PE NUMBER: 0604735F
PE TITLE: Combat Training Ranges

Exhibit R-2, RDT&E Budget Item Justification							DATE February 2006	

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604735F Combat Training Ranges				
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	15.712	8.794	14.363	17.613	17.489	17.668	17.698	Continuing	TBD
2286 Combat Training Range Equipment	15.712	8.794	14.363	17.613	17.489	17.668	17.698	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Combat Training Range (CTR) Program Element (PE) provides equipment and support to Air Force units and combat training ranges for mission testing, training, and evaluation of aircrews, as well as the operational testing of weapon systems and tactics under simulated combat conditions. This PE provides funding for the development of electronic warfare training capabilities, telecommunications, instrumentation equipment/systems, and standards for the training ranges. Air Force P5 Combat Training System (P5CTS) is interoperable with Navy Tactical Air Combat Training System (TACTS) ranges. The P5CTS will take a spiral acquisition approach to the development of improved Air Combat Training System (ACTS) capabilities for fielding at operational locations. It will provide capabilities to train aircrews "like we fight" in air-to-air, air-to-surface, and surface-to-air combat as well as electronic warfare. Additionally, P5CTS provides real-time monitoring and control of aircraft during large and joint force exercises, and small unit training, while recording events for post-mission debrief and analysis. Other P5CTS capabilities include: real-time kill notification/verification, system security initiatives to protect classified aircraft and armament systems information, integration of electronics, air-to-ground weapon simulations, and threat simulations. The P5CTS also includes ground system integration, location specific architecture, internal pod replacement subsystems, integration of new Operational Flight Programs, and the development of solutions to meet changing data link standards. Other efforts included in this PE are the integration of Air Warrior capabilities at the Nellis Complex, the integration of next generation range instrumentation standards, and the capabilities to facilitate live/virtual/constructive connectivity and standardization across all platforms to include the F-22A and F-35, Joint Strike Fighter (JSF), and interoperability for joint test/training exercises. This PE includes the development of advanced threat emitters. In FY02, the Advanced Threat Emitter System (ATES) incorporated other Service's requirements and evolved into the Joint Threat Emitter (JTE) system. The JTE continues the development of a comprehensive suite of threat signals for aircrew tactics and electronic combat training for simulated penetrations of hostile airspace. This program complements existing range threat simulators by emulating signals that simulate current and future air defense and threat radars. In FY04, the Threat Reaction Analysis Indicator System (TRAINS) underwent improvements to increase reliability, maintainability, availability, and functional capabilities, including Reactive Threats, Deceptive Analysis, and site electronic countermeasure information database capabilities. The TRAINS is an electronic combat analysis system that is paired with the Multiple Threat Emitter System (MUTES) to provide analysis of aircraft Electronic Countermeasure (ECM) responses to threat signals.

This program is in Budget Activity 5 - Systems Development and Demonstration because the Combat Training Ranges (CTR) Program directly contributes to the effectiveness and survivability of US combat forces by training capabilities to simulate real combat conditions to prepare the warfighter for actual combat.

Exhibit R-2, RDT&E Budget Item Justification	DATE **February 2006**
BUDGET ACTIVITY **05 System Development and Demonstration (SDD)**	PE NUMBER AND TITLE **0604735F Combat Training Ranges**

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

		FY 2005	FY 2006	FY 2007
(U)	Previous President's Budget	21.326	6.122	15.092
(U)	Current PBR/President's Budget	15.712	8.794	14.363
(U)	Total Adjustments	-5.614	2.672	
(U)	Congressional Program Reductions			
	Congressional Rescissions	-0.016	-0.128	
	Congressional Increases		2.800	
	Reprogrammings	-5.071		
	SBIR/STTR Transfer	-0.527		
(U)	Significant Program Changes:			

FY05: Reduced for higher AF priorities

FY06: Increased via Congressional add for Nellis "Air Warrior" combat training system pod integration

				DATE
Exhibit R-2a, RDT&E Project Justification				**February 2006**

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
05 System Development and Demonstration (SDD)	**0604735F Combat Training Ranges**	**2286 Combat Training Range Equipment**

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
2286 Combat Training Range Equipment	15.712	8.794	14.363	17.613	17.489	17.668	17.698	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U)   **A. Mission Description and Budget Item Justification**

The Combat Training Range (CTR) Program Element (PE) provides equipment and support to Air Force units and combat training ranges for mission testing, training, and evaluation of aircrews, as well as the operational testing of weapon systems and tactics under simulated combat conditions. This PE provides funding for the development of electronic warfare training capabilities, telecommunications, instrumentation equipment/systems, and standards for the training ranges. Air Force P5 Combat Training System (P5CTS) is interoperable with Navy Tactical Air Combat Training System (TACTS) ranges. The P5CTS will take a spiral acquisition approach to the development of improved Air Combat Training System (ACTS) capabilities for fielding at operational locations. It will provide capabilities to train aircrews "like we fight" in air-to-air, air-to-surface, and surface-to-air combat as well as electronic warfare. Additionally, P5CTS provides real-time monitoring and control of aircraft during large and joint force exercises, and small unit training, while recording events for post-mission debrief and analysis. Other P5CTS capabilities include: real-time kill notification/verification, system security initiatives to protect classified aircraft and armament systems information, integration of electronics, air-to-ground weapon simulations, and threat simulations. The P5CTS also includes ground system integration, location specific architecture, internal pod replacement subsystems, integration of new Operational Flight Programs, and the development of solutions to meet changing data link standards. Other efforts included in this PE are the integration of Air Warrior capabilities at the Nellis Complex, the integration of next generation range instrumentation standards, and the capabilities to facilitate live/virtual/constructive connectivity and standardization across all platforms to include the F-22A and F-35, Joint Strike Fighter (JSF), and interoperability for joint test/training exercises. This PE includes the development of advanced threat emitters. In FY02, the Advanced Threat Emitter System (ATES) incorporated other Service's requirements and evolved into the Joint Threat Emitter (JTE) system. The JTE continues the development of a comprehensive suite of threat signals for aircrew tactics and electronic combat training for simulated penetrations of hostile airspace. This program complements existing range threat simulators by emulating signals that simulate current and future air defense and threat radars. In FY04, the Threat Reaction Analysis Indicator System (TRAINS) underwent improvements to increase reliability, maintainability, availability, and functional capabilities, including Reactive Threats, Deceptive Analysis, and site electronic countermeasure information database capabilities. The TRAINS is an electronic combat analysis system that is paired with the Multiple Threat Emitter System (MUTES) to provide analysis of aircraft Electronic Countermeasure (ECM) responses to threat signals.

This program is in Budget Activity 5 - Systems Development and Demonstration because the Combat Training Ranges (CTR) Program directly contributes to the effectiveness and survivability of US combat forces by training capabilities to simulate real combat conditions to prepare the warfighter for actual combat.

(U)   **B. Accomplishments/Planned Program ($ in Millions)**

	FY 2005	FY 2006	FY 2007
(U) Continue Air Combat Training Systems (ACTS) funding support for Range Instrumention Systems to include the development and testing of: P5 Combat Training Systems (P5CTS) including software/hardware upgrades, and continue Joint Tactical Radio System (JTRS) compliance; aircraft/pod integration and upgrades for range applications; interoperability improvements with existing Air Force and Navy ranges including software, upgrades, and weapons simulations; Combat Training Range (CTR) programs basic operating support, system acquisition and	10.658	7.660	11.551

Exhibit R-2a, RDT&E Project Justification	DATE February 2006

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604735F Combat Training Ranges	PROJECT NUMBER AND TITLE 2286 Combat Training Range Equipment

(U)	**B. Accomplishments/Planned Program ($ in Millions)**	FY 2005	FY 2006	FY 2007
	engineering support; integration of Air Warrior capabilities at the Nellis Complex; and next generation range instrumentation standards and capabilities.			
(U)	Continue ACTS funding support for Range Threat Systems which includes the development and testing of the Joint Threat Emitter (JTE) System, the Threat Reaction Analysis Indicator System (TRAINS), and program operating, acquisition, and engineering support.	5.054	1.134	2.812
(U)	Total Cost	15.712	8.794	14.363

(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)	Other Procurement, AF, Combat Training Ranges, 3080 BP83	31.764	25.277	13.565	19.622	19.958	20.409	20.711	Continuing	TBD
(U)	Initial Spares, 3080 BP86	0.780	0.792	0.832	0.863	0.884	0.906	0.921	Continuing	TBD
(U)	Total OPAF, PEC 0207429F	32.544	26.069	14.397	20.485	20.842	21.315	21.632	Continuing	TBD
(U)	Aircraft Procurement, AF, Combat Training Ranges, 3010 BP19	13.906	13.918	4.934	15.317	15.605	15.910	16.356	Continuing	TBD
(U)	Initial Spares, 3010 BP16	1.164	1.409	1.487	1.570	1.621	1.662	1.683	Continuing	TBD
(U)	Total APAF, PEC 0207429F	15.070	15.327	6.421	16.887	17.226	17.572	18.039	Continuing	TBD

(U) **D. Acquisition Strategy**

The acquisition strategy is competitive, with cost plus and fixed price contracts.

Exhibit R-3, RDT&E Project Cost Analysis		DATE February 2006

BUDGET ACTIVITY **05 System Development and Demonstration (SDD)**	PE NUMBER AND TITLE **0604735F Combat Training Ranges**	PROJECT NUMBER AND TITLE **2286 Combat Training Range Equipment**

(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												
Sverdrup (P5CTS)	CPAF			2.838	Jan-05	0.289	Mar-06	0.716	Oct-06	Continuing	TBD	
Colsa/BTAS Corp (P5CTS)	CPAF			0.269	Oct-04	0.329	Oct-05	0.815	Oct-06	Continuing	TBD	
Cubic Defense Applications (P5CTS)	CPIF/FFP		1.633	2.954	Feb-05	1.686	Feb-06	5.241	Feb-07	Continuing	TBD	
Standard Research International (P5CTS)	FFP		1.228	0.125	Apr-05	0.132	Dec-05	0.350	Apr-07	Continuing	TBD	
Modern Technologies Corp (JTE)	CPAF		7.491	4.000	Mar-05	0.600	Mar-06	2.076	Mar-07	Continuing	TBD	
E W Systems (TRAINS)	FFP		0.369	0.617	Mar-05	0.369	Mar-06	0.351	Mar-07	Continuing	TBD	
Rockwell-Collins (P5CTS)	FFP		0.000	0.897	Jun-05	0.500	Feb-06	1.000	Feb-07	Continuing	TBD	
Army JTRS-Cluster 5 (P5CTS)	FFP		0.000	0.500	Jan-05	0.500	Jan-06	0.500	Feb-07	Continuing	TBD	
Navy (P5CTS)	FFP		9.536	0.225	Feb-05	0.000		0.000		Continuing	TBD	
Air Warrior (Nellis - P5CTS)	TBD		0.000	0.000		2.800	Apr-06				2.800	
F15 SPO OFP (P5CTS)	FFP		1.492	0.119	Feb-05	0.100	Apr-06	0.400	Apr-07	Continuing	TBD	
F16 SPO OFP (P5CTS)	FFP		1.371	0.150	Dec-04	0.000		0.150	Oct-06	Continuing	TBD	
Subtotal Product Development			23.120	12.694		7.305		11.599		Continuing	TBD	0.000
Remarks:												
(U) Support												
SAF/AQX	Various		0.000	0.150		0.000		0.000		Continuing	TBD	
OO/ALC/LH, Hill AFB, UT	Various		0.629	0.437		0.165		0.385		Continuing	TBD	
AAC/RISS, Eglin AFB, FL	Various		11.332	2.331		1.249		2.379		Continuing	TBD	
Subtotal Support			11.961	2.918		1.414		2.764		Continuing	TBD	0.000
Remarks:												
(U) Test & Evaluation												
46 Test Wing, Eglin AFB FL	Various		0.640	0.100		0.075		0.000		Continuing	TBD	
Subtotal Test & Evaluation			0.640	0.100		0.075		0.000		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			35.721	15.712		8.794		14.363		Continuing	TBD	0.000

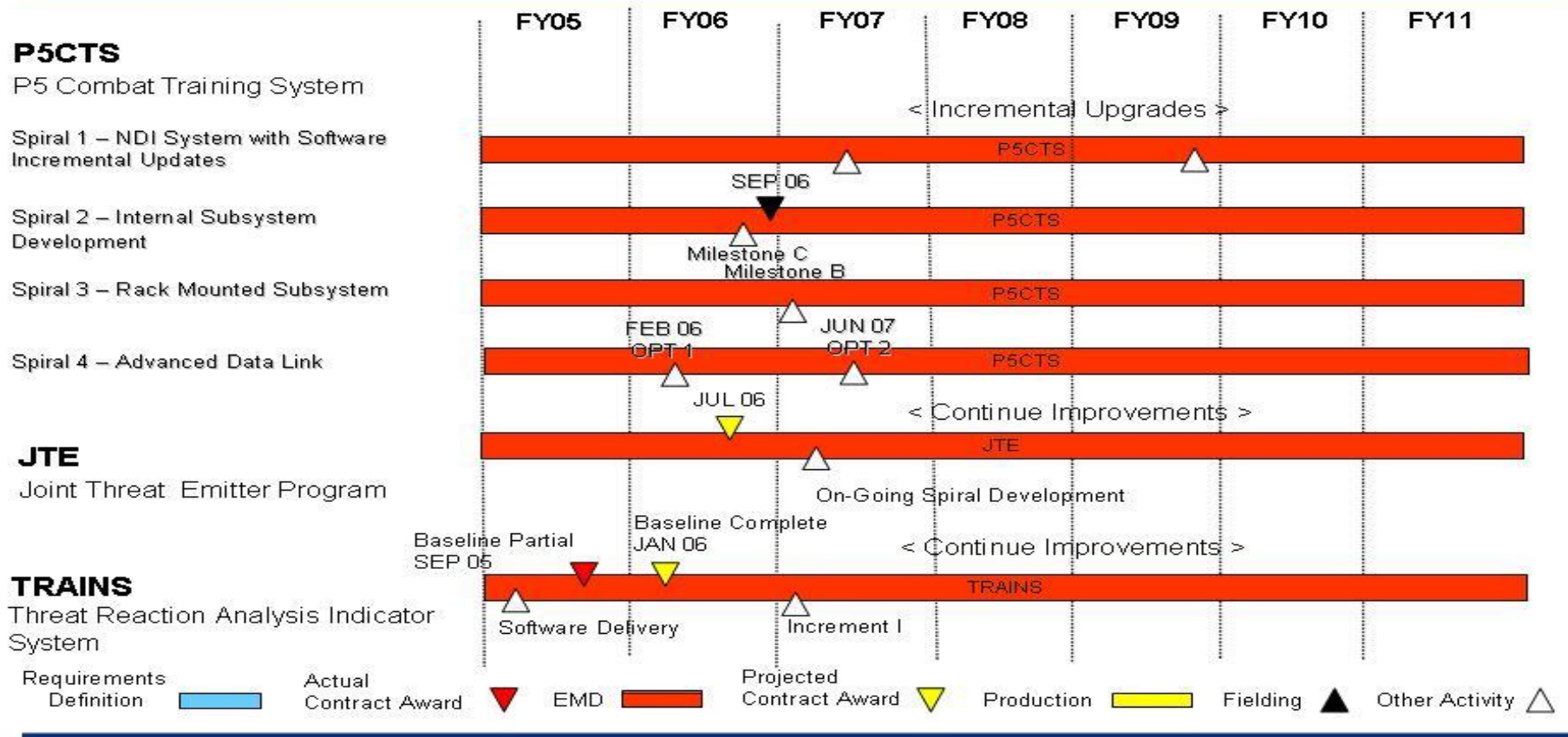| Exhibit R-4, RDT&E Schedule Profile	DATE February 2006

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604735F Combat Training Ranges	PROJECT NUMBER AND TITLE 2286 Combat Training Range Equipment

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2006

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604735F Combat Training Ranges	PROJECT NUMBER AND TITLE 2286 Combat Training Range Equipment

(U) **Schedule Profile**	FY 2005	FY 2006	FY 2007
(U) P5CTS Development			
(U) - Spiral I (Non-Developmental Item System w/Software Incremental Updates	1-4Q	1-4Q	1-4Q
(U) Aircraft and Ground Interoperability			
(U) - Spiral II (Internal Subsystem Development)	1-4Q	1-4Q	
(U) - Spiral III (Rack Mounted Subsystem)			1-4Q
(U) - Spiral IV (Advanced Data Link)	3-4Q	1-4Q	1-4Q
(U) JTE Development			
(U) -- Initial Developmental Contract Award		3Q	
(U) -- Spiral Development and Continue Improvements			1-4Q
(U) Threat Reaction Analysis Indicator System (TRAINS)			
(U) -- Contract Award	4Q	2Q	1Q
(U) -- Software Delivery	1Q		
(U) -- Continue Improvements		1-4Q	1-4Q