ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE
4 - Advanced Component Development and Prototypes	**0603747A - Soldier Support and Survivability**

COST (In Thousands)		FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	36851	32575	31752	Continuing	Continuing
610	FOOD ADV DEVELOPMENT	3634	3877	4208	Continuing	Continuing
C08	RAPID EQUIPPING FORCE	33217	28698	27544	Continuing	Continuing

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.

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B. Program Change Summary	FY 2008	FY 2009	FY 2010
Previous President's Budget (FY 2009)	5751	30716	5277
Current BES/President's Budget (FY 2010)	36851	32575	31752
Total Adjustments	31100	1859	26475
Congressional Program Reductions		-5085	
Congressional Rescissions			
Congressional Increases	31261	6944	
Reprogrammings			
SBIR/STTR Transfer	-161		
Adjustments to Budget Years			26475

Change Summary Explanation: FY 2008: Supplemental funds received to support Rapid Equipping Force (REF). FY 2009: Includes the anticipated Congressional Overseas Contingency Operations increase of $6.944 million to support Rapid Equipment Force efforts. FY 2010: Funding increase in support of the Rapid Equipment Force program.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
4 - Advanced Component Development and Prototypes	**0603747A - Soldier Support and Survivability**	**610**

COST (In Thousands)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost
610 FOOD ADV DEVELOPMENT	3634	3877	4208	Continuing	Continuing

A. Mission Description and Budget Item Justification: 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&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.

This PE/Project supports Field Feeding Programs for all the services.

Accomplishments/Planned Program:	FY 2008	FY 2009	FY 2010
FY10: Review and validate Ice usage/consumption requirements for Battlefield Ice Supply System (BISS) with Combined Arms Support Command (CASCOM) and the Joint Service Community. Perform market research to evaluate existing Commercial Off the Shelf / Non-Developmental (COTS/NDI) bulk Ice Making and bagging Systems. Develop a Draft Performance Specification or a Commercial Item Description (CID). Prepare a Request for Proposal/Statement of Work (SOW) to award a subsequent developmental contract to design and fabricate BISS prototype(s)			71
FY08: Transition technology and prototype Self Powered Tray Ration (STRH) from Science and Technology (S&T) activity to Produce Manager Force Sustainment Systems (PM FSS) for possible inclusion into the Assault Kitchen. Perform independent Production Qualification Test (PQT) on prototype items and draft a Performance Specification. Transition to 6.5.	96		
FY08: Evaluate COTS Medical Feeding Cart to transport food to patients in field hospitals and transition to the Integrated Logistics Support Center (ILSC). The Medical Feeding Cart will be a Common Table of Allowance (CTA) item and replace the current gurney in the Medical Field Kitchen Kit.	98		
FY09-10: Transition Solar Refrigeration Technology from S&T to system development phase. Prepare solicitation for prototype and award contract. Inititate fabrication of prototype and transition to 6.5 for testing and evaluation.		220	178
FY10: Transition Waste to Energy Converter (WEC) technology to advanced component development phase after successful demonstration of exit criteria outlined in the Technology Transition Agreement. Review and validate requirements outlined in the Capability Production Document (CPD) with CASCOM and Joint Service Community. Establish design and evaluation criteria to meet desired capability.			409
FY10: Transition Man-portable appliance technology to advanced component development phase to integrate into the Battlefield Kitchen			323

(BK) after successful demonstration of exit criteria outlined in the Capability Development Document (CDD) with CASCOM and Joint Service Community. Establish design and evalution criteria to meet deesired capability.			
FY08: Based on warfighter recommendations, identified and obtained Commercial-Off-The-Shelf/Non-developmental Item (COTS/NDI) and completed development of Meal, Ready-to-Eat (MRE) components and packaging innovations (for 2011 Date of Pack (DOP)) to improve acceptability, expand variety and improve consumption. Developed prototype nanocomposite MRE packaging material (menu bag, primary ration component) to eliminate foil laminate, reduce weight and volume of packaging waste on the battlefield while maintaining barrier properties. FY09: Based on warfighter preferences incorporate COTS, NDI and developmental components (for 2012 DOP) into prototype MRE menus. Integrate packaging/food processing science and technology (S&T) transitions to improve operational and functional performance. Select field test site (4Q09) and complete draft procurements documents and transition to 6.5 for field testing (4Q09). FY10: Continue to identify suitable COTS/NDI candidate items and conduct in-house product development of food components for fielded individual operational rations (MRE 2013/2014 DOP) to enhance acceptability, increase consumption and improve nutritional intake. Conduct pilot scale in-house production to support engineering design, technology insertion, and producibility. Work with vendors and assemblers as needed to ensure feasibility and technology transition. Develop, integrate, and validate state-of-the-art science and technology, food processing and primary/secondary packaging innovations into individual ration platforms to increase operational effectiveness, functionality and improve logistics. processing and packaging to introduce targeted component items into individual ration platforms for enhanced acceptability, nutrition and performance.	989	961	888
FY09: Increase availability and consumption of dietary fiber in combat rations in accordance with Surgeon General nutritional standards for operational rations based on Military Dietary Reference Intakes (MDRI) established through military nutrition research. Identify intake mechanisms and/or carriers to promote healthy diets, increase broad, beneficial health effects, and ensure warfighters health and fitness for optimal mission performance. Identify fiber types and formats, categorize and select suitable candidates, conduct menu adaptation or product reformulation, and develop prototype candidates. FY10: Collaborate with Natick Soldier Research, Development and Engineering Center (NSRDEC) Consumer Research/ Cognitive Science Team to conduct focus groups and identify effective sensory procedures to obtain desired information. Conduct technical sensory panels on selected candidate components, perform storage testing, and shelf life studies/analyses. Down-select products for evaluation by consumer and military panels and final product evaluation based on cost, user acceptability and suitability. Develop technical data on new high fiber combat ration components and transition to Fielded Individual ration improvement Program (FIRIP) and Assault and General Purpose Improvement Program (ASPIP) to complete validation and field testing prior to transition to procurement.		101	97
FY08: Completed Meal Cold Weather (MCW)/Long Range Patrol (LRP) component down select (COTS, NDI, developmental items and S&T transitions), completed draft procurement documents and prototype menu development to improve quality, acceptability, eat on the move capability and consumption rate. Evaluated redesign of Food Packet, Abandon Ship with Navy, completed transition of documentation to DSCP. Initiated integration of supplements to increase caloric availability and improve warfighter cognitive and physical performance in environmental extremes developed to augment Assault/Special Purpose Rations. Identified and incorporated FSR nutritional data to include analysis conducted under the US Army Research Institute for Environmental Medicine (USARIEM) Ration Analysis Program into the nutritional data base. Coordinated future FSR menu nutritional profiles with USARIEM as part of menu expansion. FY09: Analyze field test results of new components. Recommend components and menu profiles to Services. Optimize development of S&T components from Nutritionally Optimized FSR project. Design expanded FSR menus with developmental and non-developmental performance enhancing components. Evaluate range of developmental, non-developmental, and COTS components for modification and expansion of FSR menus based on warfighter feedback, R&D progress, and product development. Complete prototype development and assembly, conduct test planning; transition to 6.5 for field test. Complete procurement documents for new	250	301	300

items and new assembly documentation for FSR and MCW/LRP. Conduct production testing of new components. FY10: Continue identification and selection of new candidate items. Conduct in-house product development as needed; assemble test menus, select test site, and transition to 6.5 for field test. Complete procurement documents for new items and new assembly documentation for FSR and MCW/LRP. Conduct production testing of new components.			
FY08: Initiated work on Modular Operational Ration Enhancement (MORE) program intended to design and provide specific tailored supplement packs to enhance performance warfighter performance and nutritional status in environmental/altitude extreme. Initial supplement focused on high altitude use. Consulted with high altitude subject matter experts from the Thermal Mountain Division at the US Army Research Institute of Environmental Medicine (USARIEM). Identified candidate items to counter deleterious effects of altitude exposure including acute mountain sickness, hypoxia, malabsorption, dehydration, and gastrointestinal disorders. Conducted critical examination of products to decrease recovery time and improve performance. Conducted additional focus group with recently deployed warfighters operating at high altitudes in Southwest Asia to assist in identification/ down-selection of high value components. Completed in-house sensory evaluations, ensured shelf life, product sensory characteristics and overall user acceptability of items. FY09: Conduct field evaluation/test of prototypes. Identify and select new commercial and in-house developmental and product improvements as well as science and technology insertions supporting scenario specific supplemental packs to optimize warfighter performance, high altitude, cold weather, and high intensity/long duration. Establish baseline for essential nutrients to maintain the proper energy levels, nutritional balance, body weight, mental and physical alertness within intended scenarios. Coordinate with USARIEM and OTSG to assess and determine optimal amounts of nutraceuticals, functional foods, and phytonutrients to maximize benefit and performance levels. FY10: Complete product evaluations and product refinement as needed. Prepare final technical data for commercial production and transition to Defense Supply Center Philadelphia ration system procurement of final modular supplements.	243	245	96
FY08: Completed Unitized Group Ration - Heat and Serve (UGR-H&S) (2011 DOP), UGR-A (2010 DOP) and UGR-E (2011 DOP) component development to improve family of UGRs. Based on Warfighter recommendations, incorporated COTS, NDI, and developmental components into prototype menus. Completed draft procurement documents. Secured test site and transitioned to 6.5 for field testing. FY09: Improve family of UGRs (H&S (2012), A (2011), B and E (2012)) to increase overall Warfighter acceptability, and consumption. Based on Warfighter recommendations incorporate COTS, NDI, and developmental components into prototype menus. Select field test site and transition to 6.5 for field testing. Complete draft procurement documents. Integrate state of the art packaging and combat ration processing technologies for improved operational and functional performance. FY10: Improve family of UGRs (H&S (2013/2014), A (2012/2013), B and E (2013/2014)) to increase overall Warfighter acceptability, and consumption. Based on Warfighter recommendations, incorporate COTS, NDI, and developmental components into prototype menus. Select field test site and transition to 6.5 for field testing. Complete draft procurement documents. Integrate state of the art packaging and combat ration processing technologies for improved operational and functional performance.	1276	1138	995
FY09: Transition from 6.3 and conduct advanced development of HOT PAC, a low-cost, disposable self-heating package for dispensing hot water in the field. Optimize performance of package via material, fitment, and self-heating technology changes. Field test under the Fielded Group Ration Improvement Project (FGRIP). Draft performance-based procurement documents and transition to Procurement.		46	
FY09: Update and improve the Medical Nutrition Supplement (MNS) for the family of UGRs to support the military requirement of meeting the unique nutritional needs of all hospitalized patients in a combat environment. Develop/test MNS prototypes consisting of essential food items (broth, gelatin, high protein / high calorie liquid supplements) and supplies for patient diets, and unitize into a supplemental module. FY10: Revise performance-based documents and transition to Procurement.		76	
FY08: Conducted producibility testing of MRE non-retort pouches fabricated from polymer nanocomposites. Completed package	158		

performance testing of non-retort nanocomposite pouches to include rough handling, permeability and storage stability. Completed second accelerated storage study which indicated that increased barrier properties on nanocomposite menu bag provided improvement in key properties, however, nano menu bags did not pass rough handling tests. Additional development will be required before the material can transition to procurement.			
FY09: Transition from 6.3 and optimize treated fiberboard based on characterization studies to reduce cost, weight, and improve environmental properties. Fabricate prototype shipping containers using coated alternative fiberboard materials. Evaluate prototype shipping containers for wet strength, compression and rough handling. Initiate producibility study, transportation study and secure test site for FY10 user evaluation. FY10: Complete evaluation of prototype shipping containers. Complete producibility and transportation studies of optimized shipping containers. Conduct user evaluation of shipping containers.		260	
FY08: Integrated new technology/automation concepts and new food service equipment to maintain high standards of food preparation while accommodating a reduction in Culinary Specialists by reducing labor/preparation time of food items for legacy and future Navy carrier platforms. Coordinated with Commander Naval Air (COMNAVAIR) to identify and prioritize equipment for galley applications to accommodate reduction in food service attendants. Conducted testing on combination ovens to support decision by Navy for modernization of the carrier galley requirements. Recommend galley design based on reconfiguration of crews mess, wardroom, scullery, and serving lines to properly support automated self-service feeding equipment and transitioned to 6.5.	116		
FY08: Transitioned from 6.3, integrated technology advances in smart process control systems to provide automation and operational monitoring of Navy food service equipment. Demonstrated bi-directional communication network which provides real time equipment status monitoring that utilizes industry accepted North American Association of Food Equipment Manufacturers (NAFEM) protocols. Food service equipment prototypes were developed and in-house testing was conducted to validate the concept for shipboard transition into the future Smart Galley. Transition to 6.5.	304		
FY09: Review and validate shipboard refrigeration and ice consumption requirements with Navy. Conduct tradeoff and Front Analysis for comparing conventional bulk refrigerator/freezers with dual temperature capabilities. Conduct design analysis for incorporating ice-making capabilities into the dual temperature footprint to derive requirements for ice making capabilities.		40	
FY08: Initiated upgrade to replace obsolete Communication Zone (COMMZ) kitchen with commercial food equipment to increase reliability, maintainability, and significantly enhance operational performance capability/ efficiency. Established design system layout meeting user requirements and installed new COTS equipment. Simplified overall logistics footprint to reduce life cycle costs and training requirements by incorporating modular systems concept. Initiated in-house testing and evaluation, and transitioned to 6.5.	104		
FY09: Identify and prioritize food service areas for upgrade on the Virginia Class Submarines, and legacy submarines platforms. Conduct market investigation and develop recommendations to address issues with the galley and scullery. FY10: Procure equipment, develop test plans, and conduct land-based testing to support Navy goals. Standardize and optimize the food service equipment, reducing manpower requirements, and supporting NAVSUP's Standard Core Menu for submarines.		225	321
FY09: Collaborate with Naval Support Command (NAVSUP) to identify product segments for Navy Standard Core Menu (NSCM) refresh scheduled in 2008/2009. Work with commercial suppliers to research advanced foods and conduct sensory evaluation panels and nutrition research. Identify existing Trans Fats in the NSCM for modification of menu items. Prepare yearly product recommendations and support NAVSUP field testing for new menu item introductions. Transition to NSCM. FY10: Coordinate with NAVSUP to identify and collect information to determine menu goals and constraints; investigate emerging food preparation techniques to reduce labor for shipboard feeding; and provide annual reports and product recommendations. FY11: Provide NAVSUP with continuous product		155	177

identification, evaluations and menu development to support NSCM upgrades and revision changes.			
FY10: Transitioning from Technology Transition Initiative, complete transition of a fully functional alternate chemical heating technology for the UGR-E. Verify performance as drop-in component of the UGR-E. Revise performance-based procurement documents, field test under the FGRIP and transition procurement documents to DSCP.			241
FY10: Initiate program to provide ration components in fully integrated, multi-functional, active packaging materials beyond traditional polymer laminate films and oxygen scavenger sachets to improve storage stability & acceptability, reduce product waste, and increase consumption/nutrition. Performance oriented "smart" packaging materials protect food products from microorganisms, oxygen, moisture, and UV light, play an active role in preserving food throughout product shelf-life and improve product acceptability. Based on utility/functionality and technology readiness, primary technical focus will be on embedded oxygen scavenging, anti-oxidant, and olfactory/aromatic based innovative film structures that can be applied to combat ration components. Conduct market research and transition novel functional films from tech base effort. Produce limited scale production quantity of ration compatible films and/or pouches for further laboratory examination.			112
Small Business Innovative Research/Small Business Technical Transfer Program (SBIR/STTR)		109	
Total	3634	3877	4208

B. Other Program Funding Summary	FY 2008	FY 2009	FY 2010	To Compl	Total Cost
RDTE, 0604713.548, Military Subsistence System	2485	2499	2139	Continuing	Continuing
OPA 3, M65801, Refrigerated Containers	16826	34270	30549	Continuing	Continuing

Comment:

C. Acquisition Strategy Project development will transition to System Development & Demonstration and production.

ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes

PE NUMBER AND TITLE
0603747A - Soldier Support and Survivability

PROJECT
610

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Joint Service Food/Combat Feeding Equipment	In-House	RDECOM, Natick, MA	26784	1326	1-4Q	1480	1-4Q	1676	1-4Q	Cont.	Cont.	Cont.
Joint Service Food/Combat Feeding Equipment	Contracts	Various	15066	1346	1-4Q	1487	1-4Q	1688	1-4Q	Cont.	Cont.	Cont.
Subtotal:			41850	2672		2967		3364		Cont.	Cont.	Cont.

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Joint Service Food/Combat Feeding Equipment	MIPR	DTC, Maryland & AEC, Virginia	6421	602	1-4Q	538	1-4Q	535	1-4Q	Cont.	Cont.	Cont.
Subtotal:			6421	602		538		535		Cont.	Cont.	Cont.

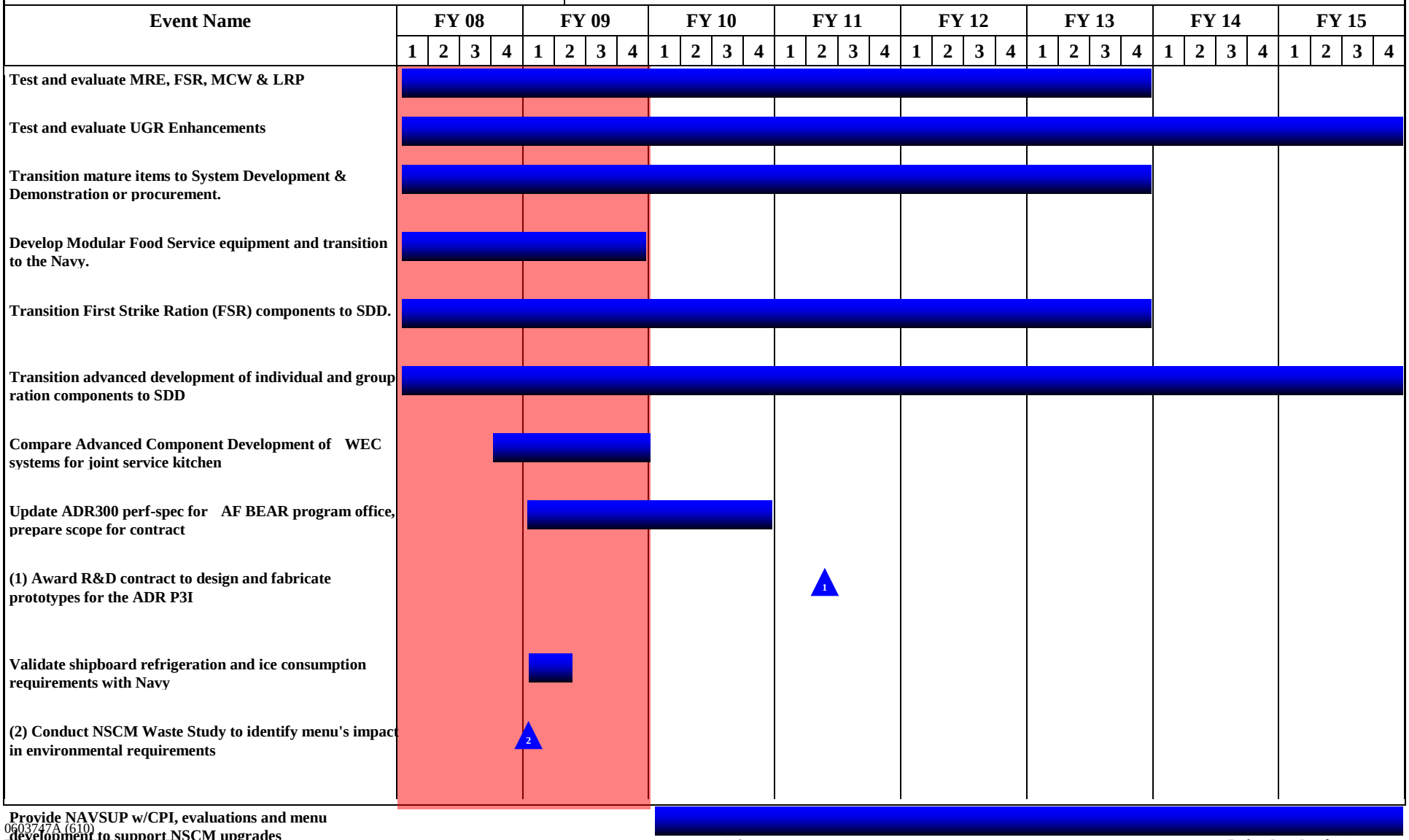
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Combat Feeding Program Management	In-House	RDECOM, Natick, MA	2862	360	1-4Q	372	1-4Q	309	1-4Q	Cont.	Cont.	Cont.
Subtotal:			2862	360		372		309		Cont.	Cont.	Cont.

ARMY RDT&E COST ANALYSIS (R3)									May 2009	
BUDGET ACTIVITY **4 - Advanced Component Development and Prototypes**	PE NUMBER AND TITLE **0603747A - Soldier Support and Survivability**								PROJECT **610**	
Project Total Cost:	**51133**	**3634**		**3877**		**4208**		**Cont.**	**Cont.**	**Cont.**

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
4 - Advanced Component Development and Prototypes	**0603747A - Soldier Support and Survivability**	**610**



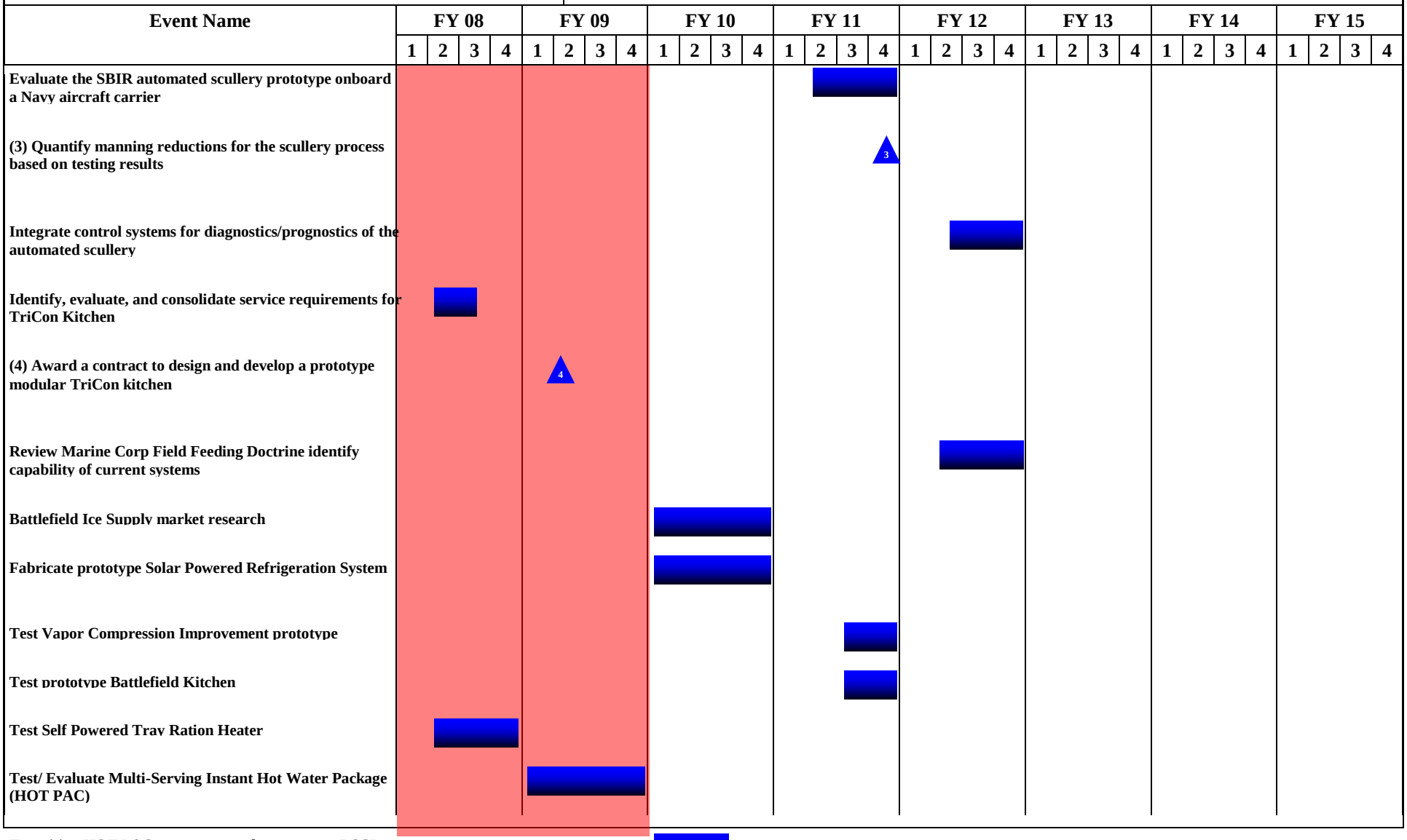
Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes

PE NUMBER AND TITLE
0603747A - Soldier Support and Survivability

PROJECT
610



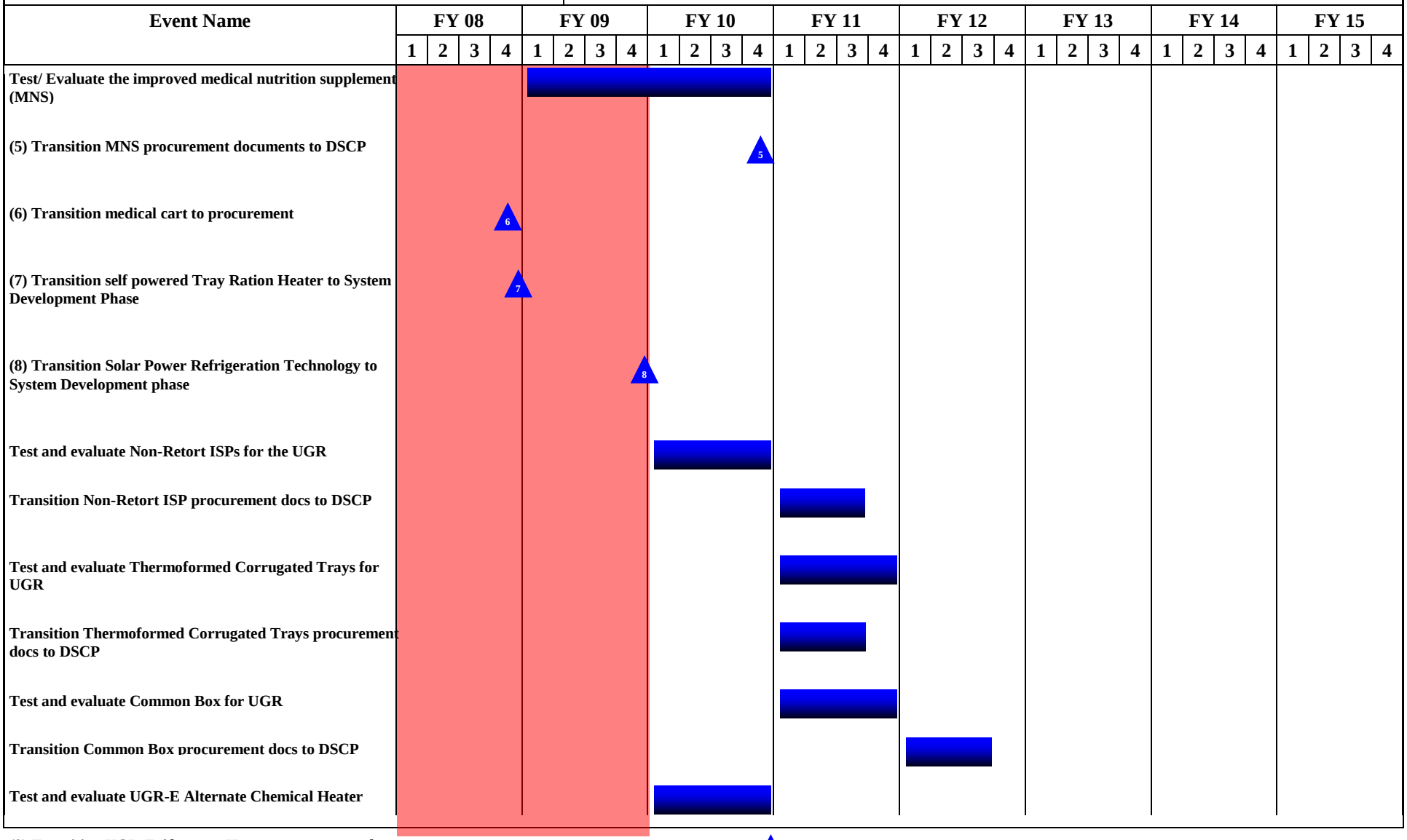
Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes

PE NUMBER AND TITLE
0603747A - Soldier Support and Survivability

PROJECT
610



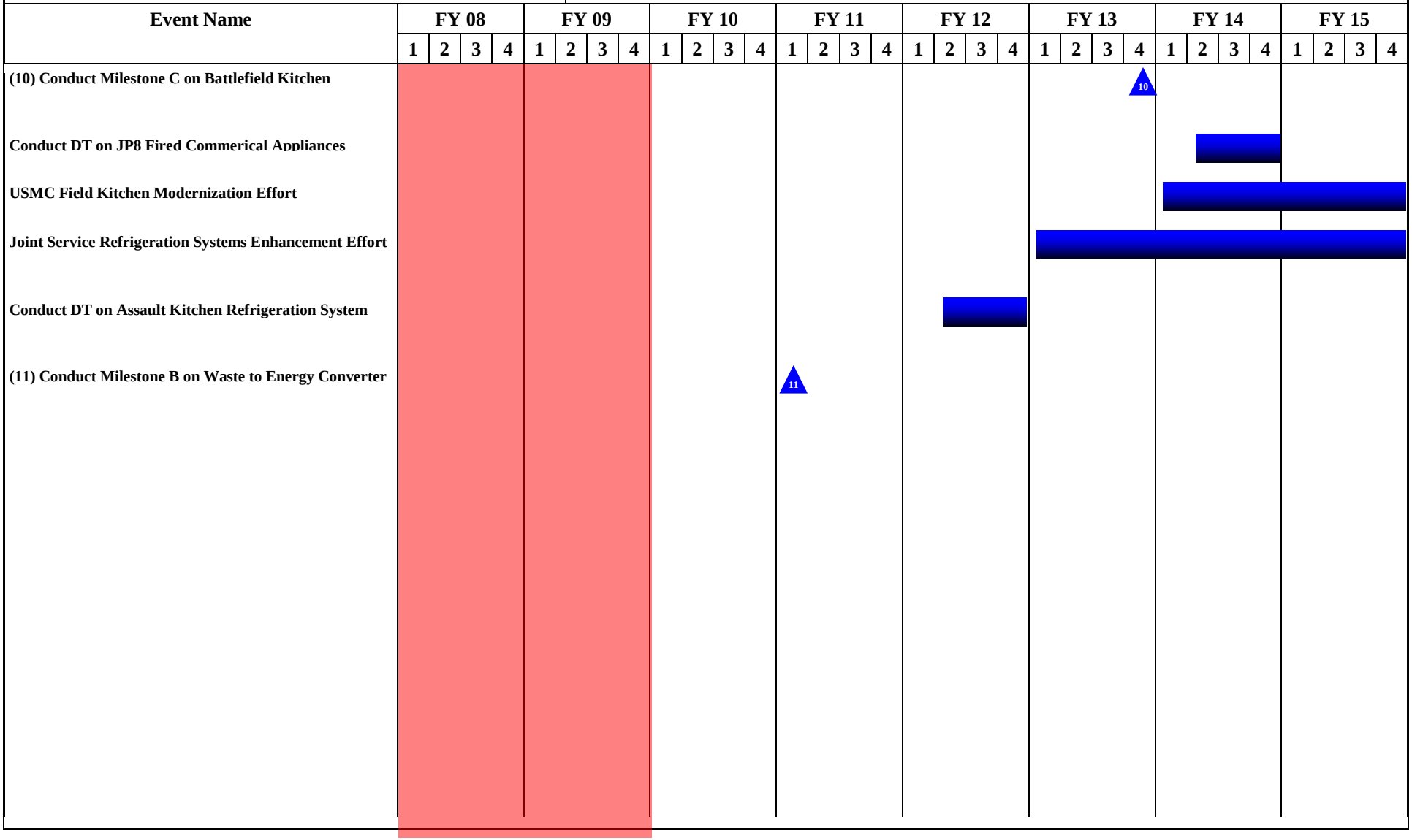
Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes

PE NUMBER AND TITLE
0603747A - Soldier Support and Survivability

PROJECT
610



Schedule Detail (R4a Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
4 - Advanced Component Development and Prototypes	**0603747A - Soldier Support and Survivability**	**610**

Schedule Detail	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Test and evaluate MRE, FSR, MCW & LRP	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q		
Test and evaluate UGR Enhancements	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Transition mature items to System Development & Demonstration or procurement.	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q		
Develop Modular Food Service equipment and transition to the Navy.	1Q - 4Q	1Q - 4Q						
Transition First Strike Ration (FSR) components to SDD.	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q		
Transition advanced development of individual and group ration components to SDD	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Compare Advanced Component Development of WEC systems for joint service kitchen	4Q	1Q - 4Q						
Update ADR300 perf-spec for AF BEAR program office, prepare scope for contract		1Q - 4Q	1Q - 4Q					
Award R&D contract to design and fabricate prototypes for the ADR P3I				2Q				
Validate shipboard refrigeration and ice consumption requirements with Navy		1Q - 2Q						
Conduct NSCM Waste Study to identify menu's impact in environmental requirements		1Q - 4Q						
Provide NAVSUP w/CPI, evaluations and menu development to support NSCM upgrades			1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
Evaluate the SBIR automated scullery prototype onboard a Navy aircraft carrier				2Q - 4Q				
Quantify manning reductions for the scullery process based on testing results				4Q				
Integrate control systems for diagnostics/prognostics of the automated scullery					2Q - 4Q			

Identify, evaluate, and consolidate service requirements for TriCon Kitchen	2Q - 3Q							
Award a contract to design and develop a prototype modular TriCon kitchen		2Q						
Review Marine Corp Field Feeding Doctrine identify capability of current systems					2Q - 4Q			
Battlefield Ice Supply market research			1Q - 4Q					
Fabricate prototype Solar Powered Refrigeration System			1Q - 4Q					
Test Vapor Compression Improvement prototype				3Q - 4Q				
Test prototype Battlefield Kitchen				3Q - 4Q				
Test Self Powered Tray Ration Heater	2Q - 4Q							
Test/ Evaluate Multi-Serving Instant Hot Water Package (HOT PAC)		1Q - 4Q						
Transition HOT PAC procurement documents to DSCP			1Q - 3Q					
Test/ Evaluate the improved medical nutrition supplement (MNS)		1Q - 4Q	1Q - 4Q					
Transition MNS procurement documents to DSCP			4Q					
Transition medical cart to procurement	4Q							
Transition self powered Tray Ration Heater to System Development Phase	4Q							
Transition Solar Power Refrigeration Technology to System Development phase		4Q						
Test and evaluate Non-Retort ISPs for the UGR			1Q - 4Q					
Transition Non-Retort ISP procurement docs to DSCP				1Q - 3Q				
Test and evaluate Thermoformed Corrugated Trays for UGR				1Q - 4Q				
Transition Thermoformed Corrugated Trays procurement docs to DSCP				1Q - 3Q				
Test and evaluate Common Box for UGR				1Q - 4Q				
Transition Common Box procurement docs to					1Q - 3Q			

DSCP								
Test and evaluate UGR-E Alternate Chemical Heater			1Q - 4Q					
Transition UGR-E Alternate Heater procurement docs to DSCP			4Q					
Conduct Milestone C on Battlefield Kitchen						4Q		
Conduct DT on JP8 Fired Commerical Appliances							2Q - 4Q	
USMC Field Kitchen Modernization Effort							1Q - 4Q	1Q - 4Q
Joint Service Refrigeration Systems Enhancement Effort						1Q - 4Q	1Q - 4Q	1Q - 4Q
Conduct DT on Assault Kitchen Refrigeration System					2Q - 4Q			
Conduct Milestone B on Waste to Energy Converter				1Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
4 - Advanced Component Development and Prototypes	**0603747A - Soldier Support and Survivability**	**C08**

COST (In Thousands)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost
C08 RAPID EQUIPPING FORCE	33217	28698	27544	Continuing	Continuing

A. Mission Description and Budget Item Justification: The US Army Rapid Equipping Force (REF) was established to provide urgently needed state-of-the-art technology to soldiers in the field to meet immediate warfighter needs under operational conditions in the current theaters. The REF Forward Teams in Iraq and Afghanistan work with Combatant Commanders and the soldiers to identify warfighter needs while REF Rear formulates solutions and rapidly delivers/fields new equipment to the deployed units. REF solutions are rapid responses to evolving, adaptable and changing threats, in any operational environment. REF Rear evaluates, utilizes or adapts currently available military or civilian items (COTS/GOTS) which typically have not been type classified for Army-wide use but are available and adaptable to the current Operational Combatant Commander's needs. For the REF, necessary materiel solutions can only be determined as "real time" threat modes are identified. Countermeasures to these evolving threats must be developed/purchased/modified, often within weeks, for the first cycle of spiral type responses. Specifically the REF is charged to: EQUIP operational commanders with off-the-shelf (government or commercial) solutions or near term developmental items that can be researched, developed and acquired quickly - ideally within 90 days. INSERT future force technology solutions that engaged and deploying forces require by developing, testing and evaluating key technologies and systems under operational conditions. ASSESS capabilities and advise Army stakeholders of findings that will enable forces to confront an adaptive enemy rapidly.

The REF process rapidly provides capabilities to meet immediate warfighter needs and supports efforts to mitigate asymmetric and traditional threats. A key element of this process is the provision for execution flexibility. The REF process provides the mechanism to respond rapidly to an adaptive enemy who changes in days and months, not years. The REF focuses on finding effective capabilities to counter emerging and future threats.

The REF works directly with operational commanders to find solutions to identified equipping requirements. These solutions may result in procurement of new or existing military/commercial materiel equipment, or accelerated development of a Future Force materiel solution for insertion into the current force now. The REF adaptive practices are at the forefront of Army modernization and serve as a catalyst and change agent for Army transformation. The REF accomplishes its mission by working in partnership with industry, academia, Army senior leaders, the Army Training and Doctrine Command (TRADOC), the Army acquisition community, and the Army Test and Evaluation Command (ATEC) to meet immediate warfighter needs.

The REF ensures safety testing of all equipment prior to release to the soldier. All equipment must pass Safety Confirmation and have a Capabilities and Limitations Report completed prior to being issued to operational units/soldiers.

FY2008 funding total includes $23.999 Million in Base Program.
FY2008 funding total includes $9.218 Million in FY08 GWOT Supplemental.

FY 09 Overseas Contingency Operations Supplement (OCO) Request funding will provide the Asymmetric Warfare Group funding to accomplish its mission. The Asymmetric Warfare Group provides operational and advisory assistance to Army and Joint Force Commanders to enhance the effectiveness of the operating force and enable the defeat of asymmetric threats.

Note that: (a) Equipment mix and configuration may change based on changes in operational environment and circumstances. (b) REF- Resource Management Capabilities Needs equipment and funding execution details will be provided in the Secretary of Army report to the Congressional Defense Committee in March and October of each year(per HAC Report #108-553, DoD APPNs Bill 2005, June 18, 2004, page 134.)

Accomplishments/Planned Program:	FY 2008	FY 2009	FY 2010
FY08 Base: The REF was designed to bridge the gap between the lengthy acquisition process and warfighter equipping needs that should not be delayed. Specifically the Rapid Equipping Force is charged to: EQUIP operational commanders with off-the-shelf (government or commercial) solutions or near-term developmental items that can be researched, developed and acquired quickly - ideally, within 90 days. INSERT future force technology solutions that engaged and deploying forces require by developing, testing and evaluating key technologies and systems under operational conditions. ASSESS capabilities and advise Army stakeholders of findings that will enable forces to confront an adaptive enemy rapidly. The REF ensures safety testing of all equipment prior to release to the soldier. REF focuses on the development and testing of systems and mechanisms designed to detect, identify and defeat enemy equipment and actions designed to injure or kill and devices to help protect the warfighter.	23966		
FY08 GWOT: Provides for GOTS/COTS and near term developmental items to support Soldiers in OIF/OEF and flexibility to facilitate requirements associated with emerging research shortfalls to enhance force protection and soldier survivability.	9251		
FY09 Base: The REF was designed to bridge the gap between the lengthy acquisition process and warfighter equipping needs that should not be delayed. Specifically the Rapid Equipping Force is charged to: EQUIP operational commanders with off-the-shelf (government or commercial) solutions or near-term developmental items that can be researched, developed and acquired quickly - ideally, within 90 days. INSERT future force technology solutions that engaged and deploying forces require by developing, testing and evaluating key technologies and systems under operational conditions. ASSESS capabilities and advise Army stakeholders of findings that will enable forces to confront an adaptive enemy rapidly. The REF ensures safety testing of all equipment prior to release to the soldier. REF focuses on the development and testing of systems and mechanisms designed to detect, identify and defeat enemy equipment and actions designed to injure or kill and devices to help protect the warfighter. The REF continues to maintain our support to commanders to ensure that we provide a solution in the areas of Protecting the Force and Intelligence, Surveillance and Reconnaissance (ISR).		21145	
FY09 OCO REQUEST: The AWG will focus efforts to investigate, evaluate, and assist in the development and improvement of existing jamming devices, Electro Magnetic Pulse emitting devices, and crew, vehicle, electronics disrupting devices. Specifically focus on enhancements to existing jamming devices as well as future developments. Provide RDTE with flexibility for working with industry, DoD assets, as well as technical institutes for the R&D of new and emerging technologies.		1795	
FY09 OCO REQUEST: The AWG will focus efforts to investigate, evaluate, and assist in the development and improvement of both existing and developmental Information Operations capabilities. We shall continue to focus efforts on developmental and Product Improvement Programs (PIPs) to existing shortfalls and gaps. Provide RDTE flexibility for emerging research, shortfalls to enhance platform durability, longevity, and detection capabilities.		1540	
FY09 OCO REQUEST: The AWG will focus efforts to investigate, evaluate, and quantify various Commercial-Off-The-Shelf/Government-Off-The-Shelf platforms and systems for purposes of research and development, testing, capability and limitation testing, and procurement. These efforts will be focused on near term, leveraging existing technology, and addressing capability gaps. Provide RDTE for emerging research shortfalls, PIPs, leap ahead technologies, and fixes to existing shortfalls		654	

(reliability, sustainability, and durability)			
FY09 OCO REQUEST: The AWG will focus efforts to investigate, evaluate, and assist in the development and improvement of both existing and developmental Intelligence Surveillance Reconnaissance capabilities. We shall continue to focus efforts on developmental and PIPs to existing shortfalls and gaps. Provide RDTE flexibility for emerging research, shortfalls to enhance platform durability, longevity, and detection capabilities.		1795	
FY09 OCO REQUEST: The AWG will focus efforts to investigate, evaluate, and assist in the development and improvement of existing vehicle and personal systems. Specifically focus efforts on developing enhancements to existing shortfalls and gaps. Provide RDTE flexibility for emerging research shortfalls to enhance vehicle reliability, blast sustainment, medical evacuation capability, and assault platforms. Efforts shall continue to research and test blast mitigating capabilities.		1160	
FY10 Base: The REF was designed to bridge the gap between the lengthy acquisition process and warfighter equipping needs that should not be delayed. Specifically the Rapid Equipping Force is charged to: EQUIP operational commanders with off-the-shelf (government or commercial) solutions or near-term developmental items that can be researched, developed and acquired quickly - ideally, within 90 days. INSERT future force technology solutions that engaged and deploying forces require by developing, testing and evaluating key technologies and systems under operational conditions. ASSESS capabilities and advise Army stakeholders of findings that will enable forces to confront an adaptive enemy rapidly. The REF ensures safety testing of all equipment prior to release to the soldier. REF focuses on the development and testing of systems and mechanisms designed to detect, identify and defeat enemy equipment and actions designed to injure or kill and devices to help protect the warfighter. The REF continues to maintain our support to commanders to ensure that we provide a solution in the areas of Protecting the Force and Intelligence, Surveillance and Reconnaissance (ISR). New Accomplishment			27544
Small Business Innovative Research/Small Business Technology Transfer Program (SBIR/STTR)		609	
Total	33217	28698	27544

B. Other Program Funding Summary	FY 2008	FY 2009	FY 2010	To Compl	Total Cost
Other Procurement, Army	451851	20190	24067	Continuing	Continuing
Operations and Maintenance, Army	13049	12986	11632	Continuing	Continuing

Comment:

C. Acquisition Strategy The REF provides urgently needed, state-of-the-art technology to soldiers in the field to meet immediate requirements. REF Rear evaluates, utilizes or adapts currently available military or civilian items (COTS/GOTS) which typically have not been type classified for Army-wide use but are available and adaptable to the current Operational Combatant Commander's needs.

ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes

PE NUMBER AND TITLE
0603747A - Soldier Support and Survivability

PROJECT
C08

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Arena - 360 Degree Camera (Force Protection)	MIPR	APG		1278							1278	
Blackout - UVA Detection, Tracking and Modeling (Protect the Force)	MIPR	AFRL		810							810	
Blank Firing Attachement Mount (Train the Force)	MIPR	CERDEC		12							12	
Blaze 2 - Self Activating (Fire Supperssion Sys)(Protect the Force)	MIPR	PM-CIE		81							81	
Bonaza B - Scent Detection Technologies (Protect the Force)	MIPR	NAVSEA		228							228	
Charade - Portable Explosive Trade Detector (Protect the Force)	MIPR	NAVEODTECH DIV		322							322	
Clip-on Thermal Imager (Protect the Force)	MIPR	NVESD		135							135	
Crossbow - IED Command Wire Tracing Device(Protect the Force)	MIPR	OSD		226							226	
Crosshairs v1- Projects (Protect the Force)	MIPR	REDCOM AMCOM		2500							2500	
Ground Torch - Removal Vegetation in Canals (Protect the Force)	MIPR	Marine Corps Logistics Command		68							68	
High Antennas for Radio Communication (HARC) (Enhanced ISR)	MIPR	PM Robotic and Unmanned Sensors		365							365	
ISO Balance - Traumatic Brain Injury Studies ((Medical and Logistics in COIN)	MIPR	Natick		202							202	
Knight - Wire Detection Device (Protect the Force)	MIPR	SMDC		440							440	
Lucky - Specialized Search and	MIPR	NSMA		882							882	

Patrol Dogs (Protect the Force)												
Meteor - Close Proximity Thermal Signature Detonation Device	MIPR	Night Vision and Electronic Sensors Directoriate		300							300	
Obelisk - Pole Mounted Thermal Camera (Protect the Force)	MIPR	APG		79							79	
Oberon V11 - Multi Screen Display for Joint EOD Rapid Response Vehicle (	MIPR	DTIC		100							100	
Packer - A Semi-autonomous Vehicle (Protect the Soldier)	MIPR	INL		193							193	
Prince - Concept Vehicle Prototypes (Protect force in Counter Insurgency)	MIPR	ARDEC		372							372	
RMS v1 - Programmable Minature Wide Band Reciever/Process	MIPR	RDECOM CERDEC		950							950	
Rocket Launcher Demonstration for Quick Release Functionality	MIPR	PM Joint Attack Munition Systems		200							200	
Stryker ICV Rhino Bracket Test Demonstration	MIPR	ARDEC and RDECOM AMSRD		115							115	
Talon Battery V1 Testing Kits	MIPR	ARDEC		600							600	
Trailer - Mounted Military Vehicle Non Intrusive Gamma Ray Imaging System	MIPR	NSMA		31							31	
Base: Various Projects - Protect The Force in Counter Insurgency		Various Locations TBD		7402		8142		10188			25732	
Base: Various Projects - Enhance Intelligence Surveilance Recon				4920		4714		6158			22187	
Base: Various Projects - Logistics/Medical in Counterinsurgency Opns				896		911		1120			4090	
Base: Various Projects - Timeliness of Analysis and Information Dissemination				3803		3643		4759			17147	

ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
4 - Advanced Component Development and Prototypes	**0603747A - Soldier Support and Survivability**	**C08**

FY 09 Oversease Contingency Operations: Various projects to include force protection & ISR	TBD	TBD				6944	1-4Q				6944	
Subtotal:				27510		24354		22225			86589	

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Various Projects	MIPR	Various Locations				27					27	
Subtotal:						27					27	

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
ATEC - Protect Force in Counterinsurgency Operations	MIPR	Various locations		5707		4317		5319			20866	
Subtotal:				5707		4317		5319			20866	

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												

Project Total Cost:				**33217**		**28698**		**27544**			**107482**	