

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

## BUDGET ACTIVITY

### 4 - Advanced Component Development and Prototypes

## PE NUMBER AND TITLE

0603□4□A - Soldier Support and Survivability

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	13133	13234	3393	2728	3767	3860	4244	4331	Continuing	Continuing
610 FOOD ADV DEVELOPMENT	3540	3848	3393	2728	3767	3860	4244	4331	Continuing	Continuing
669 CLOTHING AND EQUIPMENT	8323	9196	0	0	0	0	0	0	0	22086
C09 SOLDIER SUPPORT EQUIPMENT - AD	1270	190	0	0	0	0	0	0	0	13048

**A. Mission Description and Budget Item Justification:** This program element supports component development and prototyping for organizational equipment, improved individual clothing and equipment that enhance Soldier battlefield effectiveness, survivability, and sustainment. This program element also supports the component development and prototyping of joint service food and combat feeding equipment designed to reduce logistics burden. In FY06, Projects 669 and C09 transition to a new Program Element, 0603827A, Soldier Systems - Advanced Development.

<b>B. Program Change Summary</b>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	13810	11705	11013
Current Budget (FY 2006/2007 PB)	13234	3393	2728
Total Adjustments	-576	-8312	-8285
Net of Program/Database Changes			
Congressional Program Reductions	-200		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-376		
Adjustments to Budget Years		-8312	-8285

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<p>Change Summary Explanation: Funding - FY 06/07: Funds realigned to other higher priority requirements.</p>		

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>							<b>February 2005</b>			
BUDGET ACTIVITY <b>4 - Advanced Component Development and Prototypes</b>				PE NUMBER AND TITLE <b>0603□4□A - Soldier Support and Survivability</b>				PROJECT <b>610</b>		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
610      FOOD ADV DEVELOPMENT	3540	3848	3393	2728	3767	3860	4244	4331	Continuing	Continuing
<p><b><u>A. Mission Description and Budget Item Justification:</u></b> This project provides for the advanced component development and prototyping of joint service food and combat feeding equipment designed to reduce the logistics burden and Operation and Support (O&amp;S) costs of subsistence support to service personnel. Project supports development of rations and rapidly deployable field food service equipment. Project conducts demonstration and validation of improved subsistence and subsistence support items used to enhance soldier effectiveness and quality of life in all four Services, as part of an integrated Department of Defense (DoD) Food Research, Development, Test, Evaluation and Engineering Program. The Program is reviewed and validated twice annually by the DoD Combat Feeding Research and Engineering Board (CFREB) as part of the Joint Service Food Program. This project develops critical enablers that support the Joint Future Force Capabilities and the Joint Expeditionary Mindset by maintaining readiness through fielding and integrating new equipment. This equipment enhances the field soldier's well-being and provides the soldier with usable equipment, in addition to reducing sustainment requirements, related Combat Support/Combat Service Support (CS/CSS) demands on lift, combat zone footprint, and costs for logistical support.</p>										

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## PROJECT

610

### Accomplishments/Planned Program

FY 04: Developed, field tested and transitioned updated Unitized Group Ration-Heat & Serve (UGR-H&S) and UGR-A menus and documents for procurement to ensure maximum acceptability and consumption. Completed revisions to the Medical Diet Supplement (MDS) based on field input. Developed optimized user labeling for the UGR-H&S and initiated transition into procurement documents. Initiated development of UGR-H&S Surge Procurement database. A total of 25 new items were developed and field tested. Results presented to Feb 04 Joint Services Operational Ration Forum (JSORF) and approved for use in the UGR-H&S 05 menus. FY 05-07: Continue to improve fielded group operational rations to increase variety, enhance acceptability, increase consumption and improve nutritional intake to maintain peak performance on the battlefield. Integrate state-of-the-art packaging technologies and other Science and Technology (S&T) transitions into fielded group rations.

FY 2004

640

FY 2005

924

FY 2006

660

FY 2007

679

FY 04: Completed in-house testing of Institutional-Sized Pouch (ISP) product and packaging (material and assembly configuration). Conducted in-house and field testing of ISPs to ensure compatibility with military food service equipment. Based on performance, cost and commercial availability, recommended adoption of ISPs as potential components for UGR-B and as an additional production base for military surge option for UGR-H&S. Initiated transition of ISP technology to procurement.

273

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FY04: Conducted Meal, Cold Weather/Long Range Patrol Ration advanced development of new brick packaging and easy open peelable seal for Operation and Support (O&S) cost reduction; conducted advanced development of nutrient supplementation fortification for operational rations to enhance cognitive and physical performance. Completed introduction of Hot Beverage Bag into Meal Ready to Eat (MRE). A total of 30 new test items were developed for testing, results presented to Feb 04, Joint Service Operational Rations Forum (JSORF) and approved for use in the MRE 05 menus.

981

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FY 05: Continue annual improvements to enhance acceptability and consumption of individual and assault rations; conduct large scale test of new Meal Ready to Eat (MRE) items with soldiers. Initiate non-hydrogen flameless ration heater development to reduce hydrogen field waste, design new items and procure initial prototypes from at least two different vendors. Conduct field evaluations with Soldiers under actual conditions using FY 04 improved Meal Cold Weather and Long Range Patrol Rations, then analyze test data and present recommendations for new products to the Joint Service Operational Forum (JSORF).

0

1154

0

0

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<b>4 - Advanced Component Development and Prototypes</b>		<b>0603□4□A - Soldier Support and Survivability</b>			<b>610</b>	
<u>Accomplishments/Planned Program (continued)</u>			FY 2004	FY 2005	FY 2006	FY 2007
FY 06: Continue annual improvements to enhance acceptability and consumption of individual and assault rations; conduct field-testing of new MRE items. Conduct large-scale non-hydrogen flameless ration heater field test with Soldiers; analyze data and work with regulatory agencies on introduction of new heaters. Continue introduction of improved Meal Cold Weather and Long Range patrol Rations for new products to the Joint Service Operational Rations Forum. Establish full-scale producibility of First Strike ration and components. Complete Performance Contract Requirements (PCR) and obtain JSORF approval for First Strike Ration procurement.			0	0	1008	0
FY 07: Continue annual improvements of individual and assault rations; conduct field testing of new MRE items. Complete data analysis of FY 06 non-hydrogen flameless ration heater field tests. Complete procurement documentation and transition for Defense Supply Center Philadelphia (DSCP) procurement. Conduct field test of improved Meal Cold Weather and Long Range Patrol Rations, analyze test data and present recommendations for new products to the Joint Service Operational Ration Forum. Finalize full-scale producibility of First Strike Ration and components, which will reduce weight/cube by 50% over 3 standard MREs. Prepare and transition procurement documentation for DSCP.			0	0	0	798
FY 04: Continued storage studies of ongoing stored items. FY 06-FY 07: Complete storage studies on remaining items. Develop predictive protocols for accelerated storage of rations and transition recommended changes to procurement documents. Initiate efforts to provide Veterinary Command (VETCOM) storage guidelines that correlate commercial use-by dates with Unitized Group Ration (UGR) shelf life requirements and develop a predictive model using accelerated storage data to ensure highly acceptable and wholesome rations.			92	0	150	89
FY 04: Awarded a combined development and production contract for the Multi-Temperature Refrigerated Container System (MTRCS). Completed design and initiated fabrication of MTRCS prototypes. FY 05: Complete fabrication of MTRCS prototypes and conduct Developmental and Operational Testing. FY 06: Complete Developmental and Operational Testing and prepare Milestone C for transition into production.			309	624	50	0
FY 04: Installed and tested a new Modular Refrigerator on the aircraft carrier USS Roosevelt. The Modular Refrigerator increases available freezer assets and increases operating efficiency. A draft specification was prepared for use in Navy procurement.			192	0	0	0
FY 04: Reviewed ice makers presently used on Navy ships, compared output to shipboard demand and recommended improvements. Tested and procured commercial icemakers, down selected and tested candidates on sea vessels.			242	0	0	0
FY 06: Initiate development of grey water treatment options for the field food sanitation system. FY 07: Conduct technical evaluation of full scale grey water treatment devices.			0	0	200	497

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<b>4 - Advanced Component Development and Prototypes</b>		<b>0603□4□A - Soldier Support and Survivability</b>			<b>610</b>	
<b>Accomplishments/Planned Program (continued)</b>			<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>
FY 05: Conduct market investigation into field co-generation technologies for Field Feeding Operations and prepare for FY 06 award of development contract. FY 06: Award a contract to develop a co-generator that produces heat for cooking and sanitation as well as electrical energy for the kitchen's systems. Evaluate the prototype co-generator through bench top testing and optimize the design.			0	86	250	0
FY 04: Prepared a technical data package for the Sanitation Steam Heater and transitioned it to the Air Force for procurement.			187	0	0	0
FY 05: Complete development of various package configurations for Compressed Meal (CM) technology which will provide shelf stable, fresh-like quality and reduce the logistics footprint. FY 06: Complete producibility and field-testing of CM and transition CM technology to procurement.			0	287	300	0
FY 04: Initiated design changes for Remote Unit Self-Heating Meal (RUSHM), renamed to Unitized Group Ration-Express (UGR-E), and conducted pre-production testing to validate commercial producibility. Developed self-contained prototype to enhance convenience, as well as water-added prototypes, and conducted in-house verification tests. Initiated confirmatory field tests validating utility for remote site feeding. FY 05: Draft Performance Contract Requirements (PCR) and acquisition strategy for Unitized Group Ration Enhancements (UGR-E). Complete pre-production contract to validate producibility and cost. Conduct remote site large scale field testing, accelerated storage, rough handling, and cold weather testing. Finalize menus, dietary requirements, accessory components and overall module configuration. FY 06: Complete producibility demonstrations and field testing of UGR-E. Complete Safety Assessment Report (SAR), Health Hazard Assessment Report (HHAR), and Department of Transportation/Environmental Protection Agency (DOT/EPA) regulatory assessments. Complete acquisition strategy and obtain JSORF approval for procurement. Finalize procurement documentation and transition to Defense Logistics Agency (DLA) for procurement.			402	383	174	0
FY 04: Conducted developmental and operational testing of commercial storage/MAP gas system(s) to extend shelf life for fresh fruits and vegetables. FY 05: Down select and conduct testing aboard submarines of commercial storage/MAP gas systems. FY 06: Conduct surveys and prepare final report and recommendations to the Navy.			222	136	153	0
FY 05: Conduct studies on emerging technologies to reduce food service labor and to reduce freezer storage on board Navy ships by use of prepared foods, common menus and shelf stable food items. Transition technology to Navy.			0	134	0	0
FY 06-FY 07: Develop Modular Food Service equipment prototypes; modify, test and evaluate to further optimize future Navy DDX galley designs.			0	0	224	232

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)								February 2005			
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<b>Accomplishments/Planned Program (continued)</b>					FY 2004	FY 2005	FY 2006	FY 2007			
FY 06: Optimize and ruggedize Surface Biosensor to ensure performance in field environments. Transition to Vice Chief of Army, Office of the Surgeon General (VSA, OTSG) for procurement.					0	0	224	0			
FY 07: Initiate development of prototype scrubber for removal of carbon dioxide from field kitchen and sanitation system work environments.					0	0	0	204			
FY07: Award contract for the development of a water heating/chilling device for crew sustainment in the Future Combat Vehicle					0	0	0	229			
FY05: Conduct a Market Survey of options to mitigate combustion by-products for the field food sanitation system, procure recommended solutions and conduct in-house testing.					0	120	0	0			
Totals					3540	3848	3393	2728			
<b>B. Other Program Funding Summary</b>		FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
RDTE, 0604713.548, Military Subsistence System		1895	1946	3383	2952	2464	2461	2099	2142	Continuing	Continuing
OPA 3, M65801, Refrigerated Containers		0	5884	5006	10416	9140	10586	10584	10892	Continuing	Continuing
<b>C. Acquisition Strategy:</b> Project development will transition to System Development & Demonstration and production.											

ARMY RDT&E COST ANALYSIS(R3)									February 2005				
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
4 - Advanced Component Development and Prototypes					0603□4□A - Soldier Support and Survivability					610			
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
a . Joint Service Food/Combat Feeding Equipment	In-House	RDECOM, Natick, MA	21840	1515	1-4Q	1283	1-4Q	1011	1-4Q	Continue	25649	Continue	
b . Joint Service Food/Combat Feeding Equipment	Contracts	Various	10148	1474	1-4Q	1248	1-4Q	983	1-4Q	Continue	13853	Continue	
Subtotal:			31988	2989		2531		1994		Continue	39502	Continue	
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal:			0	0		0		0		0	0	0	



ARMY RDT&E COST ANALYSIS(R3)									February 2005			
BUDGET ACTIVITY <b>4 - Advanced Component Development and Prototypes</b>					PE NUMBER AND TITLE <b>0603□4□A - Soldier Support and Survivability</b>					PROJECT <b>610</b>		
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Joint Service Food/Combat Feeding Equipment	MIPR	DTC, Maryland & AEC, Virginia	4446	665	1-4Q	563	1-4Q	443	1-4Q	Continue	6117	Continue
Subtotal:			4446	665		563		443		Continue	6117	Continue
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . CFP Management	In-House	RDECOM, Natick, MA	1704	194	1-4Q	299	1-4Q	291	1-4Q	Continue	2488	Continue
Subtotal:			1704	194		299		291		Continue	2488	Continue
Project Total Cost:			38138	3848		3393		2728		Continue	48107	Continue

# Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY

4 - Advanced Component Development and Prototypes

PE NUMBER AND TITLE

06034A - Soldier Support and Survivability

PROJECT

610

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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				
(1) Field Test MRE enhancements, (2) , (3) , (4) , (5) , (6) , (7) , (8)			1				2				3				4				5			6				7			8			
(9) Field Test UGR Enhancements, (10) , (11) , (12) , (13) , (14) , (15) , (16)			9				10				11				12				13			14				15			16			
(17) Transition new rations to DPSC, (18) , (19) , (20) , (21) , (22) , (23) , (24)				17				18				19				20				21				22				23		24		
(25) Pre-Production testing of RUSHM, (26) Producibility and Field test of Compressed Meal, (27) Test prototype design of MFSS for DDX, (28) test MFSS aboard Navy ship				25			26						27			28																
(29) MS C for MTRCS, (30) MS B for JSMAK, (31) Test & Evaluate Multi-Ration Heater/Tray Ration Heater enhancement, (32) Field test RFID technology													29				30	31	32													
(33) Complete producibility demonstration and field test UGR-E												33																				
DT/OT on MTRCS																																
(34) DT/OT on Commercial Storage/MAP Gas System				34																												

## Schedule Detail (R4a Exhibit)

**February 2005**

BUDGET ACTIVITY

**4 - Advanced Component Development and Prototypes**

PE NUMBER AND TITLE

**0603□4□A - Soldier Support and Survivability**

PROJECT

**610**

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Conduct field test on Meals Ready to Eat (MRE) enhancements.	3Q	3Q	3Q	3Q	3Q	3Q	3Q	3Q
Transition new Individual rations to DSCP and Services.	4Q	4Q	4Q	4Q	4Q	4Q	4Q	4Q
Conduct field test on UGR enhancements.	3Q	3Q	3Q	3Q	3Q	3Q	3Q	3Q
Prepared TDP for sanitation steam heater and transitioned to Air Force.	4Q							
Transition UGR enhancements/changes to DSCP for procurement.	4Q	2Q	2Q	2Q	2Q	2Q	2Q	2Q
Complete producibility and field test of Compressed Meal.		2Q						
Conducted pre-production testing of Remote Unit Self Heating Meal (RUSHM).	4Q							
Procured and tested commercial items for sea vessels.	3Q							
Installed Modular Refrigerator on board USS Roosevelt.	4Q							
Test prototype design of Modular Food system for DDJ.				2Q				
Test Modular Food Service System aboard Navy ship.					1Q			
Conduct studies on emerging technologies to reduce food service labor on board Navy ships.			3Q					
Develop Modular Food Service equipment and transition to the Navy.				3Q	3Q	3Q	3Q	3Q
Prepare TDP and transition Surface Scanning Biosensor to VSA, OTCG for procurement.			4Q					
Transition performance contract requirements for Tamper Evident Packaging to DSCP and services.					4Q			
Test and evaluate Multi-Ration Heater/Tray Ration Heater enhancements.					2Q			
Conduct field tests on Radio Frequency Identification (RFID) technology.					3Q			
Transition heat-driven refrigerator to advanced development.			1Q					

Schedule Detail (R4a Exhibit)							February 2005	
BUDGET ACTIVITY 4 - Advanced Component Development and Prototypes				PE NUMBER AND TITLE 0603□4□A - Soldier Support and Survivability				PROJECT 610
<u>Schedule Detail (continued)</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Transition component shelf life guidelines correlated to commercial use-by dates to VETCOM.			4Q					
Transition the Compressed Meals to DSCP for procurement.			4Q					
Transition Lightweight Insulated Food Containers to procurement.				4Q				
Transition First Strike Ration procurement documentation to DSCP.				4Q				
Complete producibility demonstrations and field test UGR-E.			4Q					
Conduct Milestone B for Joint Service Modular Kitchen System (JSMAK).					1Q			
Initiate DT and OT on the Mult Temp Refrigerated Container System (MTRCS).		4Q						
Complete DT and OT for the MTRCS.			3Q					
Conduct Milestone C for MTRCS.				1Q				
Conduct DT/OT of commercial storage/MAP gas system to extend shelf life of fresh fruits/vegetables.	4Q							
Test commercial storage/MAP gas system aboard submarines.		3Q						
Conduct surveys on commercial storage/MAP gas systems and provide recommendations to the Navy.			4Q					

## February 2005

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Exhibit R-2A  
Budget Item Justification

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>	<b>February 2005</b>
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February 2005

## 4 - Advanced Component Development and Prototypes

## 06034A - Soldier Support and Survivability

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[illegible]

**A. Mission Description and Budget Item Justification:** Not applicable for this item.

<b><u>Accomplishments/Planned Program</u></b>	Not applicable for this item.
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**B. Other Program Funding Summary:** Not applicable for this item.

**C. Acquisition Strategy:** Not applicable for this item.