

UNCLASSIFIED

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

DATE

June 2001

BUDGET ACTIVITY

07 - Operational System Development

PE NUMBER AND TITLE

0305182F Spacelift Range System

PROJECT

4137

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
4137 Range Standardization and Automation (RSA)	48,303	84,373	65,097	74,898	69,924	66,628	72,430	72,520	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY03-FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

(U) **A. Mission Description**

The Eastern Range (ER) at Patrick AFB and Cape Canaveral AFS, FL, and the Western Range (WR) at Vandenberg AFB, CA, make up the Spacelift Range System. They provide tracking, telemetry, flight analysis, and other capabilities necessary to safely conduct Department of Defense, civil, and commercial spacelift operations; ballistic missile test launches; and aeronautical and guided weapons tests. Many range assets are outdated, unreliable, inefficient, and costly to operate and maintain.

The Air Force is addressing range shortcomings through a phased modernization program. Two of the three phases will continue in FY02. First, the Range Standardization and Automation (RSA) Phase IIA contract will continue to modernize the control and display, and communication segments at both ranges. Second, the SLRS Contract (SLRSC) will continue to modernize the instrumentation segment at both ranges.

(U) **FY 2000 (\$ in Thousands)**

- (U) \$2,462 Completed RSA Phase I. Completed integration and testing of SATCOM and Cape Fiber Optic Network for operational use; supported transition of Centralized Telemetry Processing System (CTPS) to RSA II A to complete integration and testing.
- (U) \$34,171 Continued RSA Phase IIA. Continued development and testing of planning and scheduling and weather product items. Continued development and began testing of Differential Global Positioning System (DGPS) for metric tracking. Continued development and began testing of voice, video and data network modernization. Continued development and began testing of communication network including network core. Continued development and testing of interim flight safety product for the ER. Began development of final flight operations and analysis product for SLRS. Performed systems engineering, integration efforts, engineering studies, and related tasks to support the architecture.
- (U) \$1,000 Began SLRSC. Began systems requirement review and assessment of AFSPC's down-range instrumentation requirements and commercial off-the-shelf (COTS) products available to satisfy these requirements.
- (U) \$2,634 Provided program support for Systems Program Office.
- (U) \$8,036 Funded California Space Authority (CSA) study of required modernization, upgrades, and enhancements of space launch related facilities at Vandenberg AFB and Edwards AFB (congressional add).

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<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2000 (\$ in Thousands) Continued</u></p> <p>(U) \$48,303 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$33,212 Continue RSA Phase IIA. Continue development, test, and evaluation of RSA IIA systems, including planning & scheduling, weather, comm network (voice, video, data, core, net manager), differential GPS for metric tracking, interim flight safety, final flight operations and analysis, and digital telemetry (CTPS). Perform product engineering, integration efforts, engineering studies, and related tasks to support the architecture.</p> <p>(U) \$17,632 Continue SLRSC. Fund SLRSC systems engineering technical effort including architecture management, requirement management, systems integration, and engineering analyses. Fund instrument modernization system designs (including development of SLRS specification, instrument segment specification, and interface specifications), completion of system analyses, and trade studies. Continue assessment of COTS solutions for applicability to down-range instrumentation requirements and related design efforts.</p> <p>(U) \$2,319 Provide program support for Systems Program Office.</p> <p>(U) \$31,210 Fund five follow-on California space infrastructure projects recommended by FY00-funded CSA study (congressional add).</p> <p>(U) \$84,373 Total</p> <p>The following net transactions are not reflected in the FY01 program total: BTR = -\$2985K, SBIR = -\$495K. Additionally, -\$23,345K was reprogrammed to PE 0602203F, project 4847, to align funding with the appropriate PE to activate Rocket Test Stand 1D and upgrade Rocket Component Test Stand 2A, respectively, at Edwards Air Force Base, California. However, the funding was reprogrammed to PE These transactions are not reflected in other sections of the R-Docs where an FY01 total is shown.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$30,593 Continue RSA Phase IIA. Continue development, test, and evaluation of RSA IIA systems, including planning & scheduling, interim flight safety, weather, comm network (voice, video, data, core, net manager), differential GPS for metric tracking, final flight operations and analysis, digital telemetry (CTPS), command generation, simulation, and range operations. Perform product engineering, integration efforts, engineering studies, and related tasks to support the architecture.</p> <p>(U) \$32,146 Continue SLRSC. Continue SLRSC systems engineering technical effort including architecture management, requirement management, systems integration, and engineering analyses. Conduct instrument modernization systems design review. Begin development, testing, and evaluation of instrumentation systems to include: fixed and mobile telemetry, fixed and mobile command destruct equipment, fixed and mobile optics instruments, radars, radio frequency monitoring equipment, weather equipment, and surveillance equipment. Develop, test, and evaluate changes to flight safety, command and control, and communications subsystems, as well as associated interfaces, required to establish the SLRS automated architecture and to enable centralized and local control of instrumentation.</p>		
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4137(U) **A. Mission Description Continued**(U) **FY 2002 (\$ in Thousands) Continued**

(U) \$2,358 Provide program support for Systems Program Office.

(U) \$65,097 Total

(U) **B. Budget Activity Justification**

These efforts are categorized as Budget Activity 7, Operational Systems Development, because they upgrade existing operational capabilities with new systems. Funding for modernization of both the ER and the WR is consolidated in this program element to support the integrated SLRS approach.

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

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)	50,989	53,654	52,306	TBD
(U) Appropriated Value	51,686	85,154		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-417	-596		
b. Small Business Innovative Research	-1,878			
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram	-886			
e. Rescissions	-202	-185		
(U) Adjustments to Budget Years Since FY 2001 PBR			12,791	
(U) Current Budget Submit/FY 2002 PBR	48,303	84,373	65,097	TBD

(U) **Significant Program Changes:**

FY 2000: AF reprogrammed \$886K to higher priority programs.

FY 2001: Congress added \$31.5M for two studies, one design project, and two upgrades for California space infrastructure

FY 2002: AF transferred \$12.7M from OPAF to RDT&E to appropriately reflect developmental effort.

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4137**(U) D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) OPAF (PE 35182F, Spacelift Range System Space)(BA 03, P-60)	83,836	91,864	132,764	116,507	134,080	148,740	168,601	167,942	Continuing	TBD

(U) E. Acquisition Strategy

The AF is using a series of competitively awarded contracts to modernize the ranges. The RSA Phase I contract (FY 1993 to FY 2000) modernized downrange communications and telemetry systems at the ER. The RSA Phase IIA contract (FY 1996 to FY 2006) is providing an SLRS architecture and standardizing and automating the communications and control segments at both ranges. The SLRS Contract (FY 2001 to FY 2010) will modernize the instrumentation segment at both ranges and consolidate systems integration and sustainment efforts under one contract.

(U) F. Schedule Profile

	<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) RSA Phase I												
(U) - Final Product Deliveries				*								
(U) - Contract Complete					*							
(U) RSA Phase IIA												
(U) - Complete Planning & Scheduling DT&E								*				
(U) - Complete Weather DT&E									X			
(U) - Complete Network Core DT&E											X	
(U) - Complete Network Manager DT&E												X
(U) - Complete Differential GPS for Metric Tracking DT&E											X	
(U) - Complete Flight Ops Version 1 System DT&E							*					
(U) - Complete Flight Ops & Analysis S/W Design Release									X			
(U) - Complete Flight Ops & Analysis Qual Testing												X
(U) SLRS Contract												
(U) - Contract Award						*						
(U) - Complete System Design Review										X		

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<div style="display: flex; justify-content: space-between;"> (U) <u>F. Schedule Profile Continued</u> </div> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="4"><u>FY 2000</u></th> <th colspan="4"><u>FY 2001</u></th> <th colspan="4"><u>FY 2002</u></th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>(U) California Space Authority Studies/Projects</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) - California Space Infrastructure Program Study Contract Award</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) - Flight Termination Study Contract Award</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> </tr> <tr> <td>(U) - Extended Range Study Contract Award</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> </tr> </tbody> </table> <p>* = completed event; X = planned event</p>													<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>					1	2	3	4	1	2	3	4	1	2	3	4	(U) California Space Authority Studies/Projects													(U) - California Space Infrastructure Program Study Contract Award													(U) - Flight Termination Study Contract Award											X		(U) - Extended Range Study Contract Award											X	
	<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>																																																																																
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE June 2001			
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT		
07 - Operational System Development				0305182F Spacelift Range System					4137		
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>											
				<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>			
(U) RSA Phase I Contract				2,462		0		0			
(U) RSA Phase IIA Contract				34,171		33,212		30,593			
(U) SLRS Contract				1,000		17,632		32,146			
(U) Program Support				2,634		2,319		2,358			
(U) California Space Authority Studies/Projects				8,036		31,210					
(U) Total				48,303		84,373		65,097			
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
(U) <u>Performing Organizations:</u>											
<u>Contractor or Government</u>		<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
Harris Corp (RSA Phase I)		C/CPAF	Jun 93	93,781	96,781	94,319	2,462	0	0	0	96,781
Lockheed Martin (RSA Phase IIA)		C/CPAF	Nov 95	213,891	226,454	77,331	34,171	33,212	30,593	Continuing	TBD
ITT Industries (SLRSC)		C/CPAF	Nov 00	TBD	TBD	0	1,000	17,632	32,146	Continuing	TBD
<u>Support and Management Organizations</u>											
SPO Program Support (FFRDC, SETA, SPO Ops)		Various	Various	N/A	N/A	13,892	2,634	2,319	2,358	Continuing	TBD
California Space Authority Studies/Projects		Various	Various	N/A	39,246	0	8,036	31,210	0	0	39,246
<u>Test and Evaluation Organizations</u>											
N/A											
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE		June 2001	
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
07 - Operational System Development				0305182F Spacelift Range System				4137		
(U) <u>Government Furnished Property:</u>										
	<u>Contract</u>									
	<u>Method/Type</u>	<u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>	
<u>Product Development Property</u>										
GFP determination is ongoing as work progresses on each RSA Phase IIA delivery increment. The current 1000+ item GFP list is too large to be included with this document but is available upon request.										
<u>Support and Management Property</u>										
N/A										
<u>Test and Evaluation Property</u>										
N/A										
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>	
Subtotal Product Development				171,650	37,633	50,844	62,739	TBD	TBD	
Subtotal Support and Management				13,892	10,670	33,529	2,358	TBD	TBD	
Subtotal Test and Evaluation										
Total Project				185,542	48,303	84,373	65,097	TBD	TBD	

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