

UNCLASSIFIED

PE NUMBER: 0305182F
PE TITLE: Spacelift Range System

| Exhibit R-2, RDT&E Budget Item Justification | | | | | | | | DATE February 2006 | |
|-------------------------------------------------------------|-------------------|---------------------|---------------------|---------------------------------------------------------------|---------------------|---------------------|---------------------|------------------------------|-------|
| BUDGET ACTIVITY 07 Operational System Development | | | | PE NUMBER AND TITLE 0305182F Spacelift Range System | | | | | |
| 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 | 46.056 | 49.081 | 38.044 | 27.045 | 12.408 | 10.168 | 10.301 | Continuing | TBD |
| 4137 Launch and Test Range System (LTRS) Modernization | 46.056 | 49.081 | 38.044 | 27.045 | 12.408 | 10.168 | 10.301 | Continuing | TBD |

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

The Eastern Range (ER) at Patrick Air Force Base (AFB), FL, and the Western Range (WR) at Vandenberg AFB, CA, make up the Spacelift Range System (SLRS). They provide tracking, telemetry, communications, flight analysis, and other capabilities necessary to safely conduct: national security, civil, and commercial spacelift operations; ballistic missile evaluations; and aeronautical and guided weapons tests. Many range assets are obsolete, unreliable, inefficient, and costly to operate and maintain. Reliability has been a major issue due to reliance on equipment such as 25-year old computers, 1960s vintage high frequency (HF) transmitters, wire-wrap circuit boards, etc. As a result, multiple assets are employed for redundancy during launches to ensure availability of range support.

The AF is addressing range deficiencies through two contracts. First, the Range Standardization and Automation (RSA) Phase IIA contract modernizes the control/display and communications segments at both ranges. Second, the SLRS Contract (SLRSC) modernizes instrumentation at both ranges. The SLRSC also provides overall systems engineering and architecture management, follow-on modernization of the control/display and communications segments, and system level testing to complete the modernization effort. The Air Force restructured the RSA IIA contract and added funding in FY06 through FY08 to complete modernization of weather, communications (voice, video, data, and timing; network management system; and digital telemetry), planning and scheduling, and flight operations and analysis systems (to include activation of the Western Range Operations Control Center).

These upgrades to fielded systems are categorized as Budget Activity 7, Operational Systems Development.

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

| | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> |
|--------------------------------------|----------------|----------------|----------------|
| (U) Previous President's Budget | 49.314 | 48.854 | 37.513 |
| (U) Current PBR/President's Budget | 46.056 | 49.081 | 38.044 |
| (U) Total Adjustments | -3.258 | 0.227 | |
| (U) Congressional Program Reductions | -1.638 | -0.062 | |
| Congressional Rescissions | | -0.711 | |
| Congressional Increases | | 1.000 | |
| Reprogrammings | -0.320 | | |
| SBIR/STTR Transfer | -1.300 | | |

(U) **Significant Program Changes:**

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| | | |
|------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|------------------------------|
| Exhibit R-2, RDT&E Budget Item Justification | | DATE February 2006 |
| BUDGET ACTIVITY 07 Operational System Development | PE NUMBER AND TITLE 0305182F Spacelift Range System | |
| <p>FY06: Congressional increase of \$1.0M for California Space Infrastructure Program continuity</p> | | |

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Exhibit R-2a, RDT&E Project Justification

DATE

February 2006

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305182F Spacelift Range System

PROJECT NUMBER AND TITLE

4137 Launch and Test Range System
(LTRS) Modernization

| 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 |
|-----------------------------------------------------------|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-------|
| 4137 Launch and Test Range System (LTRS) Modernization | 46.056 | 49.081 | 38.044 | 27.045 | 12.408 | 10.168 | 10.301 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |

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

The Eastern Range (ER) at Patrick Air Force Base (AFB), FL, and the Western Range (WR) at Vandenberg AFB, CA, make up the Spacelift Range System (SLRS). They provide tracking, telemetry, communications, flight analysis, and other capabilities necessary to safely conduct: national security, civil, and commercial spacelift operations; ballistic missile evaluations; and aeronautical and guided weapons tests. Many range assets are obsolete, unreliable, inefficient, and costly to operate and maintain. Reliability has been a major issue due to reliance on equipment such as 25-year old computers, 1960s vintage high frequency (HF) transmitters, wire-wrap circuit boards, etc. As a result, multiple assets are employed for redundancy during launches to ensure availability of range support.

The AF is addressing range deficiencies through two contracts. First, the Range Standardization and Automation (RSA) Phase IIA contract modernizes the control/display and communications segments at both ranges. Second, the SLRS Contract (SLRSC) modernizes instrumentation at both ranges. The SLRSC also provides overall systems engineering and architecture management, follow-on modernization of the control/display and communications segments, and system level testing to complete the modernization effort. The Air Force restructured the RSA IIA contract and added funding in FY06 through FY08 to complete modernization of weather, communications (voice, video, data, and timing; network management system; and digital telemetry), planning and scheduling, and flight operations and analysis systems (to include activation of the Western Range Operations Control Center).

These upgrades to fielded systems are categorized as Budget Activity 7, Operational Systems Development.

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

| | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|----------------|
| (U) Continue RSA Phase IIA. Continue development, test, and evaluation of RSA Phase IIA systems, including planning and scheduling, communications (voice, video, data, and timing; network management system; and digital telemetry), weather, and flight operations and analysis (to include activation of WR Operations Control Center). Develop upgrades needed to evolve and deliver operational range capabilities. Perform product engineering, integration efforts, engineering studies, and related tasks to support the architecture. | 19.612 | 26.230 | 20.176 |
| (U) Continue SLRSC. Continue systems engineering technical effort including architecture management, requirement management, systems integration, and engineering analyses. Develop specifications for SLRS systems. Integrate modernized instrumentation systems with legacy systems as well as systems developed by RSA Phase IIA. Develop, test, and evaluate: instrumentation to include command destruct, telemetry, and radars; and interfaces to establish the SLRS automated architecture and enable centralized and local control of instrumentation, to include activation of the WR Operations Control Center. | 18.538 | 20.181 | 16.248 |

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Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305182F Spacelift Range System

PROJECT NUMBER AND TITLE

4137 Launch and Test Range System
(LTRS) Modernization(U) **B. Accomplishments/Planned Program (\$ in Millions)**

| | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|----------------|
| (U) Provide program support for Systems Program Office (SPO). | 5.493 | 1.670 | 1.620 |
| (U) Partner with California Space Authority (CSA) to conduct California Space Infrastructure projects using funds added by Congress. FY05 projects are: Reservoir Assessment, Detection, & Response; and, California Space Infrastructure Program. FY06 project is California Space Infrastructure Program continuation. | 2.413 | 1.000 | |
| (U) Total Cost | 46.056 | 49.081 | 38.044 |

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

| | <u>FY 2005</u> <u>Actual</u> | <u>FY 2006</u> <u>Estimate</u> | <u>FY 2007</u> <u>Estimate</u> | <u>FY 2008</u> <u>Estimate</u> | <u>FY 2009</u> <u>Estimate</u> | <u>FY 2010</u> <u>Estimate</u> | <u>FY 2011</u> <u>Estimate</u> | <u>Cost to</u> <u>Complete</u> | <u>Total Cost</u> |
|-------------------------------------------------------|---------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------|
| (U) OPAF (Spacelift Range System Space, P-65, BA 03) | 101.611 | 106.542 | 120.450 | 141.011 | 101.881 | 104.068 | 105.438 | Continuing | TBD |
| (U) OPAF (Spares and Repair Parts, P-103, BA 05) | 1.397 | 2.723 | 2.807 | 2.895 | 2.954 | 2.997 | 3.046 | Continuing | TBD |

(U) **D. Acquisition Strategy**

The AF is using two competitively awarded, complementary contracts, managed by the Space and Missile Systems Center, to modernize the ranges on a minimal-interference basis, so the ranges can continue to operate in support of launches and tests.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305182F Spacelift Range System

PROJECT NUMBER AND TITLE

4137 Launch and Test Range System
(LTRS) Modernization

| (U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions) | <u>Contract</u> <u>Method &</u> <u>Type</u> | <u>Performing</u> <u>Activity &</u> <u>Location</u> | <u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u> | <u>FY 2005</u> <u>Cost</u> | <u>FY 2005</u> <u>Award</u> <u>Date</u> | <u>FY 2006</u> <u>Cost</u> | <u>FY 2006</u> <u>Award</u> <u>Date</u> | <u>FY 2007</u> <u>Cost</u> | <u>FY 2007</u> <u>Award</u> <u>Date</u> | <u>Cost to</u> <u>Complete</u> | <u>Total Cost</u> | <u>Target Value</u> <u>of Contract</u> |
|------------------------------------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------|------------------------------------------------------------------|-------------------------------|-----------------------------------------------|-------------------------------|-----------------------------------------------|-------------------------------|-----------------------------------------------|-----------------------------------|-------------------|-------------------------------------------|
| (U) <u>Product Development</u> | | | | | | | | | | | | |
| RSA Phase IIA | C/CPAF | Lockheed Martin, Santa Maria, CA | 237.947 | 19.612 | Nov-04 | 26.230 | Oct-05 | 20.176 | Oct-06 | Continuing | TBD | TBD |
| SLRSC | C/CPAF | ITT Industries, Cape Canaveral, FL | 99.862 | 18.538 | Oct-04 | 20.181 | Oct-05 | 16.248 | Oct-06 | Continuing | TBD | TBD |
| Subtotal Product Development | | | 337.809 | 38.150 | | 46.411 | | 36.424 | | Continuing | TBD | TBD |
| Remarks: | | | | | | | | | | | | |
| (U) <u>Support</u> | | | | | | | | | | | | |
| SPO Program Support (FFRDC, SETA, SPO Ops) | Various | Various | 28.621 | 5.493 | Oct-04 | 1.670 | Oct-05 | 1.620 | Oct-06 | Continuing | TBD | TBD |
| California Space Authority Studies/Projects | Various | Various | 30.013 | 2.413 | Jun-05 | 1.000 | Jun-06 | | | Continuing | TBD | TBD |
| Subtotal Support | | | 58.634 | 7.906 | | 2.670 | | 1.620 | | Continuing | TBD | TBD |
| Remarks: | | | | | | | | | | | | |
| (U) Total Cost | | | 396.443 | 46.056 | | 49.081 | | 38.044 | | Continuing | TBD | TBD |

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2006

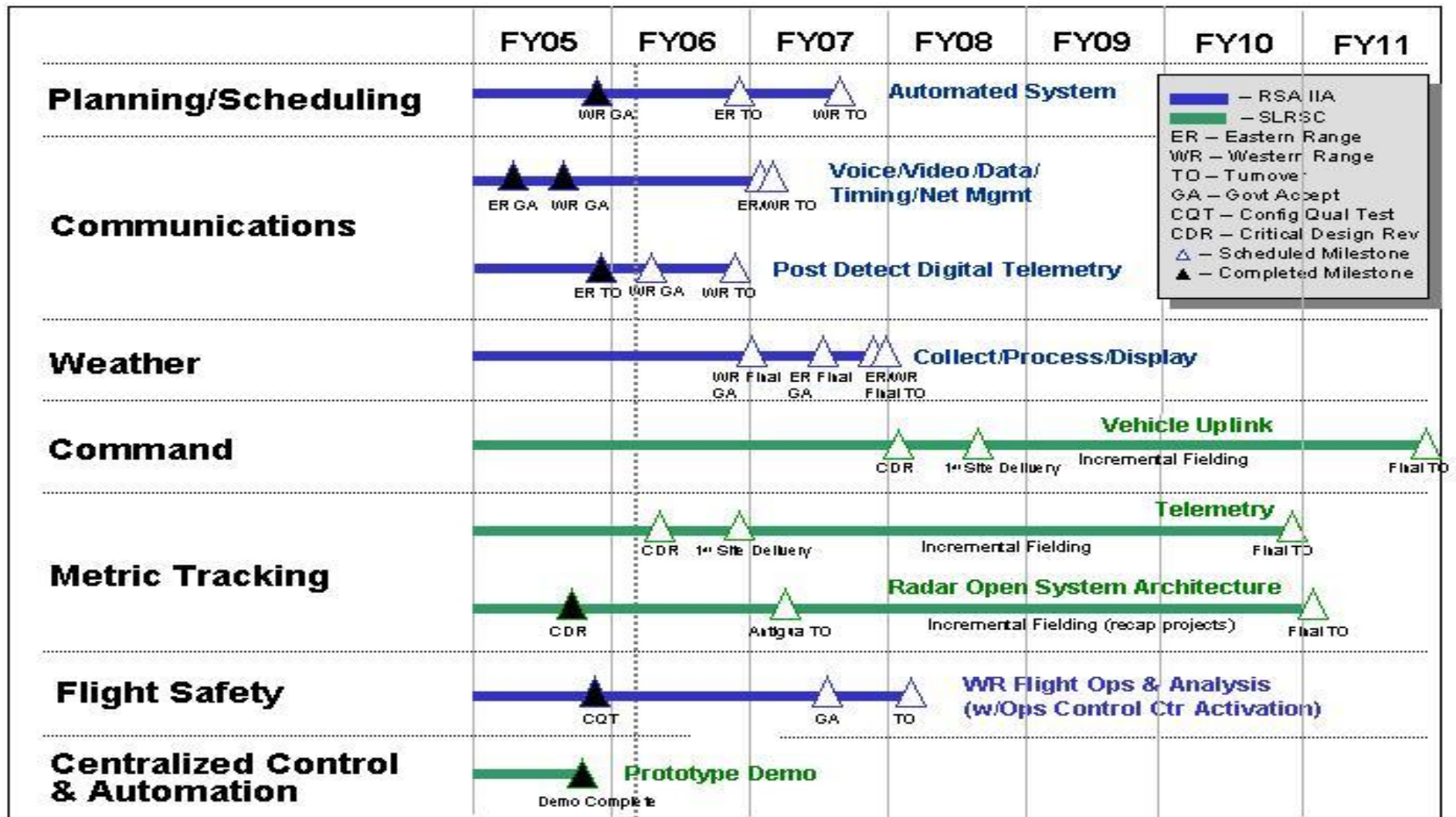
BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305182F Spacelift Range System

PROJECT NUMBER AND TITLE

4137 Launch and Test Range System
(LTRS) Modernization

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| Exhibit R-4a, RDT&E Schedule Detail | | | DATE | |
|-------------------------------------------------------------------------|---------------------------------|--------------------------------------------------------|----------------|----------------|
| | | | February 2006 | |
| BUDGET ACTIVITY | PE NUMBER AND TITLE | PROJECT NUMBER AND TITLE | | |
| 07 Operational System Development | 0305182F Spacelift Range System | 4137 Launch and Test Range System (LTRS) Modernization | | |
| (U) <u>Schedule Profile</u> | | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> |
| (U) RSA Phase IIA | | | | |
| (U) - Planning & Scheduling WR Govt Acceptance | | 4Q | | |
| (U) - Planning & Scheduling ER Operational Turnover | | | 4Q | |
| (U) - Planning & Scheduling WR Operational Turnover | | | | 3Q |
| (U) - Communications ER Final Govt Acceptance | | 2Q | | |
| (U) - Communications ER Final Operational Turnover | | | | 1Q |
| (U) - Communications WR Final Govt Acceptance | | 3Q | | |
| (U) - Communications WR Final Operational Turnover | | | | 2Q |
| (U) - Post Detect Digital Telemetry WR Govt Acceptance | | | 2Q | |
| (U) - Post Detect Digital Telemetry ER Operational Turnover | | 4Q | | |
| (U) - Post Detect Digital Telemetry WR Operational Turnover | | | 4Q | |
| (U) - Weather ER Final Govt Acceptance | | | | 3Q |
| (U) - Weather WR Final Govt Acceptance | | | | 1Q |
| (U) - Weather ER Final Turnover | | | | 4Q |
| (U) - Weather WR Final Turnover | | | | 4Q |
| (U) - WR Flight Operations and Analysis Qualification Testing | | 3Q | | |
| (U) - WR Flight Ops and Analysis Government Acceptance | | | | 3Q |
| (U) - WR Flight Ops and Analysis Operational Integration/Testing | | | | 4Q |
| (U) SLRS Contract | | | | |
| (U) - Telemetry Instrumentation CDR | | | 2Q | |
| (U) - Telemetry 1st Site Delivery | | | 4Q | |
| (U) - Radar 1st Site Operational Turnover | | | | 2Q |
| (U) California Space Authority Projects | | | | |
| (U) - Reservoir Assessment, Detection, and Response Contract Award | | 4Q | | |
| (U) - California Space Infrastructure Project Management Contract Award | | 3Q | 3Q | |
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