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

DATE: June 2001

BUDGET ACTIVITY: 03 - Advanced Technology Development

PE NUMBER AND TITLE: 0603311F Ballistic Missile Technology

PROJECT: 4091

COST ($ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4091	Missile Electronics	22,218	22,789	0	0	0	0	0	0	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

This program develops, integrates, and demonstrates advanced guidance, navigation, and control technologies for ballistic missiles, including upgrades of instrumentation for range safety. Note: This program was eliminated at the end of FY 1997; however, Congress added funds for Missile Technology Demonstration (MTD) flight testing and Radiation-Hardened Electronics in FY 1998, for Ballistic Missile Technology and Range Safety in FY 1999, and for Ballistic Missile Technology in FYs 2000 and 2001.

(U) FY 2000 ($ in Thousands)

(U) $3,671 Demonstrated technologies for integration of advanced Global Positioning System - Inertial Navigation System (GPS-INS) technologies into ballistic missile guidance systems and range instrumentation to meet more stringent range safety requirements. GPS-INS range instrumentation systems greatly improve the integrity of missile tracking data in all phases of flight and operate at greatly reduced costs. Conducted range instrumentation flight safety approval and certification efforts on qualified technologies.

(U) $4,830 Developed and demonstrated GPS-INS navigation technologies to improve performance during ballistic missile reentry plasma blackout and jamming environments. These technologies will offset the detrimental effects of reentry plasma and jamming on GPS-INS navigation performance. Conducted reentry plasma physics characterization studies, extended existing plasma modeling and simulation tools, and enhanced GPS anti-jamming receiver, antenna architectures, and window material technologies.

(U) $1,063 Validated and demonstrated technologies for evaluating the service life, aging properties, and provided for the subsequent recycling of ballistic missile components and materials while minimizing environmental impacts and costs. Conducted demonstrations and validated advanced technologies for evaluating the aging properties of polymeric materials.

(U) $12,654 Developed and demonstrated advanced common ballistic missile technologies necessary for Air Force and Navy replacement and life extension programs. Advanced common technologies provide the required performance at greatly reduced costs to the government. Conducted preliminary designs to modernize missile flight hardware used in Air Force and Navy flight test programs for vehicle range safety and instrumentation. Conducted concept designs for advanced vehicle technologies to support current, life-extended, and replacement missile system testing requirements.

(U) $22,218 Total

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03 - Advanced Technology Development	0603311F Ballistic Missile Technology	4091

(U) A. Mission Description Continued

(U) FY 2001 ($ in Thousands)

(U)	$16,075	Develop technologies for the integration of advanced Global Positioning System-Inertial Navigation System (GPS-INS) technologies into space and missile range instrumentation and missile guidance systems to meet more stringent range safety requirements. Flight test a site-mobile GPS-INS range safety system to demonstrate greatly improved integrity of missile-tracking data in all phases of flight at greatly reduced operational costs while providing greater range flexibility and supporting launch on demand. Initiate certification of the GPS-INS range safety system at missile launch sites.
(U)	$1,301	Develop and demonstrate GPS-INS technologies to improve performance during all phases of flight to include ballistic reentry plasma blackout and jamming environments. These technologies will mitigate detrimental effects of reentry plasma and jamming on GPS-INS navigation performance. Transition current advanced GPS anti-jamming receiver, enhanced antenna architecture, and novel window material technologies to concept exploration. Design and demonstrate critical components/technologies essential to new reentry architectures.
(U)	$5,413	Develop and demonstrate advanced common ballistic missile technologies necessary for the Air Force and Navy replacement and life extension programs. Advanced concept exploration of common ballistic missile technologies will support an analysis of alternatives for concept exploration. Select affordable, existing advanced-technologies directly tied to user requirements. Conduct concept/technology demonstrations that focus on evolutionary vehicle designs using advanced common guidance and flight control technologies/components and sustainable less costly heat shield materials. Demonstrate revolutionary materials testing, service life prediction/component age out, and recovery techniques.
(U)	$22,789	Total

(U) FY 2002 ($ in Thousands)

(U)	$0	No Activity
(U)	$0	Total

(U) B. Budget Activity Justification

This program is in Budget Activity 3, Advanced Technology Development, since it develops and demonstrates technologies for existing system upgrades and/or new system developments that have military utility and address warfighter needs.

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(U) C. Program Change Summary ($ in Thousands)

		FY 2000	FY 2001	FY 2002	Total Cost
(U)	Previous President's Budget (FY 2001 PBR)	22,725	0	0	
(U)	Appropriated Value	23,000	23,000		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions				
	b. Small Business Innovative Research	-542			
	c. Omnibus or Other Above Threshold Reprogram				
	d. Below Threshold Reprogram				
	e. Rescissions	-240	-211		
(U)	Adjustments to Budget Years Since FY 2001 PBR			0	
(U)	Current Budget Submit/FY 2002 PBR	22,218	22,789	0	TBD

(U) Significant Program Changes:
Not Applicable.

(U) D. Other Program Funding Summary ($ in Thousands)

(U) Related Activities:
(U) PE 0602204F, Aerospace Sensors.
(U) This project has been coordinated through the Reliance process to harmonize efforts and eliminate duplication.

(U) E. Acquisition Strategy

Not Applicable.

(U) F. Schedule Profile

(U) Not Applicable.