PE NUMBER: 0101120F
PE TITLE: ADVANCED CRUISE MISSILE

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2006
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0101120F ADVANCED CRUISE MISSILE

Cost ($ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	6.609	1.960	6.983	3.060	0.395	0.412	0.428	Continuing	TBD
4798 Life Extension Program	6.609	1.960	6.983	3.060	0.395	0.412	0.428	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

AGM-129, The Advanced Cruise Missile (ACM), is a low-observable air-launched, strategic missile with significant improvements over the Air Launched Cruise Missile B version (ALCM-B) in range, accuracy, and survivability. Armed with a W-80 warhead, it is designed to evade air and ground-based defenses in order to strike heavily defended, hardened targets at any location within any enemy's territory. The ACM is designed for B-52H external carriage and there are currently 398 ACM in the inventory. The ACM fleet design service life expires between the years 2003 and 2008.

A Service Life Extension Plan (SLEP) was developed to meet an AF Long Range Plan requirement to extend ACM Service Life to FY30. The results of Service Life Extension Program (SLEP) studies will identify system components that cannot be sustained beyond the standard service life. The current system is experiencing obsolescence of parts/components. Missile support equipment and components are becoming non-supportable. Service Life Extension of this critical weapon is essential to meet ACC and STRATCOM SIOP commitments.

The initial requirement for ACM SLEP was the development of a conforming Joint Test Instrumentation Kit (JTIK) door design. The program developed 2 prototype JTIK doors for qualification and system-level testing. JTIK development satisfied test range safety requirements by incorporating Global Positioning System (GPS) tracking capability and a Department of Energy (DOE) Joint Test Assembly (JTA) redesign.

Together government and contractor personnel prepared an efficient, economical program schedule, in order to realize potential program economies of scale and to ensure the contractor can manage any increased workload. The JTIK development effort was a low risk program, but an essential effort because DOE-compliant JTIK doors are required in FY04 in order to continue conducting flight testing for weapon system reliability data collection used for Nuclear Certification and support of the W-80 Warhead Life Extension Program (LEP).

The ACM Subsystem Simulator (SSS) and Advanced Missile Simulator (AMS) Upgrade will develop, integrate, test and install a real-time simulation system that replaces aging and obsolete equipment. This requirement was identified as part of the ACM SLEP study to upgrade the simulation systems in the AF Avionics Software Integration Facility (ASIF) and the System Integration Lab (SIL). To extend the service life of the ACM to FY30, the real-time computer based simulation systems must be upgraded to resolve aging and obsolescence issues. These systems have many irreplaceable electronic components with high probability of failure. The ability to resolve real-time missile hardware and software anomolies and missile flight test investigations will not be possible without a reliable simulation system provided by this upgrade.

Development of an ACM Aging and Surveillance (A&S) program for the Nuclear Weapons Sub-System (NWSS) components is a Program Management Directive (PMD) requirement. The A&S program is required to analyze critical warhead interface missile components. Fault diagnostics will be accomplished and the data collected from the A&S tests will indicate failure trends and the rate of aging within each component. This effort is the second phase of what was initiated in 1999 to

develop test equipment, utilizing Commercial Off-the-Shelf (COTS) to the maximum extent possible, and software necessary to lay in a test program for the NWSS components.

Cruise Missile Functional Ground Testing (FGT) is required to provide the capability to non-destructively accomplish functional flight simulation of a full-up missile flight profile on the ground to obtain additional reliability data. This capability will provide critical reliability data without the cost of flight test mission and will also retain the missiles in the inventory. This effort will develop the software and hardware for an existing test facility for accomplishment of the ground tests.

The W-80 LEP replaces warhead components to extend its service life. The National Nuclear Security Administration (NNSA) is responsible for most of the refurbishment costs associated with the W-80 Warhead. The Air force is responsible for funding ACM/W-80 integration. Integration includes evaluation of interface control changes as part of the Initial Concept Design, missile testing and logistics requirements necessary to support a First Production Unit (FPU) delivery of 2009.

These programs are in Budget Activity 7, Operational System Development, due to efforts supporting a fielded, post Milestone III weapon system.

(U) B. Program Change Summary ($ in Millions)

		FY 2005	FY 2006	FY 2007
(U)	Previous President's Budget	7.672	1.989	7.034
(U)	Current PBR/President's Budget	6.609	1.960	6.983
(U)	Total Adjustments	-1.063	-0.029	
(U)	Congressional Program Reductions			
	Congressional Rescissions	-0.006		
	Congressional Increases			
	Reprogrammings	-0.842		
	SBIR/STTR Transfer	-0.215	-0.029	
(U)	Significant Program Changes:			

Exhibit R-2a, RDT&E Project Justification			DATE February 2006
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0101120F ADVANCED CRUISE MISSILE	PROJECT NUMBER AND TITLE 4798 Life Extension Program	

Cost ($ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4798 Life Extension Program	6.609	1.960	6.983	3.060	0.395	0.412	0.428	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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Exhibit R-2a, RDT&E Project Justification		DATE February 2006
BUDGET ACTIVITY **07 Operational System Development**	PE NUMBER AND TITLE **0101120F ADVANCED CRUISE MISSILE**	PROJECT NUMBER AND TITLE **4798 Life Extension Program**

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These programs are in Budget Activity 7, Operational System Development, due to efforts supporting a fielded, post Milestone III weapon system.

(U)	**B. Accomplishments/Planned Program ($ in Millions)**	FY 2005	FY 2006	FY 2007
(U)	Complete Subsystem Simulator (SS) software, delivery of both Subsystem Simulators (SS) and Computer Support System (CSS), and documentation delivery	1.200		
(U)	Accomplish validation/acceptance testing of Subsystem Simulators and Computer Support System	0.500		
(U)	Complete delivery, validation & acceptance testing of AMS, and documentation delivery	1.330		
(U)	Software Modeling and documentation delivery			0.400
(U)	Continue contractor Interface Control Document (ICD) support and interface change evaluations for W-80 LEP	1.110		
(U)	Continue ACM/W-80 Integration Ground Test and Flight Test Support	1.469		
(U)	ACM/W-80 Service System Test And Repair (Service STAR) re-design/modification	1.000		
(U)	Continue ACM/W-80 Integration and data development support		0.185	
(U)	Conduct of ACM/W-80 Development Flight Testing		1.196	
(U)	ACM/W-80 interface compatability testing		0.579	
(U)	Conduct ACM/W-80 Qualification Flight Testing			2.000
(U)	Conduct Electromagnetic Interference and Compatability (EMIC) Testing			0.970
(U)	Conduct missile interface compatability testing			0.998
(U)	Conduct Cruise Missile Functional Ground Test (FGT) Integration Testing and Verification			0.937
(U)	Developmental Test in FGT Facility			1.200
(U)	Develop FGT Supportability Plan			0.478
(U)	Total Cost	6.609	1.960	6.983

Exhibit R-2a, RDT&E Project Justification		DATE February 2006
BUDGET ACTIVITY **07 Operational System Development**	PE NUMBER AND TITLE **0101120F ADVANCED CRUISE MISSILE**	PROJECT NUMBER AND TITLE **4798 Life Extension Program**

(U) C. Other Program Funding Summary ($ in Millions)

	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
(U) MPAF, Missile Modifications (WSC 20ACMA, P-21)	4.074	3.208	1.352	0.129	0.042	0.032	0.048	Continuing	TBD
(U) MPAF, Replenishment Spares (BA04, PE 0101120F, P-16)	7.676	6.238	1.946	0.350	0.362	1.688	1.712	Continuing	TBD
(U) MPAF, Missile Modification Initial Spares (BA04, PE 0101120F, P-16)	0.307	0.308	0.249	0.257	0.265	0.000	0.000	Continuing	TBD

(U) D. Acquisition Strategy

JTIK door development was performed by the prime contractor, Raytheon, utilizing Cost Plus Fixed Fee (CPFF). Sub-System Simulator and Advanced Missile Simulator Upgrades will be performed by the prime contractor, Raytheon, utilizing a Firm Fixed Price (FFP) contract. Aging & Surveillance (A&S) program development is planned to by a FFP contract with E-Spectrum Technologies. The Cruise Missile FGT development will be performed by the prime contractor, utilizing a FFP, Cost Plus and Time & Materials (T&M) contract. Contract support for W-80 LEP will be acquired using T&M on existing sustainment contract.

Exhibit R-3, RDT&E Project Cost Analysis

DATE: **February 2006**

BUDGET ACTIVITY: **07 Operational System Development**

PE NUMBER AND TITLE: **0101120F ADVANCED CRUISE MISSILE**

PROJECT NUMBER AND TITLE: **4798 Life Extension Program**

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 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
(U) Product Development												
Joint Test Instrumentation Kit (JTIK) Development	CPFF	Raytheon, Tucson AZ									0.000	
Subsystem Simulator (SS)/Advanced Missile Simulator (AMS) Development	FFP	Raytheon, Tucson AZ	4.941	2.961	Nov-04			0.400			8.302	7.902
Nuclear Weapons Sub-System (NWSS) Aging & Surveillance (A&S)	FFP	E-Spectrums, San Antonio TX	2.054								2.054	2.025
Functional Ground Test (FGT) Development	FFP/Cost Plus/T&M	Raytheon, Tucson AZ	5.000					2.615	Oct-07		7.615	8.017
W80 LEP Support	T&M	Raytheon, Tucson AZ	2.940	1.110	Feb-05	0.764	Jan-06	0.998	Jan-07	1.457	7.269	6.107
W80 LEP support, Service STAR	FFP	E-Spectrums, San Antonio TX		1.000	Feb-05						1.000	1.000
	T&M	Raytheon, Tucson AZ									0.000	
Subtotal Product Development			14.935	5.071		0.764		4.013		1.457	26.240	25.051
Remarks:												
(U) Support												
W80 Support	T&M	OC-ALC/PSM, Tinker AFB OK									0.000	
SS/AMS Support	T&M	OC-ALC/MAS, Tinker AFB OK	0.631	0.069	Mar-05						0.700	
Subtotal Support			0.631	0.069		0.000		0.000		0.000	0.700	0.000
Remarks:												
(U) Test & Evaluation												
W80 Support	Fund cite/MIPR	49 TES, Barksdale AFB LA		1.469	Jan-05						1.469	
W80 Support	T&M	OC-ALC/LHMR, Tinker AFB OK/Boeing, Wichita KS						1.000	Jul-07		1.000	
W80 Support	Fund cite/MIPR	419 FTS, Edwards AFB CA				1.196	Aug-06	1.970	Aug-07	1.935	5.101	

Exhibit R-3, RDT&E Project Cost Analysis			DATE: February 2006
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0101120F ADVANCED CRUISE MISSILE	PROJECT NUMBER AND TITLE: 4798 Life Extension Program	

	Subtotal Test & Evaluation			0.000	1.469	1.196	2.970	1.935	7.570	0.000
	Remarks: None									
(U)	Management									
	W-80 Support	T&M	OC-ALC/PSM, Tinker AFB OK						0.000	
	SS/AMS Support	T&M	OC-ALC/PSM, Tinker AFB OK						0.000	
	Nuclear Weapons Sub-System (NWSS) Aging & Surveillance (A&S)								0.000	
	Subtotal Management			0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Remarks:									
(U)	Total Cost			15.566	6.609	1.960	6.983	3.392	34.510	25.051

Exhibit R-4, RDT&E Schedule Profile		DATE February 2006
BUDGET ACTIVITY **07 Operational System Development**	PE NUMBER AND TITLE **0101120F ADVANCED CRUISE MISSILE**	PROJECT NUMBER AND TITLE **4798 Life Extension Program**

U.S. AIR FORCE

ACM Schedule

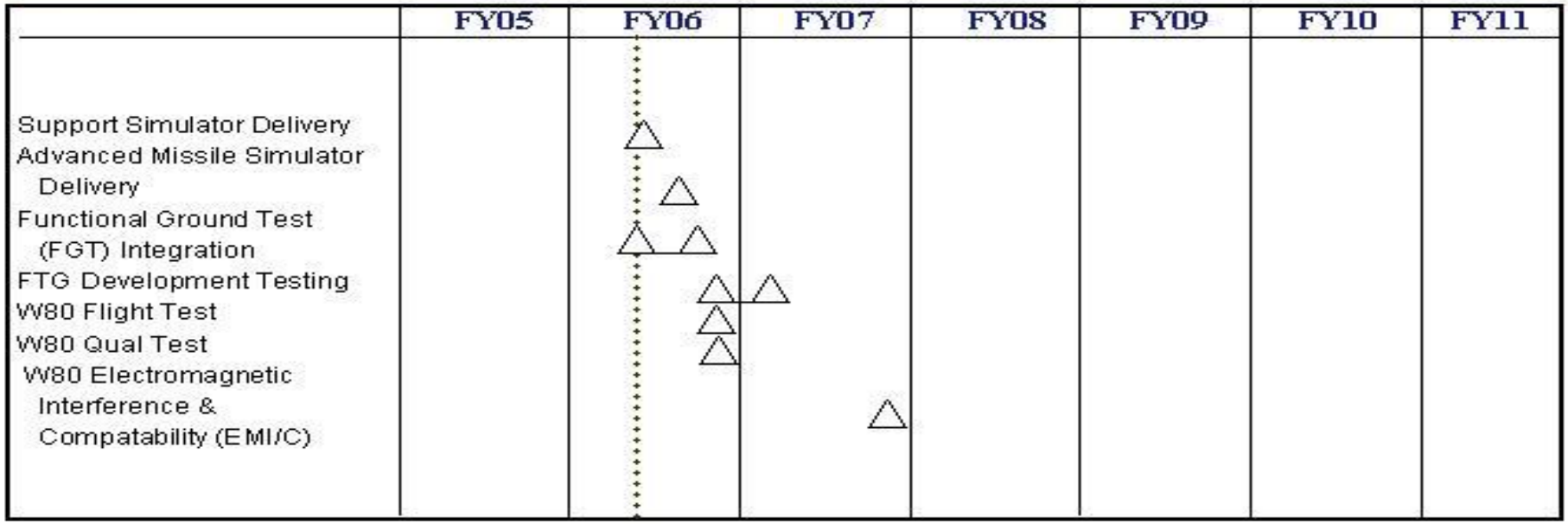

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2006
BUDGET ACTIVITY **07 Operational System Development**	PE NUMBER AND TITLE **0101120F ADVANCED CRUISE MISSILE**	PROJECT NUMBER AND TITLE **4798 Life Extension Program**

(U) **Schedule Profile**	FY 2005	FY 2006	FY 2007
(U) AMS PDR (delta SW design/AMS IFU)	1Q		
(U) SS Test Readiness Review		1Q	
(U) Computer Support System Test Readiness Review		1Q	
(U) SS Deliver/Installation		2Q	
(U) AMS Deliver/Installation		3Q	
(U) ACM NWSS A&S Demo Arm/Disarm Device Tests	1Q		
(U) ACM NWSS A&S Demo Separation Switch Tests	1Q		
(U) ACM NWSS A&S Demo Impact Sensor Dynamic Test	2Q		
(U) ACM NWSS A&S Demo Warhead Mount Tests	3Q		
(U) FGT PDR	1Q		
(U) FGT CDR	2Q		
(U) Integration		1-3Q	
(U) Development Testing		4Q	1Q
(U) ACM/W-80 Interface Control Changes/Documentation (Support)	1Q		
(U) ACM/W-80 Ground Test (Support)	1Q		
(U) ACM/W-80 Flight Test (Support)	2Q		
(U) ACM/W-80 Development Flight Test		4Q	
(U) ACM/W-80 Qualification Flight Test			4Q
(U) ACM/W-80 Electromagnetic Interference and Compatability (EMI/C)			4Q