PE NUMBER: 0303131F
PE TITLE: Minimum Essential Emergency Communications Network (MEECN)

Exhibit R-2, RDT&E Budget Item Justification

DATE: February 2007

BUDGET ACTIVITY: 07 Operational System Development

PE NUMBER AND TITLE: 0303131F Minimum Essential Emergency Communications Network (MEECN)

	Cost ($ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
	Total Program Element (PE) Cost	48.234	63.765	103.846	32.818	3.020	10.132	8.140	4.879	Continuing	TBD
2832	MEECN System Improvements	3.303	3.097	3.329	3.292	3.020	2.539	2.587	2.641	Continuing	TBD
4610	Minuteman MEECN Program (MMP)	2.581	22.512	36.520	15.317	0.000	0.000	0.000	0.000	0.000	TBD
5047	Ground Element MEECN System (GEMS)	42.350	38.156	63.997	14.209	0.000	7.593	5.553	2.238	0.000	TBD

(U) A. Mission Description and Budget Item Justification

Minimum Essential Emergency Communications Network (MEECN) systems provide assured communications connectivity between the President and the strategic deterrent forces in stressed environments. Modernization efforts upgrade network ground, airborne, and missile communication elements. Currently, MEECN includes the following programs:

- MEECN Systems Improvements (MSI) is a long-range planning process with Users (Air Combat Command (ACC), Air Force Space Command (AFSPC), and the Navy) to develop positions for current and future requirements/issues based on available technology.
- Minuteman MEECN Program (MMP) is the combination of Minuteman ICBM Launch Control Center (LCC) Very Low Frequency/Low Frequency (VLF/LF) upgrade efforts along with a new Minuteman ICBM LCC Extremely High Frequency (EHF) communications capability. The MMP system will be upgraded to provide a capability for the Missile Combat Crew Members to have operator control in the LCC to switch among various EHF/AEHF satellite constallations and be compatible with Advanced EHF (AEHF). AEHF is an Extended Data Rate (XDR) waveform that provides more secure transmit/receive at frequencies above 20 GHz.
- Ground Element MEECN Systems (GEMS) provides a secure, survivable inter-site and intra-site and mobile VLF and EHF communication to bomber, tanker and other communications facilities with strategic responsibilities. GEMS replaces existing mission-deficient, unstainable systems. GEMS will also be upgraded to AEHF with the XDR waveform.

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)

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

		FY 2006	FY 2007	FY 2008	FY 2009
(U)	Previous President's Budget	48.327	64.109	44.232	13.227
(U)	Current PBR/President's Budget	48.234	63.765	103.846	32.818
(U)	Total Adjustments	-0.093	-0.344		
(U)	Congressional Program Reductions		-0.102		
	Congressional Rescissions	-0.001	-0.242		
	Congressional Increases				
	Reprogrammings	-0.092			
	SBIR/STTR Transfer				

(U) Significant Program Changes:

FY 08-09: Restructure of GEMS Program due to late delivery of security software/hardware.

Exhibit R-2a, RDT&E Project Justification		DATE: February 2007
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0303131F Minimum Essential Emergency Communications Network (MEECN)	PROJECT NUMBER AND TITLE: 2832 MEECN System Improvements

Cost ($ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2832 MEECN System Improvements	3.303	3.097	3.329	3.292	3.020	2.539	2.587	2.641	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

- MEECN System Improvements (MSI) is a long range planning process with Users (Air Combat Command (ACC), Air Force Space Command (AFSPC), and Navy) to develop positions for current and future requirements/issues based on available technology.
- Trade-off analysis is also performed to identify benefits and drawbacks of maintaining current systems. Studies are conducted to monitor communications system technology and potential integration complexities into current and future capabilities. The MEECN architecture is currently evaluating/planning modernization of the VLF/LF cryptographic capability and the application of using Defense Injection Reception Emergency Action Message (EAM) Command and Control (C2) Terminal (DIRECT) in mobile configurations and the Distributed Ground Network command and control nodes.
- MSI provides pro-active support to the Nuclear and National C2 community:
  -- Supports the ASD/NII study on a Distrbuted Ground Network for New Triad Missions
  -- Develops an Air Force National Command and Control (NC2) Roadmap for FY10 POM budget inputs
  -- Provides support for JCS Vol VII Emergency Action Message (EAM) updates
- This project also supports the Continuing Evaluation Program (CEP) for technical analysis of the currently fielded Nuclear Command, Control, and Communication (NC3) systems. CEP is a key factor in determining Assured MEECN Interoperability (AMI). The program implements a detailed test program for Emergency Action Message (EAM) injection and reception. It conducts multiple evaluations on a continuing year-round basis. Following test data collection, analysis is performed to ensure the strategic communication systems meet JCS-directed platform connectivity requirements.
- This program is in Budget Activity 07, Operational System Development, because it supports work on currently fielded weapon systems.

(U) B. Accomplishments/Planned Program ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
(U) Continuing Evaluation Program (CEP) Studies	0.280	0.280	0.290	0.290
(U) Nuclear Command & Control Performance Study (NC2 Roadmap) & simulator for testing of communication architectures	1.980	2.050	1.850	1.850
(U) Vol VII EAM format updates	0.000	0.000	0.550	0.550
(U) Analytical Support	1.043	0.767	0.639	0.602
(U) Total Cost	3.303	3.097	3.329	3.292

Exhibit R-2a, RDT&E Project Justification		DATE February 2007
BUDGET ACTIVITY **07 Operational System Development**	PE NUMBER AND TITLE **0303131F Minimum Essential Emergency Communications Network (MEECN)**	PROJECT NUMBER AND TITLE **2832 MEECN System Improvements**

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

FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost

(U) None

(U) D. Acquisition Strategy

Johns Hopkins University is on contract to provide an NC2 Roadmap in terms of the New Triad. An AEHF satellite simulator (test equipment) is being acquired through MIT Lincoln Labs.

Exhibit R-3, RDT&E Project Cost Analysis

DATE: **February 2007**

BUDGET ACTIVITY: **07 Operational System Development**

PE NUMBER AND TITLE: **0303131F Minimum Essential Emergency Communications Network (MEECN)**

PROJECT NUMBER AND TITLE: **2832 MEECN System Improvements**

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2006 Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development														
CEP Analysis			0.275	0.280	Oct-05	0.280	Oct-06	0.290	Oct-07	0.290	Oct-08	Continuing	TBD	
NC2 Roadmap	MIPR	Johns Hopkins Univ, MD		0.730	Nov-05	0.800	Dec-06	1.850	Dec-07	1.850	Dec-07	Continuing	TBD	
Simulation/Modeling Equipment	MIPR	Lincoln Labs, Bedford, MA		1.250	Feb-06	1.250	Nov-06						2.500	
Vol VII EAM Format Updates		GDCS, Needham, MA						0.550	Jun-08	0.550	Jun-09		1.100	
Subtotal Product Development			0.275	2.260		2.330		2.690		2.690		Continuing	TBD	0.000
Remarks:														
(U) Support														
SE/TA Integrated Technical Support Program (ITSP)	Various	Various	5.591	0.896	Dec-05	0.632	Dec-06	0.500	Dec-07	0.500	Dec-08	Continuing	TBD	
MITRE	LOE	Bedford, MA	0.487	0.147	Nov-05	0.135	Nov-06	0.139	Nov-07	0.102	Nov-08	Continuing	TBD	
Subtotal Support			6.078	1.043		0.767		0.639		0.602		Continuing	TBD	0.000
Remarks:														
(U) Test & Evaluation														
													0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Management														
						0.000							0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			6.353	3.303		3.097		3.329		3.292		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile		DATE February 2007
BUDGET ACTIVITY **07 Operational System Development**	PE NUMBER AND TITLE **0303131F Minimum Essential Emergency Communications Network (MEECN)**	PROJECT NUMBER AND TITLE **2832 MEECN System Improvements**

MSI Schedule

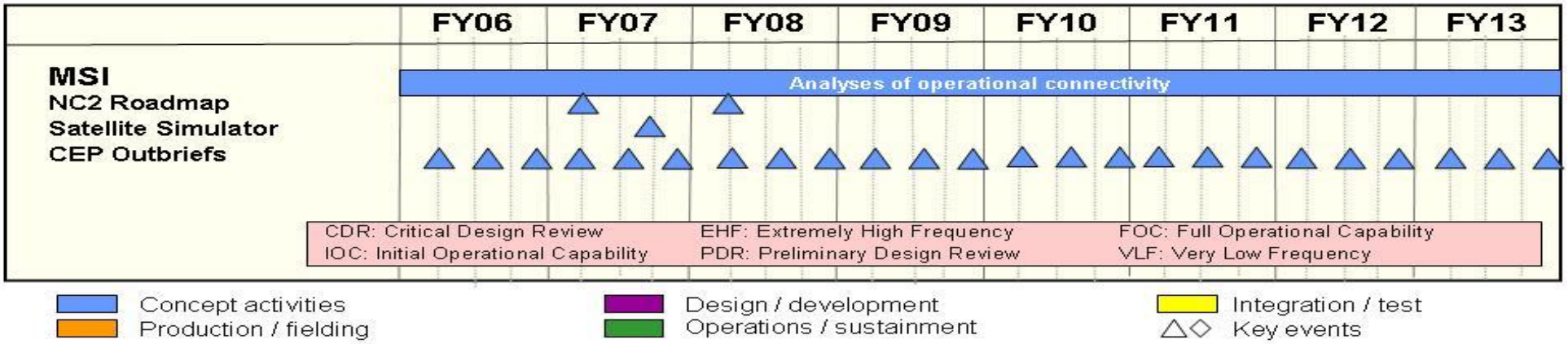

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Exhibit R-4a, RDT&E Schedule Detail		DATE: February 2007
BUDGET ACTIVITY: **07 Operational System Development**	PE NUMBER AND TITLE: **0303131F Minimum Essential Emergency Communications Network (MEECN)**	PROJECT NUMBER AND TITLE: **2832 MEECN System Improvements**

(U) Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009
(U) NC2 Roadmap		2Q	2Q	
(U) CEP Outbriefs	1-4Q	1-4Q	1-4Q	1-4Q
(U) AEHF Satellite Simulator		3Q		

Exhibit R-2a, RDT&E Project Justification		DATE: February 2007
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0303131F Minimum Essential Emergency Communications Network (MEECN)	PROJECT NUMBER AND TITLE: 4610 Minuteman MEECN Program (MMP)

	Cost ($ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4610	Minuteman MEECN Program (MMP)	2.581	22.512	36.520	15.317	0.000	0.000	0.000	0.000	0.000	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This project implements a Minuteman ICBM Launch Control Center (LCC) Very Low Frequency/Low Frequency (VLF/LF) capability and a Minuteman ICBM Extremely High Frequency (EHF) communications capability. The Extremely High Frequency (EHF) terminal provides both receive and report-back capability. Specifically, the MMP effort replaces the Ultra High Frequency (UHF) satellite link with a MILSTAR EHF link and adds a High Data Rate (HIDAR) capability for VLF/LF.

The MMP system will be upgraded to provide a capability for Missile Combat Crew Members to have operator control in the Launch Control Center to switch among various EHF/AEHF satellite constallations and be compatible with Advanced EHF (AEHF). AEHF is an Extended Data Rate (XDR) waveform that provides more secure transmit/receive at frequencies above 20 GHz.

This program is in Budget Activity 07, Operational System Development, because it supports work on fielded operating weapon systems.

	B. Accomplishments/Planned Program ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
(U)	MMP Upgrade Technology Development	1.381	12.445		
(U)	System Development and Demonstration (SDD) to include: AEHF terminal integration, AEHF modem design, cryptographic upgrade, weapon system hardness analysis, hardware development and software development for AEHF and improved operator control, analysis of power and cooling requirements, antenna integration, analysis of Software Compliant Architecture (SCA).		6.870	31.222	13.932
(U)	Analytical Support	1.200	3.197	5.298	1.385
(U)	Total Cost	2.581	22.512	36.520	15.317

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

		FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
(U)	MPAF, Missile Modifications (MEECN, PE 0303131F, BA 03, P-012)	2.886			14.911	7.027					24.824

Exhibit R-2a, RDT&E Project Justification		DATE February 2007
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)	PROJECT NUMBER AND TITLE 4610 Minuteman MEECN Program (MMP)

(U) D. Acquisition Strategy

The ICBM Prime Integrating Contract (through OO-ALC, Hill AFB, UT) was used as a contracting vehicle for the Minuteman MEECN Program (MMP) and will continue in an advisory role for integration support for the MMP Upgrade program.

Two Concept and Technology Demonstration (C&TD) contracts were awarded to separate vendors following full and open competition. The MMP Upgrade System Development Demonstration (SDD) effort will also be a full and open competition.

Exhibit R-3, RDT&E Project Cost Analysis

DATE: **February 2007**

BUDGET ACTIVITY: **07 Operational System Development**

PE NUMBER AND TITLE: **0303131F Minimum Essential Emergency Communications Network (MEECN)**

PROJECT NUMBER AND TITLE: **4610 Minuteman MEECN Program (MMP)**

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2006 Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development														
MMP Development	SS/CPAF	Northrup Grumman	46.069										46.069	
MMP Upgrade Concept Development	Open Competition	TBD	0.898										0.898	
MMP Upgrade Technology Development	FFP	Rockwell Collins & Raytheon		1.381	Aug-06	12.445	Oct-06						13.826	
MMP Upgrade System Development and Demonstration (SDD)	Open Competition	TBD				6.870	Sep-07	31.222	Oct-07	13.932	Oct-08	Continuing	TBD	
Subtotal Product Development			46.967	1.381		19.315		31.222		13.932		Continuing	TBD	0.000
Remarks:														
(U) Support														
SETA	LOE	Various	1.100	0.900	Apr-06	0.900	Feb-07	1.500	Feb-08	0.700	Feb-09	Continuing	TBD	
MITRE			0.795	0.189	Nov-05	1.707	Nov-06	1.500	Nov-07	0.500	Nov-08		4.691	
PMA				0.105		0.390		0.698		0.185			1.378	
Subtotal Support			1.895	1.194		2.997		3.698		1.385		Continuing	TBD	0.000
Remarks: Various Award Dates														
(U) Test & Evaluation														
Various	Various	Various		0.006		0.200		1.600					1.806	
Subtotal Test & Evaluation			0.000	0.006		0.200		1.600		0.000		0.000	1.806	0.000
Remarks:														
(U) Management														
													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			48.862	2.581		22.512		36.520		15.317		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile		DATE February 2007
BUDGET ACTIVITY **07 Operational System Development**	PE NUMBER AND TITLE **0303131F Minimum Essential Emergency Communications Network (MEECN)**	PROJECT NUMBER AND TITLE **4610 Minuteman MEECN Program (MMP)**

MMP Schedule

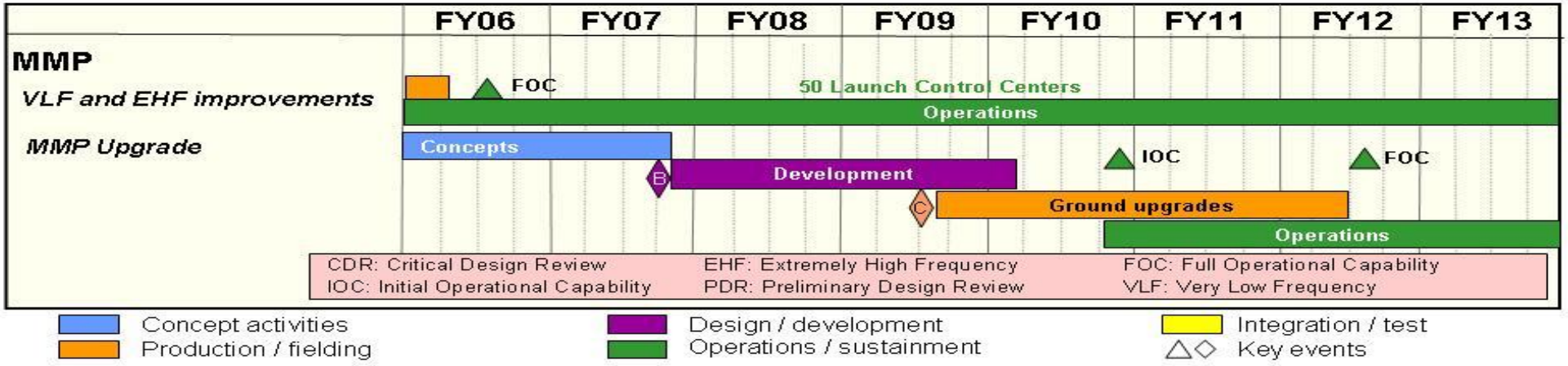

Exhibit R-4a, RDT&E Schedule Detail		DATE February 2007
BUDGET ACTIVITY **07 Operational System Development**	PE NUMBER AND TITLE **0303131F Minimum Essential Emergency Communications Network (MEECN)**	PROJECT NUMBER AND TITLE **4610 Minuteman MEECN Program (MMP)**

(U) Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009
(U) MMP Operational Deployment Complete	3Q			
(U) Award MMP Upgrade Technology Development	4Q			
(U) Award MMP Upgrade Program System Design & Development		4Q		
(U) Continue SDD			1-4Q	1-4Q
(U) M/S C				3Q

Exhibit R-2a, RDT&E Project Justification		DATE: February 2007
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0303131F Minimum Essential Emergency Communications Network (MEECN)	PROJECT NUMBER AND TITLE: 5047 Ground Element MEECN System (GEMS)

	Cost ($ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5047	Ground Element MEECN System (GEMS)	42.350	38.156	63.997	14.209	0.000	7.593	5.553	2.238	0.000	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Ground Element MEECN Systems (GEMS) will be comprised of EHF/AEHF, VLF/LF, HF, UHF and Aircrew Alerting components and will provide secure, survivable inter-site, intra-site and mobile communications to bomber, tanker, reconnaissance and other communications facilities with strategic responsibilities. GEMS terminals will be developed and fielded to replace strategic mobile and fixed-site Single Channel Anti-jam Man-Portable (SCAMP) terminals. GEMS will also replace the Aircraft Alerting Communications Electromagnetic Pulse System/Electromagnetic Pulse Hardened Dispersal Communications (AACE/EHDC) systems.

This program is in Budget Activity 07, Operational System Development, because it supports work on fielded operating weapon systems.

	B. Accomplishments/Planned Program ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
(U)	System Development and Demonstration (SDD) contract to include: EHF, VLF, HF and UHF terminal integration; EHF, VLF, HF and UHF modem design; cryptographic upgrade; weapon system hardness analysis; EHF, VLF, HF and UHF hardware development; EHF, VLF, HF and UHF software development; analysis of power and cooling requirements, antenna integration, analysis of Software Compliant Architecture (SCA); and pager/klaxon system development.	38.722	33.612	59.518	11.966
(U)	Analytical Support	3.628	4.544	4.479	2.243
(U)	Total Cost	42.350	38.156	63.997	14.209

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

	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
(U) Other Procurement - AF, (MEECN, PE0303131F, BA-03, P-053)			10.700	69.791	73.362	21.755	36.622	32.251	0.000	244.481

(U) D. Acquisition Strategy

Two Concept and Technology Demonstration (C&TD) contracts were awarded to separate vendors following full and open competition. Rockwell Collins of Rapid City, IA was awarded the SDD (CPAF) and production contract on 23 Jun 05.

Exhibit R-3, RDT&E Project Cost Analysis

DATE: **February 2007**

BUDGET ACTIVITY: **07 Operational System Development**

PE NUMBER AND TITLE: **0303131F Minimum Essential Emergency Communications Network (MEECN)**

PROJECT NUMBER AND TITLE: **5047 Ground Element MEECN System (GEMS)**

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2006 Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development														
SDD Contract	CPAF	Rockwell Collins, IA	11.436	38.722	Jan-06	33.612	Dec-06	59.518	Dec-07	11.966	Dec-08		155.254	
Subtotal Product Development			11.436	38.722		33.612		59.518		11.966		0.000	155.254	0.000
Remarks:														
(U) Support														
ITSP	SETA Contract	Various	1.750	1.451	Dec-05	1.603	Dec-06	1.900	Dec-07	0.700	Dec-08	Continuing	TBD	
MITRE	MIPR	Bedford, MA	1.010	1.208	Nov-05	1.515	Nov-06	1.200	Nov-07	0.300	Nov-08	Continuing	TBD	
PMA			0.258	0.719		0.426		0.479		0.483			2.365	
Subtotal Support			3.018	3.378		3.544		3.579		1.483		Continuing	TBD	0.000
Remarks:														
(U) Test & Evaluation														
				0.250		1.000		0.900		0.760			2.910	
Subtotal Test & Evaluation			0.000	0.250		1.000		0.900		0.760		0.000	2.910	0.000
Remarks:														
(U) Management														
													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			14.454	42.350		38.156		63.997		14.209		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile		DATE February 2007
BUDGET ACTIVITY **07 Operational System Development**	PE NUMBER AND TITLE **0303131F Minimum Essential Emergency Communications Network (MEECN)**	PROJECT NUMBER AND TITLE **5047 Ground Element MEECN System (GEMS)**

GEMS Schedule

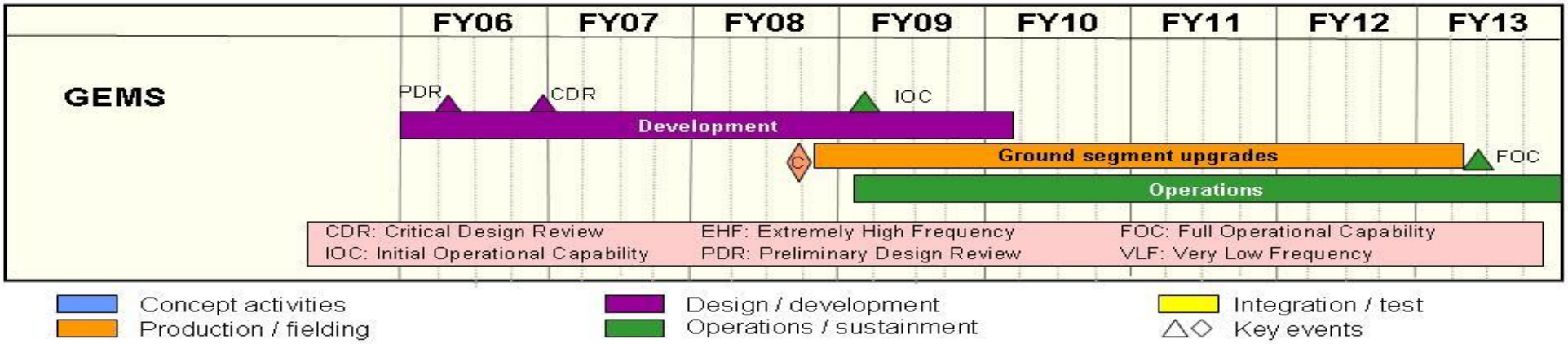

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Exhibit R-4a, RDT&E Schedule Detail		DATE: February 2007
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0303131F Minimum Essential Emergency Communications Network (MEECN)	PROJECT NUMBER AND TITLE: 5047 Ground Element MEECN System (GEMS)

(U) Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009
(U) SDD	1-4Q	1-4Q	1-4Q	1-4Q
(U) Preliminary Design Review	2Q			
(U) Critical Design Review	4Q			
(U) Development Testing		1-4Q		
(U) Production Installation			4Q	1-4Q
(U) IOC				1Q