members from each of the offices represented on the EAB. The NDCEE TWG coordinates all NDCEE activities, votes on proposed joint NDCEE projects, and reports back to the EAB Principals. Working at the tactical levels, three Focus Groups (environment, safety/occupational health, and energy) were established to develop joint projects. The Army's Environmental Quality Technology Program participating in the the Focus Groups also assists in the formulation of suggested environmental technology projects to be demonstrated within the NDCEE Program. The contracting strategy of the NDCEE is based on using an NDCEE Contracting Officer's Representative to validate all the contractual portions of the NDCEE and by technical monitors (TM) to oversee the technical aspects of each contracted task. A prime contractor operates NDCEE test facility to validate environmentally compatible technologies on a representative "shop floor". The NDCEE accounts for and conducts work for: (1) direct funded Army tasks; (2) reimbursable tasks from within DoD and from other Government agencies; and (3) when applicable Congressionally directed and funded tasks.

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E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 4				PE 0603779A / Environmental Quality Technology - Dem/Val				035 / National Defense Cntr For Enviro Excellence								
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Program Management Support	MIPR	RDECOM : Aberdeen, MD	23.461	0.908	Aug 2015	1.067	Jan 2016	0.979	Jan 2017	-		0.979	Continuing	Continuing	Continuing	
Subtotal			23.461	0.908		1.067		0.979		-		0.979	-	-	-	
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Product Development	TBD	Various : Various	8.797	-		-		-		-		-	Continuing	Continuing	Continuing	
Subtotal			8.797	-		-		-		-		-	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Technical Data	Various	Various : Various	23.449	0.581	Mar 2015	-		-		-		-	Continuing	Continuing	Continuing	
Subtotal			23.449	0.581		-		-		-		-	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Development Testing and Evaluation	Various	Various. : Various	26.440	0.991	Mar 2015	1.709	Mar 2016	1.569	Mar 2017	-		1.569	Continuing	Continuing	Continuing	
Subtotal			26.440	0.991		1.709		1.569		-		1.569	-	-	-	
Project Cost Totals			82.147	2.480		2.776		2.548		-		2.548	-	-	-	

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army **Date:** February 2016

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Event Name	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NDCEE Management and Operations (Enduring)																												
NDCEE Env, Safety, Occ Health, and Energy Technology Dem/Val (Enduring)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) 035 / <i>National Defense Cntr For Enviro Excellence</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NDCEE Management and Operations (Enduring)	1	2014	4	2021
NDCEE Env, Safety, Occ Health, and Energy Technology Dem/Val (Enduring)	1	2014	4	2021

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Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603779A / <i>Environmental Quality Technology - Dem/Val</i>				Project (Number/Name) E21 / <i>POLLUTION PREVENTION TECHNOLOGY DEM/VAL</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
E21: <i>POLLUTION PREVENTION TECHNOLOGY DEM/VAL</i>	-	5.049	6.037	5.237	-	5.237	4.847	5.630	5.727	5.936	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports Advanced Component Development and Prototypes of environmental quality technologies developed within the Army Environmental Quality Technology program. The project increases operational sustainment and warfighter training capabilities by reducing soldier and worker health risks and environmental quality impacts that would otherwise result in restoration needs and compliance enforcement actions against installations while simultaneously increasing performance and standardization across the Army. The project expedites technology transition from the laboratory to operational use by demonstrating new materials and processes to fulfill the performance requirements outlined in Material Specifications, Depot Maintenance Work Requirements, Technical Manuals, Drawings and other technical data. Materials and processes demonstrated under this project are inherently more sustainable than the baseline with respect to environmental, safety and occupational health concerns, thereby reducing life cycle costs incurred by acquisition, industrial base and installation end users.

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

	FY 2015	FY 2016	FY 2017
<p>Title: Environmental quality technology demonstration and validation: Toxic Metal Reduction in Surface Finishing of Army Weapon Systems</p> <p>Description: Increase readiness and environmental sustainability of Army depots and maintenance facilities by reducing or eliminating the use of hexavalent chromium, cadmium and associated toxic or carcinogenic materials used in surface finishing processes.</p> <p>FY 2015 Accomplishments: Conducted large-scale demonstrations of sustainable alternatives for mixed metal pretreatment, aluminum anodizing and hard chrome electroplating processes.</p> <p>FY 2016 Plans: Conduct large-scale demonstrations of sustainable alternatives for conversion coating, surface activation and copper/silver electroplating processes.</p> <p>FY 2017 Plans: Will conduct qualification testing for alternatives products in mixed metal pretreatment, conversion coating and surface activation applications.</p>	3.119	3.035	2.150
<p>Title: Environmental quality technology demonstration and validation: Airborne Lead Reduction from Army Weapon Systems</p>	1.930	1.825	1.600

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>Description: Sustain soldier training readiness and ensure compliance at Army installations by reducing or eliminating the use of lead compounds in rocket and missile propellants and primary explosives (primers/detonators/initiators).</p> <p>FY 2015 Accomplishments: Demonstrated large-scale producibility of a promising lead-free primary explosive composition and demonstrated a lead-free stab detonator in a relevant end item configuration.</p> <p>FY 2016 Plans: Qualify a promising lead-free primary explosive composition and will demonstrate a lead-free percussion primer in a relevant end item configuration.</p> <p>FY 2017 Plans: Will demonstrate a green, improved process for loading lead-free primers and will scale up formation of a reduced-lead alternative to current extruded rocket propellants.</p>				
<p>Title: Environmental quality technology demonstration and validation: ESOH Impacts of Short-Term Noise Assessment Procedures</p> <p>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.</p> <p>FY 2016 Plans: Incorporate community response blast noise metrics into all short-term noise assessment tools. Incorporate and validate single event metrics and thresholds determined in the Blast Noise study into the noise models. Validate that single event propagation tables are properly and consistently accessed by each noise model to be tested. Using existing validation sets (Ft. Sill and Ft. Knox), initiate validation that all models produce identical results for each of the test cases. Demonstrate an initial methodology for automating simulations, given source and propagation condition inputs for future model update validations testing. Compare and validate model outputs for the Long-Range Sound Propagation dataset, treating the desert and temperate environments separately.</p> <p>FY 2017 Plans:</p>		-	0.594	0.586

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Will incorporate community response blast noise metrics into all short-term noise assessment tools. Conduct comparisons and validation of models using installation validation sets (Ft. Sill and Ft. Knox). Initiate comparisons and validations of models using additional installation dataset (Ft. AP Hill). Design sampling protocols and methods.			
Title: Environmental quality technology demonstration and validation: Advanced Water Reuse Technology for Fixed Installations Description: Demonstrate and validate advanced water reuse technology for fixed installations and assess ESOH impacts. At the completion of this program, the following will be accomplished: 1) demonstration of energy efficient advanced water reuse technology at installations, 2) ESOH analysis of three water reuse technologies for installations including shower water recycling, distributed water reclamation, and centralized reclamation; 3) reports on best practices for permitting, design, and safe operation of advanced reuse technologies; and 4) marketing materials comparing quality of advanced reuse water to tap and bottled water to support technology adoption campaigns at installations and contingency bases. FY 2016 Plans: Perform analysis of toxicity and full suite of potential water contaminants (Disinfection By-Products, Pentachlorophenol, viruses, Total Organic Carbon) at Technology Enabled Capabilities Demonstration sites and at active Environmental Security Technology Certification Program demonstration sites; support permitting of advanced water reuse technology demonstration; and contract for a demonstration/validation system prototype. FY 2017 Plans: Will perform analysis of toxicity and full suite of potential water contaminants (Disinfection By-Products, Pentachlorophenol, viruses, Total Organic Carbon) at Technology Enabled Capabilities Demonstration sites and at active Environmental Security Technology Certification Program demonstration sites; will support permitting of advanced water reuse technology demonstration; and will develop a demonstration/validation system prototype.	-	0.583	0.901
Accomplishments/Planned Programs Subtotals	5.049	6.037	5.237

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• 0605857A: 0605857A 06I	0.262	0.272	0.110	-	0.110	0.334	0.211	0.342	0.309	Continuing	Continuing

Remarks

D. Acquisition Strategy

The project ultimately transitions successfully demonstrated environmental quality technologies to Army acquisition, industrial base and installation end users. As part of the Army's Environmental Quality Technology Program, all technology efforts address a valid Army Environmental Requirements and Technology Assessments

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<p>(AERTA) requirement. The Army's Environmental Technology Integrated Product Team conducts a thorough assessment and makes funding recommendations to senior Army environmental leadership. 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.</p> <p>E. Performance Metrics N/A</p>		

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army **Date:** February 2016

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Event Name	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Toxic Metals Redution Demonstration/Validation																												
Airborne Lead Reduction Demonstration/Validation																												
ESOH Impacts of Short-Term Noise Assessment Procedures Demonstration																												
Advanced Water Reuse Technology for Fixed Installations																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army		Date: February 2016
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Toxic Metals Redution Demonstration/Validation	1	2015	4	2021
Airborne Lead Reduction Demonstration/Validation	1	2015	4	2021
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