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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)							DATE February 2000		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development					
COST (<i>In Thousands</i>)	FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	21337	8428	6317	6503	6712	9144	9218	Continuing	Continuing
DG10 Advanced Tactical Power Sources - Advanced Development	177	197	218	468	466	534	532	Continuing	Continuing
DG11 Advanced Electrical Energy Concepts - Advanced Development	1303	988	726	607	1038	639	639	Continuing	Continuing
DG14 Materials Handling Equipment Advanced Development	95	105	188	199	194	195	195	Continuing	Continuing
DK39 Water, Maintenance, Environmental Equipment - Advanced Development	3125	1908	688	907	903	1458	1452	Continuing	Continuing
DK41 Petroleum Distribution Equipment - Advanced Development	781	862	2195	2318	2320	2491	2487	Continuing	Continuing
D266 Airdrop Equipment Advanced Development*	4419	0	0	0	0	0	0	Continuing	Continuing
D428 Rigidwall Shelter Advanced Development*	860	0	0	0	0	0	0	Continuing	Continuing
D526 Marine Oriented Logistics Equipment Advanced Development	10577	4368	2302	2004	1791	3827	3913	Continuing	Continuing

*Note: Projects D266 and D428 were moved to PE 0603747A beginning in FY2000.

A. Mission Description and Justification: This program supports advanced development of new and improved technologies for combat support and combat service support equipment essential to sustaining combat operations. Advancements in airdrop, rigid wall shelters, watercraft, bridging, electric power generators and batteries, potable water, environmental control and petroleum equipment are necessary to improve safety and increase the tactical mobility, operational capability, lethality and survivability on the digital battlefield of the first to fight; and to provide for greater sustainment of all combat forces while reducing the logistics support burden.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

DATE
February 2000

BUDGET ACTIVITY
4 - Demonstration and Validation

PE NUMBER AND TITLE
**0603804A Logistics and Engineering Equipment -
Advanced Development**

B. Program Change Summary	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
Previous President's Budget (FY 2000/2001 PB)	18845	6514	6265
Appropriated Value	18978	8514	
Adjustments to Appropriated Value			
a. Congressional General Reductions	-133		
b. SBIR / STTR	-449		
c. Omnibus or Other Above Threshold Reductions		-35	
d. Below Threshold Reprogramming	+3017		
e. Rescissions	-76	-51	
Adjustments to Budget Years Since FY 2000/2001 PB			+52
Current Budget Submit (FY 2001 PB)	21337	8428	6317

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							DATE February 2000			
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development				PROJECT DG10		
<i>COST (In Thousands)</i>	FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost	
DG10 Advanced Tactical Power Sources - Advanced Development	177	197	218	468	466	534	532	Continuing	Continuing	
<p>A. <u>Mission Description and Justification</u> This program develops advanced tactical power sources to improve soldier mobility, sustainability, and survivability. This is the only project that bridges the gap between science and technology and full scale production of new higher energy density, lower cost, all-weather batteries/energy conversion systems to satisfy the unique tactical and logistical requirements of portable electronic battlefield equipment. This effort also includes state-of-art measuring and indicating circuitry as well as safety protection circuitry. Superior battery charging and analyzing equipment required to meet unique requirements are also included.</p> <p>FY 1999 Accomplishments:</p> <ul style="list-style-type: none"> • 137 Designed and developed conformal battery packaging for Standard Family of Rechargeable Lithium Batteries.(Quantity 6) • 40 Conducted field tests and prepared specifications for thin, conformal rechargeable battery family. <p>Total 177</p> <p>FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • 149 Design and develop fast-charge rechargeable lithium ion polymer batteries for Command, Control, Communications, Computer, Intelligence & Information Warfare (C4IW2) applications. (Quantity 10) • 43 Demonstrate proof of principle prototype of higher power polymer batteries. (Quantity 10) • 5 Small Business Innovative Research program. <p>Total 197</p> <p>FY 2001 Planned Program:</p> <ul style="list-style-type: none"> • 171 Develop and test hybrid lithium ion polymer batteries. (Quantity 4) • 47 Test proof of principle batteries using forward field chargers. (Quantity 4) <p>Total 218</p> <p>B. <u>Other Program Funding Summary:</u> None</p> <p>C. <u>Acquisition Strategy:</u> Complete development and transition to production.</p>										
Project DG10			<i>Page 3 of 24 Pages</i>			Exhibit R-2A (PE 0603804A)				

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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development	PROJECT DG10
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D. Schedule Profile	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Design/develop conformal battery packaging for Standard Family of Rechargeable Lithium Batteries.	4Q*						
Conduct field tests and prepare specifications for thin, conformal rechargeable battery family.	4Q*						
Demonstrate proof of principal prototype higher power polymer batteries.		1Q-4Q					
Demonstrate hybrid lithium ion polymer batteries for pulse C4I2W applications.			1Q-3Q				
Test proof of principal hybrid lithium ion polymer batteries using forward field chargers.			4Q				
Demonstrate advanced high power solid polymer electrolytes in prototype cells.				1Q-4Q			
Develop lightweight, low temperature capable, high power rechargeable lithium solid polymer cells and batteries.					1Q-4Q		
Develop and demonstrate very low temperature rechargeable lithium solid polymer cells and batteries.						1Q-4Q	
Develop and test ultra lightweight, high energy density all plastic lithium cells and batteries.							1Q-4Q

*Milestone Completed

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)	DATE February 2000
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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development	PROJECT DG11
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COST (<i>In Thousands</i>)	FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
DG11 Advanced Electrical Energy Concepts - Advanced Development	1303	988	726	607	1038	639	639	Continuing	Continuing

A. Mission Description and Budget Item Justification: This project provides advanced development for electrical energy devices to improve soldier mobility, readiness and survivability. This project supports initiatives which will lead to tactical electric power procurements in diesel powered generators and power units/power plants rated at 3-920 kilowatts (kW) with higher efficiency, lighter weight, easier maintainability and higher reliability.

FY 1999 Accomplishments:

- 662 Procured and began evaluation of permanent magnet generators, associated electronics and other subsystems for 5-60kW generator sets.
 - 641 Initiated testing of components and subsystems for 5-60kW generator sets.
- Total 1303

FY 2000 Planned Program:

- 380 Complete test and evaluation of commercial components/subsystems for 5-60kW generator sets.
 - 528 Complete system designs for fabrication of proof of concept systems for 5-60kW generator sets.
 - 56 Initiate fabrication of prototypes per system designs. (Quantity 4)
 - 24 Small Business Innovative Research/Small Business Technology Transfer programs.
- Total 988

FY 2001 Planned Program:

- 176 Complete 5-60kW generator prototypes. (Quantity: 4)
 - 550 Begin test and evaluation of prototype systems.
- Total 726

B. <u>Other Program Funding Summary</u>	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	To Compl	Total Cost
RDT&E:PE0604804A, D194 Engine Driven Generators	4702	7892	5124	2980	2481	1514	1516	Cont	Cont
OPA 3, MA9800 Generators and Associated Equipment	65552	79589	85886	58856	70697	67084	58678	Cont	Cont

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)		DATE February 2000
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development	PROJECT DG11

C. Acquisition Strategy: Complete advanced development and transition to engineering development and production.

D. Schedule Profile	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Initiated component and subsystem testing	3Q*						
Design and initiate fabrication of prototypes		2Q					
Complete component and subsystem testing		4Q					
Complete system prototypes			3Q				
Begin test & evaluation of prototypes			3Q				
Complete testing system prototypes				4Q			
Initiate Advanced Combustion Enhancement (ACE) Program for 2-60kW					1Q		
Procure commercial component and fabricate sub-assemblies from ACE program						1Q	
Test ACE on military systems (2-60kW)							1Q

* Milestone Completed

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							DATE February 2000					
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development				PROJECT DG14				
COST (In Thousands)				FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
DG14 Materials Handling Equipment Advanced Development				95	105	188	199	194	195	195	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Working with both the user and industry, this program stays abreast of current needs and available technologies to be integrated into military Materials Handling Equipment (MHE). Categories of MHE include warehouse forklifts, cranes and tow tractors, rough terrain forklifts, container handlers and cranes as well as ancillary equipment. This program develops selected technologies and transitions to procurement a series of Material Handling Equipment items.</p> <p>FY 1999 Accomplishments:</p> <ul style="list-style-type: none"> • 33 Conducted market investigation for electric forklifts and rough terrain container crane (RTCC) spreader bars. • 32 Converted MHE military specifications to performance specifications. • 30 Conducted market investigation to reassess All Terrain Lifting Army System (ATLAS) design requirement for FY01 followon buy. <p>Total 95</p> <p>FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • 33 Initiate preparation of acquisition package for 50k Rough Terrain Forklift (RTFL). • 33 Conduct market investigations for Container Handling Equipment. • 36 Investigate productivity enhancements to existing military variable reach forklifts. • 3 Small Business Innovative Research program. <p>Total 105</p> <p>FY 2001 Planned Program:</p> <ul style="list-style-type: none"> • 64 Conduct market investigation to assist in defining the performance characteristics of Container Handling Equipment and Materials Handling Equipment. • 60 Perform engineering investigation of new technologies which will increase the performance capabilities of existing MHE to meet unique military requirements. • 64 Develop program documentation and performance specifications to reflect data obtained during Market Investigation Efforts. <p>Total 188</p>												
Project DG14				Page 7 of 24 Pages				Exhibit R-2A (PE 0603804A)				

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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development	PROJECT DG14
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B. Other Program Funding Summary	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Compl</u>	Total <u>Cost</u>
RDTE, 0604804.DH14, Logistics Support Equip.	3741	102	595	593	591	592	591	Cont.	Cont.
OPA 3, M41200, Truck Fork Lift, DE, PT, RT	20416	0	40031	43083	45227	15996	15731	Cont.	Cont.
OPA 3, M41800, All Terrain Lifting Army System	18805	23469	24407	29931	29791	30073	28462	Cont.	Cont.
OPA 3, X00900, Rough Terrain Container Crane	1124	10883	2056					Cont.	Cont.

C. Acquisition Strategy: RDTE Logistics Support Equipment – Competitive source selection for prototype equipment. Rough Terrain Container Handler (RTCH) – Competitive prototype and sole source procurement using NDI integration of commercial components. ATLAS – The current contract was a competitive award; FY01 new start to be sole source. Rough Terrain Container Crane (RTCC) – Sole source procurement to original manufacturer. Items less than \$5M – Competitive procurements of various MHE.

D. Schedule Profile	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Market Investigation	1Q-3Q*	1Q-3Q	1Q-3Q	1Q-3Q	1Q-3Q	1Q-3Q	1Q-3Q
Performance Specs	2Q-4Q*	2Q-4Q	2Q-4Q	1Q-3Q	1Q-3Q	1Q-3Q	1Q-3Q
Pre-award contract efforts	1Q-3Q*	1Q-3Q	1Q-3Q	1Q-3Q	1Q-3Q	1Q-3Q	1Q-3Q

*Milestone completed

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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development	PROJECT DK39
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COST <i>(In Thousands)</i>	FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
DK39 Water, Maintenance, Environmental Equipment - Advanced Development	3125	1908	688	907	903	1458	1452	Continuing	Continuing

A. Mission Description and Justification: Develop and demonstrate the potential of prototype equipment to satisfy water purification, maintenance, and environmental control requirements. Beginning in FY01, Project DK 39 includes only environmental equipment advanced development.

FY 1999 Accomplishments:

- 150 Completed development effort for large heater.
 - 300 Awarded development contract for 18,000 BTUH vertical air conditioner
 - 94 Evaluated CO2 components for air conditioners.
 - 100 Investigated commercial technology applicable to Small Diesel Heaters (60K-100K BTUH).
 - 900 Conducted Production Qualification Test /Early User Test on the Lightweight Water Purifier (LWP) prototypes.
 - 100 Prepared a Milestone III (TC Generic) In-Process Review on the Lightweight Water Purifier (LWP).
 - 50 Conducted Operational Assessment of Packaged Water System (PWS).
 - 150 Prepared LWP Production Contract Solicitation
 - 250 Awarded LWP EMD Contract Increment.
 - 141 Conducted Reverse Osmosis removal studies for industrial and NBC contaminants.
 - 412 Evaluated commercial water treatment components for use in the 600 Reverse Osmosis Water Purification Unit (ROWPU) and 3000 ROWPU rebuys.
 - 50 Prepared Packaged Water System (PWS) performance specification.
 - 200 Performed environmental assessments on water purification systems
 - 228 Performed ROWPU wastewater treatment demonstration
- Total 3125

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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development	PROJECT DK39
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FY 2000 Planned Program:

- 245 Award development contract for 9,000 BTUH Environmental Control Unit (ECU)
 - 304 Award development contract for prototype automotive CO2 ECU
 - 750 Award LWP contract increment.
 - 509 Perform LWP technical testing.
 - 50 Program management and general support.
 - 50 Small Business Innovative Research/Small Business Technology Transfer programs.
- Total 1908

FY 2001 Planned Program:

- 350 Award development contract for prototype absorption ECU
 - 338 Award development contract for prototype shelter CO2 ECU
- Total 688

B. <u>Other Program Funding Summary</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To Compl	Total Cost
OPA3, MF9000 Control Unit, Environmental	6057	5955	6348	7051	16541	8933	8923	Cont.	Cont.

C. Acquisition Strategy: Develop ECU/Heater Performance Descriptions based on development technology investigations and transfer to Procurement for competitive production contract awards.

D. <u>Schedule Profile</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Developed 18K Vertical ECU prototypes	2Q*						
Develop 9K ECU prototype		1Q-2Q					
Investigate Automotive CO2 technology		1Q-4Q					
Investigate absorption ECU technology			1Q-4Q				
Develop tactical shelter CO2 ECU prototype			1Q-4Q				
Award EMD contract for prototype LWPs	4Q*						
Design and fabricate prototype LWPs.		2Q-3Q					
Conduct LWP PQT/EUT.		4Q	1Q				
Prepare LWP production contract package.		3Q-4Q	1Q-2Q				

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BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development				PROJECT DK39		
D. Schedule Profile				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Complete LWP MS III Decision Review						2Q				
Complete LWP MS III TC Generic						2Q				
Water Purification Components Program					1Q-4Q					
Conduct evaluation of commercial wastewater minimization treatment systems for water purification units.					3Q-4Q					
* Milestone Complete										
Project DK39			<i>Page 11 of 24 Pages</i>				Exhibit R-2A (PE 0603804A)			

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							DATE February 2000					
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development				PROJECT DK41				
COST (In Thousands)				FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
DK41 Petroleum Distribution Equipment - Advanced Development				781	862	2195	2318	2320	2491	2487	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Develop and demonstrate the potential of prototype equipment to satisfy petroleum distribution requirements.</p> <p>FY 1999 Accomplishments:</p> <ul style="list-style-type: none"> • 180 Prepared Petroleum Quality Surveillance Laboratory (PQSL) performance specification and conducted market investigations. • 101 Developed PQSL virtual prototype & model to evaluate physical layout alternatives. • 283 Program management and general support. • 217 Completed cost/benefit analysis to identify Petroleum and Water System (PAWS) equipment to be automated/digitized, and recommended implementation strategy. <p>Total 781</p> <p>FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • 470 Award contract for automated/digitized PAWS prototypes (Quantity 1). • 100 Conduct fabric tank material testing. • 219 Prepare PQSL program management documentation and conduct Milestone I/II In-Process Review. • 50 Program management and general support. • 23 Small Business Innovative Research/Small Business Technology Transfer programs. <p>Total 862</p> <p>FY 2001 Planned Program:</p> <ul style="list-style-type: none"> • 527 Test and evaluate automated/digitized PAWS equipment. • 400 Conduct evaluation of improved storage and distribution equipment in support of Medium Brigade. • 200 Conduct economic and feasibility analyses for waste minimization for water purification units. • 300 Purchase/lease prototype waste minimization equipment for water purification units. • 368 Prepare LWP IPR package and production contract. • 300 Conduct LWP testing • 100 Program management and general support. 												
Project DK41				Page 12 of 24 Pages				Exhibit R-2A (PE 0603804A)				

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)	DATE February 2000
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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development	PROJECT DK41
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Total 2195

B. <u>Other Program Funding Summary</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To Compl	Total Cost
RDTE, 0604804.DL41, Fuels and Equipment Engineering Development	1024	5288	6338	7285	5492	4594	4025	Cont	Cont
OPA 3, R05100, Water Purification Systems		10352	40727	40259	45291	21889	22140	Cont	Cont
OPA 3, R67500, Petroleum Quality Analysis System (PQAS)			5305	4660	3352				13317
OPA 3, M733300, Petroleum Quality Surveillance Lab (PQSL)				2920	37106	2452	2566		45044

C. Acquisition Strategy: Develop engineering prototypes or select Non-Developmental Item based on market surveys and proposals from industry.

D. <u>Schedule Profile</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Completed identification of PAWS to be automated/digitized.	4Q*						
Completed PQSL market investigation and prepared system specification.	4Q*						
Conduct fabric tank material testing.		3Q					
Prepare PQSL PMD and conduct MS I/II IPR.		2Q-4Q					
Award contract for automated/digitized PAWS prototypes.		2Q					
Water Purification Components Program			1Q-4Q	1Q-4Q			
Digitized Water Quality and Quantity Surveillance		2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
Test and evaluate automated/digitized PAWS.			2Q-4Q				
Complete evaluation of equipment for Medium Brigade			4Q				
Conduct LWP MS III (TC Generic)			3Q				
Test prototype water treatment equipment			3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Develop life cycle cost model for water treatment equipment			2Q-4Q				
Develop brassboard advanced fuel quality analysis sensors.				1Q-4Q	1Q-4Q		
Develop Advanced POL Decontamination Technology for AAN.					3Q-4Q	1Q-4Q	
Develop AAN SARS Robotic Refueling.						2Q-4Q	1Q-4Q

* Milestone Complete

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ARMY RDT&E COST ANALYSIS (R-3)

DATE **February 2000**

BUDGET ACTIVITY
4 - Demonstration and Validation

PE NUMBER AND TITLE
0603804A Logistics and Engineering Equipment -
Advanced Development

PROJECT
DK41

I. Product Development	Contract Method & Type	Performing Activity & Location	Total Pys Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. PQSL	In-House	TARDEC		280	Dec 98	169	Dec 99				449	
b. PAWS Digitization	CPFF	SAIC		200	Mar 99	216	Mar 00				416	
c. PAWS Digitization	In-House	TARDEC				50		177			227	
d. Improved Tanks/Drums	In-house	TARDEC						300			300	
e. LWP	In-House	TARDEC						168			168	
f. Water Treatment	In-House	TARDEC						100			100	
g. Water Treatment Components P/O Lease	TBD							100	Jan 01		100	
Subtotal Product Development:				480		435		845			1760	

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. PAWS Digitization	In-House	TACOM		169		23					192	
b. PQSL	In-House	TACOM		132	Nov 99	50	Nov 00	50	Nov 01		232	
c. LWP	In-House	TACOM						100	Nov 01		100	
Subtotal Support Costs:				301		73		150			524	

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. PAWS Digitization	In-House	TACOM				100	Nov 99	250	Nov 00		350	
b. Fabric tank materials	MIPR	ARL				77	Feb 00				77	
c. LWP	MIPR	TECOM						200	Nov 00		200	
d. Water Treatment components	In-House	TARDEC						150			150	
Subtotal Test and Evaluation:						177		600			777	

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ARMY RDT&E COST ANALYSIS (R-3)	DATE February 2000
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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development	PROJECT DK41
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IV. Management & Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a.	In-House	TACOM				100	Nov 99	250	Nov 00		350	
e. Fabric tank materials	MIPR	ARL				77	Feb 00				77	
f. LWP	MIPR	TECOM						200	Nov 00		200	
g. Water Treatment components	In-House	TARDEC						150			150	
Subtotal Test and Evaluation:						177		600			777	

Project Total Cost:		781		862		2195		3838	
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)	DATE February 2000
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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development	PROJECT D266
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COST (In Thousands)	FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D266 Airdrop Equipment Advanced Development*	4419	0	0	0	0	0	0	Continuing	Continuing

*Note: Project D266 was moved to PE 0603747A beginning in FY2000.

A. Mission Description and Justification: Conduct demonstration and validation of aerial delivery systems for equipment and personnel, with emphasis on reduced incidence of injuries, improved safety and accuracy, and increased survivability of aircraft, equipment, and personnel.

FY 1999 Accomplishments:

- 1325 Conducted Design Validation of Advanced Tactical Parachute System.
 - 700 Procured Extraction Parachute Jettison System test items; Conducted Technical Feasibility Testing; Modified test items
 - 150 Conducted Milestone I/II for the Extraction Parachute Jettison System.
 - 750 Conducted Developmental Testing for Extraction Parachute Jettison System; obtained interim tri-service hazard classification for pyrotechnic device and completed Safety of Flight Testing and Electromagnetic Interference Testing.
 - 314 Initiated Dual Row Airdrop System effort. Conducted Market Investigation and initiated procurement of test items.
 - 538 Conducted planning for Component and System Feasibility Testing for Dual Row Airdrop System.
 - 642 Conducted Dual Row Airdrop System Component Testing.
- Total 4419

FY 2000 Planned Program: Moved to PE 0603747A/DC09

FY 2001 Planned Program: Moved to PE 0603747A/DC09

B. <u>Other Program Funding Summary</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Compl</u>	<u>Total Cost</u>
RDTE, 0604804.D279 Airdrop Equipment Engineering Development	3230	0	0	0	0	0	0	0	4767

C. Acquisition Strategy: Rapid development through the acquisition lifecycle, capitalizing on all opportunities to accelerate development, production and fielding.

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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development	PROJECT D266

D. Schedule Profile	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY2005</u>
EPJD Component Development and Performance Validation	1Q*						
EPJD Developmental Testing	4Q*						

* Milestone Completed

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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development	PROJECT D428
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COST (In Thousands)	FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D428 Rigidwall Shelter Advanced Development*	860	0	0	0	0	0	0	Continuing	Continuing

*Note: Project D428 was moved to PE 0603747A beginning in FY2000.

A. Mission Description and Justification: Develop a family of tactical rigid wall shelters which enhances soldier survivability and sustainability of command, control, communications and intelligence. Shelters provide highly mobile, joint service platforms for the digitization of the battlefield, housing many critical vehicle-mounted battlefield systems, medical critical care in a Chemical/Biological (C/B) environment and high tech maintenance.

FY 1999 Accomplishments:

- 860 Combined 5 Ton Cargo Bed Cover program with 2.5 Ton Truck Cargo Bed Cover LRIP contract phase. (Accelerated 5 Ton Truck program). Completed fabrication of test prototypes, conducted limited Technical Feasibility Testing and completed development for 5 Ton Truck Cargo Bed Cover Variant. Completed Milestone I/II for 2.5 Ton/LMTV and 5 Ton/MTV Truck Cargo Bed Cover Variants. Prepared solicitation and awarded LRIP/Production contract for Cargo Bed Cover type III (2.5 Ton/LMTV) and type IV (5 Ton/MTV) variants, initiated production of LRIP items for Production Verification Testing.

Total 860

FY 2000 Planned Program: Moved to PE 0603747A/DC09

FY 2001 Planned Program: Moved to PE 0603747A/DC09

B. <u>Other Program Funding Summary</u>	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	To Compl	Total Cost
RDTE, 0604804.D429, Rigidwall Shelter Engineering Development	899	0	0	0	0	0	0	0	2311

C. Acquisition Strategy: Product development and testing to support Engineering and Manufacturing Development.

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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development	PROJECT D428
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D. Schedule Profile	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Comp</u>	<u>To Comp</u>
Complete MS I/II for 2½ Ton Truck CBC Variant.	2Q*								
Award LRIP Contract for 2½ Ton Truck CBC Variant	2Q*								
Complete Development and Testing of 5 Ton Truck CBC Variant	4Q*								

*Milestone Complete

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							DATE February 2000		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development				PROJECT D526	
<i>COST (In Thousands)</i>	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
D526 Marine Oriented Logistics Equipment Advanced Development	10577	4368	2302	2004	1791	3827	3913	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Provides funds for the advanced development and definition of equipment in support of the Army's Logistics-Over-The-Shore (LOTS), In-theatre Port Control, and Intercoastal/Riverine Logistics missions. FY 99 funds supported Army's share of the Joint Modular Lighterage System (JMLS). This program, managed jointly with the Navy, will improve cargo offload speed under normal sea states and allow for successful offload under challenging sea state conditions. These efforts will significantly improve operational capability and flexibility. Funds permit efforts to develop joint plans and materiel in conjunction with the Navy and Marines, truly integrating Logistics Over The Shore (LOTS) capabilities. Project funds are also serving to support conceptual development of the Rapidly Installed Breakwater (RIB). This project will also assist the Army to conduct LOTS exercises under adverse sea state conditions. Together, these efforts will extend capabilities of the joint Army/Navy LOTS program, and allow the Army to proceed with deployment of forces under less than ideal sea and weather conditions. For 00 this project also includes \$2M for the Real Time Automatic Cargo Container Tracking & Control System (RTACTCS). RTACTCS is being implemented in Seattle Terminal 5, operated by APL (American President Lines). Its purpose is to track all containers and chassis entering/exiting the Terminal by truck, containers entering/exiting the Terminal by rail, and all containers entering/exiting Terminal by sea. The continuous spotting and tracking of containers is accomplished as a transparent by-product of normal work-in-process of container handling procedures. In addition, the FY 00 Program initiates the definition of the Port Communications and Control Center (PCCC). The center will track and direct the progress of vessel movements and loading/unloading during LOTS operations. The PCCC program will provide for the safe and efficient management of Army and Joint Port Operations during deployment of forces; both under degraded/non-existent port conditions and in adequate port facilities. FY 00 efforts will also focus on the planned Theatre Logistics Vessel (TLV). The TLV will operate at much greater speeds than current Army Watercraft, thus greatly improving the speed of Army combat mobilization in theatre. The FY 01 program will begin advanced development and limited prototyping to define program parameters and performance characteristics for the Landing Craft Utility (LCU) 2000 Extended Service Program (ESP). Efforts in the outyears will include a Watercraft Operations and Support (O&S) cost reduction study to identify specific cost-effective efforts which can be undertaken to improve the Army's O&S posture within the watercraft fleet. The study will examine areas such as Fuel Management, Lubrication, Paints, Maintenance Frequencies & Procedures, etc.</p> <p>FY 1999 Accomplishments:</p> <ul style="list-style-type: none"> • 1477 Completed conceptual development of the Rapidly Installed Breakwater (RIB). • 9100 Continued joint program with Navy to develop Sea State 3 Capable Causeways/Lighterage (JMLS) <p>Total 10577</p>									
Project D526		Page 20 of 24 Pages				Exhibit R-2A (PE 0603804A)			

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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development	PROJECT D526
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FY 2000 Planned Program:

- 2000 Real Time Automatic Cargo Container Tracking & Control System (RTACTCS) development & prototyping.
 - 1566 Continuation of Rapidly Installed Breakwater System (RIBS) design.
 - 500 Theatre Logistics Vessel (TLV) design
 - 184 Port Communications and Control Center (PCCC)– Advanced Development
 - 118 Small Business Innovative Research/Small Business Technology Transfer programs.
- Total 4368

FY 2001 Planned Program:

- 600 Completion of Rapidly Installed Breakwater System (RIBS) initial design
 - 1202 Theatre Logistics Vessel (TLV) design
 - 500 Landing Craft Utility, Parameters and Performance Characteristics for ESP/Upgrade
- Total 2302

B. <u>Other Program Funding Summary</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Compl</u>	<u>Total Cost</u>
RDTE, 0604804A, D461, Marine Oriented Logistics, Engineering Development	1964	4266	1447	1207	2695	2759	2823	Cont.	Cont.
OPA 3, M32400, Floating Crane, 100-250 Ton	15216	0	0	0	0	0	0	Cont.	Cont.
OPA 3, M44500, Pusher Tug, Small	8476	8909	0	0	0	0	0	34988.	Cont.
OPA 3, R97500, Causeway Systems	16856	16669	17227	12601	12751	14034	13912	Cont.	Cont.
OPA 3, M11200, Logistic Support Vessel (LSV)	0	18844	0	21198	28994	0	0	Cont.	Cont.
OPA 3, M11201, Logistic Support Vessel (ESP)	0	0	6638	5943	12954	0	0	Cont.	Cont.
OPA 3, M34200, Landing Craft Utility 2000	0	0	0	0	0	20060	20151	Cont.	Cont.

C. Acquisition Strategy: Support for the Joint Modular Lighterage System (JMLS) is being undertaken with the Navy PM and executed through Navy contract and in-house vehicles. RIB: Engineering work is being accomplished by the Corps of Engineers Waterways Experiment Station (WES) (current developers). However, programmatic documentation for the RIB is being undertaken via competitive contract. PCCC Advanced Development & Prototyping will be undertaken through competitive contract. The current Watercraft Communications, Electronics, & Navigation (CEN) Equipment contractor is Conley & Associates. Navy in-house and contract expertise would be available as well. TLV and LCU efforts will be conducted primarily with the Naval Surface Warfare Center (NSWC). NSWC can call on both in-house and contract resources (based on workload and expertise) to cover Army requirements.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)	DATE February 2000
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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development	PROJECT D526
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D. Schedule Profile	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Joint Modular Lighterage System			2Q-4Q						
Conceptual Development of the RIBS. (RTACTCS) development & prototyping.			2Q-3Q	2Q-3Q	2Q-3Q				
PCCC- Advanced Development & Prototyping				2Q					
Theatre Logistics Vessel Concept Development				2Q-3Q	2Q-3Q	2Q-3Q			
LCU Parameters and Performance Characteristics					2Q-4Q				
Operations & Support Cost Reduction Study							2Q-4Q		
128' Large Tug Extended Service Program								2Q-4Q	
New Large Tug							2Q-3Q	2Q-4Q	
UNDS/Safety Equipment								2Q-4Q	2Q-3Q

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ARMY RDT&E COST ANALYSIS (R-3)										DATE February 2000		
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development					PROJECT D526		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Modern Technologies Corp. (MTC)	SS-FP	Warren, MI		97	Apr	114	Apr			Cont.	211	
b. Navy (NSWC)	MIPR	Suffolk, VA				299	May	2173	Dec	Cont.	2472	
c. Navy (PM JMLS)	MIPR	Hueneme, CA		8796	Mar					Cont.	8796	
d. COE (WES)	MIPR	Vicksburg, MS		1291	Mar	1213	Dec			Cont.	2504	
e. Now Solutions Inc	Unk	Seattle, WA				1950	Unk				1950	
Subtotal Product Development:				10184		3576		2173			15933	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. TACOM IMMC	MIPR	Warren, MI		58	Feb	53	Oct	31	Oct	Cont.	142	
b. Other	MIPR	various		55	Apr	120					175	
Subtotal Support Costs:				113		173		31			317	
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. DTC/ATC	MIPR	ATC, MD		50	Feb	101	May	15	May	Cont.	166	
Subtotal Test and Evaluation:				50		101		15			166	

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ARMY RDT&E COST ANALYSIS (R-3)										DATE February 2000		
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development					PROJECT D526		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Watercraft Systems Mgt. Ofc/TARDEC	N/A	TACOM, Warren, MI		230	Jan	350	Oct	83	Oct		663	
b. CECOM	N/A	CECOM, Monmouth, NJ				50					50	
c. SBIR/STTR						118					118	
Subtotal Management Services:				230		518		83			813	
Project Total Cost:				10577		4368		2302			17247	