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BUDGET ACTIVITY
04 - Demonstration and Validation

PE NUMBER AND TITLE
0603851F ICBM - DEM/VAL

	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
	Total Program Element (PE) Cost	44,097	50,975	44,484	47,952	48,959	49,975	54,369	56,959	Continuing	TBD
1020	ICBM Guidance Applications	9,216	16,017	18,296	20,367	20,793	21,225	22,141	23,712	Continuing	TBD
1021	ICBM Propulsion Applications	168	176	1,676	1,656	1,691	1,725	4,635	4,743	Continuing	TBD
1022	ICBM Reentry Vehicle Applications	14,306	20,252	21,659	23,109	23,595	24,085	24,510	25,357	Continuing	TBD
1023	Rocket System Launch Program	18,185	12,121	31	31	32	33	34	35	Continuing	TBD
1024	ICBM Command & Control (C2) Applications	168	176	441	436	446	455	474	483	Continuing	TBD
4209	Long Range Planning (LRP)	2,054	2,233	2,381	2,353	2,402	2,452	2,575	2,629	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY00 and FY01: Congress appropriated, above and beyond that requested in the respective year President's Budget Submission, an additional $19,200K in FY00 and $12,200K in FY01 in Rocket System Launch Program (BPAC 641023). See Exhibit R-2, Para C. Program Change Summary, and Exhibit R-2A, BPAC 641023, Rocket System Launch Program -- both in this Program Element -- for details.
FY02: The following new tasks are being identified in this President's Budget Submission.
- ICBM Propulsion Applications (BPAC 1021) - task to demonstrate new propulsion system technologies.
- ICBM Command & Control (C2) Applications (BPAC 1024) - task to perform evaluations/analyses of alternative command and control networks.
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.

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(U) A. Mission Description

Efforts identify methods to reduce life cycle costs, improve nuclear safety and surety, support international arms control agreements and disengagement strategies, and ensure continued ICBM viability. Program includes demonstration and validation projects for ICBM guidance options, support for reentry vehicles beyond original design life, assessment of current and future ICBM propulsion systems, and development of enhancements to ensure command and control capabilities.

(U) B. Budget Activity Justification

This program is in Budget Activity 04 - Demonstration and Validation because the projects are demonstrating the general military utility and/or cost reduction potential of advanced technologies.

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

		FY 2000	FY 2001	FY 2002	Total Cost
(U)	Previous President's Budget (FY 2001 PBR)	47,075	39,246	44,231	TBD
(U)	Appropriated Value	47,828	51,446		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-373	-360		
	b. Small Business Innovative Research	-1,738			
	c. Omnibus or Other Above Threshold Reprogram				
	d. Below Threshold Reprogram	-1,433			
	e. Rescissions	-187	-111		
(U)	Adjustments to Budget Years Since FY 2001 PBR			253	
(U)	Current Budget Submit/FY 2002 PBR	44,097	50,975	44,484	TBD

(U) Significant Program Changes:

FY00:

- Includes a congressional add of $19,200K in the Rocket System Launch Program Project (BPAC 641023) to demonstrate quick launch capabilities.

FY01:

- Includes a congressional add of $12,200K in the Rocket System Launch Program Project (BPAC 641023) to demonstrate a quick reaction launch capability.

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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
1020 ICBM Guidance Applications	9,216	16,017	18,296	20,367	20,793	21,225	22,141	23,712	Continuing	TBD

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 ICBM Guidance Applications Project is required to meet on-going needs in applied strategic guidance systems and their subcomponents. This project ensures the continued readiness of our strategic deterrent forces in response to the Nuclear Posture Review, recommendations of the USSTRATCOM Strategic Advisory Group, CINCSTRATCOM guidance, and the Defense Science Board Task Force on Nuclear Deterrence. Efforts within this project are focused on current and future requirements, disengagement strategies, reduced life cycle costs, and increased nuclear surety and safety. These activities leverage the efforts of the Science and Technology community. The efforts are coordinated with the Navy guidance applications efforts so as to avoid duplication while realizing maximum return on the invested dollars. The key elements of the Guidance Applications Project are the continued preservation of the minimum critical technical skills and capabilities needed to respond to unexpected problems in the Minuteman guidance system, the assessment and mitigation of any degradation of aging hardware, and the development and analysis of future strategic guidance hardware. These unique guidance efforts will demonstrate utility and cost savings potential.

(U) FY 2000 ($ in Thousands)

(U) $2,614 Continued development of advanced inertial measurement unit (AIMU) concepts emphasizing mechanical, electrical, cooling, data interfaces, and in-flight updates. Performed tests and design changes for meeting performance, cost, and compatibility goals.

(U) $2,626 Continued development and testing of radiation hardened application-specific integrated circuits (ASICs) and a radiation hardened high throughput microprocessor for strategic weapon system requirements.

(U) $3,976 Continued development and testing of thrust axis accelerometer prototype to improve performance, design brass board electronics, and address radiation hardness environment impacts. Conducted initial design of microelectrical mechanical (MEMS) instruments and electronics for common strategic guidance system.

(U) $9,216 Total

(U) FY 2001 ($ in Thousands)

(U) $2,337 Complete development and test of AIMU concepts.

(U) $2,731 Continue follow-on development and demonstration of concepts for future common strategic guidance system technology.

(U) $3,090 Continue development of radiation hard ASICs and high throughput microprocessors for strategic applications.

(U) $4,858 Continue the design, test, and integration of thrust axis accelerometer.

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(U) A. Mission Description Continued

(U) FY 2001 ($ in Thousands) Continued

(U) $3,001 Continue design and development of micro-electrical mechanical (MEMS) instruments and electronics for common guidance system.

(U) $16,017 Total

The following net transactions are not reflected in the FY01 Program Total: BTR = -$1,113K and SBIR = -$54K. These transactions are not reflected in other sections of the R-Docs where an FY01 total is shown.

(U) FY 2002 ($ in Thousands)

(U) $5,533 Continue development and prototype of concepts for future common strategic guidance system technology.

(U) $3,176 Continue development of radiation hard ASICs and high throughput microprocessor.

(U) $7,762 Continue instrument development and test of alternate accelerometer technology for thrust axis accelerometer.

(U) $1,825 Continue design and prototype development of micro-electrical mechanical (MEMS) instruments and electronics for common guidance system.

(U) $18,296 Total

(U) B. Project Change Summary

FY01:

- The following net transactions are not reflected in the FY01 Program Total: BTR= -$1,113K and SBIR = -$54K.
- Reprogramming to meet higher AF priorities.
- The development of the MEMS silicon accelerometer will be delayed by one year.

(U) C. Other Program Funding Summary ($ 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
(U) None.										

(U) D. Acquisition Strategy

Accomplish studies, analyses, and limited engineering/pre-prototype hardware development. All efforts will be conducted under the ICBM Prime Integration Contractor unless other strategies are deemed more appropriate.

(U) E. Schedule Profile

	FY 2000	FY 2001	FY 2002

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(U) E. Schedule Profile Continued

		FY 2000				FY 2001				FY 2002			
		1	2	3	4	1	2	3	4	1	2	3	4
(U)	Resume/Complete Advanced IMU Integration Assessments	*							X				
(U)	Start/development/demonstration of future common system concepts					*							
(U)	Inertial Instrument Technology Development (Ongoing) - Progress Report				*				X				X
(U)	Radiation Hardened Parts Analysis (Ongoing) - Progress Report				*				X				X

* - Completed Event
X - Planned Event

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(U) A. Project Cost Breakdown ($ in Thousands)

		FY 2000	FY 2001	FY 2002
(U)	Advanced IMU Concepts	2,614	2,337	
(U)	Common System Concepts		2,731	5,533
(U)	Rad Hardness	2,626	3,090	3,176
(U)	Instruments	3,976	4,858	7,762
(U)	Micro Mechanical Electronics		3,001	1,825
(U)	Total	9,216	16,017	18,296

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

(U) Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Product Development Organizations										
TRW (Prime)	C/CPAF	Dec 97	Continuing	Continuing	11,496	9,156	15,957	18,236	Continuing	TBD
Support and Management Organizations										
Other Engineering Support	Various	As Req'd	Continuing	Continuing	3,335	60	60	60	Continuing	TBD
Test and Evaluation Organizations										

(U) Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Product Development Property									
None									
Support and Management Property									
None									

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(U) Government Furnished Property Continued:

Test and Evaluation Property

None

Subtotals	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Subtotal Product Development	11,496	9,156	15,957	18,236	TBD	TBD
Subtotal Support and Management	3,335	60	60	60	TBD	TBD
Subtotal Test and Evaluation						
Total Project	14,831	9,216	16,017	18,296	TBD	TBD

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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT 1021

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
1021 ICBM Propulsion Applications	168	176	1,676	1,656	1,691	1,725	4,635	4,743	Continuing	TBD

FY02: New task to demonstrate new propulsion system technologies initiated with this President's Budget Submission.

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

(U) The ICBM Propulsion Application Program sustains the ICBM strategic propulsion capability through projects exploring improvements and/or alternatives to current ICBM propulsion systems, conducting studies assessing application of new technology to meet future ICBM propulsion system requirements, assessing opportunities for applying common materials and technology between the ICBM and SLBM propulsion systems, and demonstrating application of technology developed by the Science and Technology community to the ICBM strategic systems.

(U) FY 2000 ($ in Thousands)
(U) $168 Conducted studies and assessment of technological developments in support of ICBM propulsion systems.
(U) $168 Total

(U) FY 2001 ($ in Thousands)
(U) $176 Continue studies and assessment of technological developments in support of ICBM propulsion systems.
(U) $176 Total

(U) FY 2002 ($ in Thousands)
(U) $357 Complete studies and assessments of technological developments in support of ICBM propulsion systems.
(U) $1,319 Begin design and evaluation through static-fire test demonstrations of AFRL technology in support of ICBM propulsion systems.
(U) $1,676 Total

(U) B. Project Change Summary

No significant changes.

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(U) C. Other Program Funding Summary ($ 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
(U) None										

(U) D. Acquisition Strategy

Studies, analyses, and motor ground test firings will be accomplished. All efforts will be conducted under the ICBM Prime Integration Contractor unless other strategies are deemed more appropriate.

(U) E. Schedule Profile

	FY 2000				FY 2001				FY 2002			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Conduct studies/assessments of tech development (start FY02,ongoing)	*											
(U) --Begin/Complete Annual Studies	*			*	*			X	X			X
(U) Design and evaluation of AFRL technology (start FY02, ongoing)									X			
(U) --Annual Progress Report												X

* - Completed Event
X - Planned Event

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(U) A. Project Cost Breakdown ($ in Thousands)

		FY 2000	FY 2001	FY 2002
(U)	Contract Engineering Support	168	176	1,676
(U)	Total	168	176	1,676

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

(U) Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Product Development Organizations										
TRW (Prime)	C/CPAF	Dec 97	Continuing	Continuing	332	133	169	1,666	Continuing	TBD
AFRL-Edwards	PO	Feb	30	30	0	30	0	0	0	30
Support and Management Organizations										
Prog Management	Various	As Req'd	Continuing	Continuing	34	5	7	10	Continuing	TBD
Test and Evaluation Organizations										
None										

(U) Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Product Development Property									
None									
Support and Management Property									
None									
Test and Evaluation Property									
None									

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Subtotals	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Subtotal Product Development	332	163	169	1,666	TBD	TBD
Subtotal Support and Management	34	5	7	10	TBD	TBD
Subtotal Test and Evaluation						
Total Project	366	168	176	1,676	TBD	TBD

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
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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
1022 ICBM Reentry Vehicle Applications	14,306	20,252	21,659	23,109	23,595	24,085	24,510	25,357	Continuing	TBD

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**

ICBM Reentry Vehicle (RV) Applications efforts are required to support the deployed ICBM force with emphases on implementing arms control treaties/initiatives directing the downloading of the Minuteman force to a single RV configuration, equipping the Minuteman force with the safest and most reliable RVs, and exploring options for satisfying future requirements. These efforts will support RVs beyond their original design life by addressing problems with operational reentry systems, meeting real on-going needs, and ensuring the availability of long-lead components/materials. This project will develop methods to better predict aging phenomena and identify life cycle cost reduction methods. A key element of the RV Applications efforts is the continued preservation of the minimum critical technical skill and capabilities needed to respond to unexpected problems, aging phenomena and future requirements. RV work conducted under this program will leverage the Science & Technology community investments and coordinate with Navy RV applications program to eliminate duplication and realize synergistic cost savings. Testing of program products is done on a space available basis on Minuteman and Peacekeeper FDE flights.

(U) FY 2000 ($ in Thousands)
(U) $5,436 Continued evaluation of RV material subsystems, materials aging, and material replacements by performing ground and flight tests.
(U) $3,463 Continued design, development, and prototype testing of selected fuze assessment/measurement methodologies.
(U) $750 Continued identifying and ground testing potential replacement options for critical RV components.
(U) $933 Continued to evaluate improved accuracy measurement and methodology.
(U) $1,746 Evaluated advanced common RV designs, applications, and technologies.
(U) $1,978 Developed and assessed RV Test & Evaluation methodologies and subsystems.
(U) $14,306 Total

(U) FY 2001 ($ in Thousands)
(U) $5,400 Continue evaluation of RV material subsystems, materials aging, and material replacements by performing ground and flight tests.
(U) $3,976 Continue design, development, and prototype testing of selected fuze assessment/measurement methodologies.
(U) $1,523 Continue identifying and ground testing potential replacement options for critical RV components.
(U) $1,205 Continue evaluation of improved accuracy measurement and methodology.
(U) $1,853 Evaluate alternate flight test experiment options.

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(U) A. Mission Description Continued

(U) FY 2001 ($ in Thousands) Continued

(U) $3,772 Continue evaluation of advanced common RV designs, applications, and technologies.

(U) $2,523 Continue development and assessment of RV Test & Evaluation methodologies and subsystems.

(U) $20,252 Total

The following net transactions are not reflected in the FY01 Program Total: BTR = -$1,359K and SBIR = -$69K. These transactions are not reflected in other sections of the R-Docs where an FY01 total is shown.

(U) FY 2002 ($ in Thousands)

(U) $5,469 Continue evaluation of RV material subsystems, materials aging, and material replacements by performing ground and flight tests.

(U) $4,026 Continue design, development, and prototype flight testing of selected fuze assessment/measurement.

(U) $1,594 Continue identifying and ground testing potential replacement options for critical RV components.

(U) $1,056 Continue evaluation of improved accuracy measurement and methodology.

(U) $3,229 Continue evaluation of alternate flight test experiment options.

(U) $3,790 Continue evaluation of advanced common RV Designs, applications, and technologies.

(U) $2,495 Continue development and assessment of RV Test & Evaluation methodologies and subsystems.

(U) $21,659 Total

(U) B. Project Change Summary

FY01:

- The following net transactions are not reflected in the FY01 Program Total: BTR = -$1,359 and SBIR = -$69K.
- Reprogrammings to meet higher AF priorities.
- The development/evaluation of advanced thermal protection materials/systems will be delayed at least a year.

(U) C. Other Program Funding Summary ($ 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
(U) None										

(U) D. Acquisition Strategy

Studies, analyses, limited engineering, and pre-prototype hardware development will be accomplished. All efforts will be conducted under the ICBM Prime Integration Contractor unless other strategies are deemed more appropriate.

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(U) **E. Schedule Profile**

		FY 2000				FY 2001				FY 2002			
		1	2	3	4	1	2	3	4	1	2	3	4
(U)	MATERIALS REPLACEMENT & AGING EVALUATION												
(U)	--Design, Develop & Test Selected Technologies (Began FY96, Ongoing)												
(U)	--Periodic Status Reports/Reviews		*		*		*		X		X		X
(U)	FUZE ASSESSMENT												
(U)	Design, Develop & Test Measurement Tools (Began FY96, Ongoing)												
(U)	--Periodic Status Reports/Reviews		*		*		*		X		X		X
(U)	CRITICAL COMPONENTS												
(U)	--Design, Develop & Test selected Technologies (Began FY96, Ongoing)												
(U)	--Periodic Status Reports/Reviews		*		*		*		X		X		X
(U)	RV TEST & EVALUATION METHODOLOGIES												
(U)	--Design, Develop & Test Methods/Subsystems (Began FY00, Ongoing)	*											
(U)	--Periodic Status Reports/Reviews				*		*		X		X		X
(U)	ACCURACY ASSESSMENT METHODOLOGY												
(U)	--Evaluate Accuracy Measurement Techniques (Began 1QFY96, Ongoing)												
(U)	--Periodic Status Reports/Reviews		*		*		*		X		X		X
(U)	ADVANCED COMMON RV DESIGNS, APPLICATIONS & TECHNOLOGIES												
(U)	--Identify & Evaluate Options (Ongoing)												
(U)	--Periodic Status Reports/Reviews		*		*		*		X		X		X
(U)	ALTERNATE FLIGHT TEST OPTIONS												
(U)	--Identify, Develop & Test Options (Begins FY01, Ongoing)					*							
(U)	--Periodic Status Reports/Reviews								X		X		X
(U)	FLIGHT TESTS								X			X	X

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(U) E. Schedule Profile Continued

		FY 2000				FY 2001				FY 2002		
	1	2	3	4	1	2	3	4	1	2	3	4

* - Completed Event
X - Planned Event

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(U) A. Project Cost Breakdown ($ in Thousands)

		FY 2000	FY 2001	FY 2002
(U)	Materials & Prediction Methodologies	5,436	5,400	5,469
(U)	Fuze Assessment	3,463	3,976	4,026
(U)	Identify/ground test critical components	750	1,523	1,594
(U)	Accuracy Assessment Measures Methodology	933	1,205	1,056
(U)	Evaluate Flight Test Experiments		1,853	3,229
(U)	Evaluate Advanced Common RV	1,746	3,772	3,790
(U)	Develop & Assess RV T&E Methods	1,978	2,523	2,495
(U)	Total	14,306	20,252	21,659

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

(U) Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Product Development Organizations										
TRW (Prime)	C/CPAF	Dec 97	Continuing	Continuing	8,183	13,733	18,702	20,149	Continuing	TBD
Support and Management Organizations										
Other Engineering & Management Support	Various	Ongoing	Continuing	Continuing	1,245	101	100	60	Continuing	TBD
Test and Evaluation Organizations										
Wright Lab	MIPR	Annual	Continuing	Continuing	861	174	450	450	Continuing	TBD
AEDC	PO	Annual	Continuing	Continuing	972	230	750	750	Continuing	TBD
Vandenberg AFB	PO	As Req'd	Continuing	Continuing	0	68	250	250	Continuing	TBD

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(U) Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Product Development Property									
None									
Support and Management Property									
None									
Test and Evaluation Property									
None									

Subtotals	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Subtotal Product Development	8,183	13,733	18,702	20,149	TBD	TBD
Subtotal Support and Management	1,245	101	100	60	TBD	TBD
Subtotal Test and Evaluation	1,833	472	1,450	1,450	TBD	TBD
Total Project	11,261	14,306	20,252	21,659	TBD	TBD

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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
1023	Rocket System Launch Program	18,185	12,121	31	31	32	33	34	35	Continuing	TBD

FY00: Congress appropriated an additional $19,200K to demonstrate quick launch capabilities.
FY01: Congress appropriated an additional $12,200K to demonstrate quick reaction launch capability.
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

This task supports studies/analyses on hardware for cost effective use of excess missile assets.

(U) FY 2000 ($ in Thousands)
(U) $32 Continued on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets.
(U) $18,153 Prepared for two quick reaction launch capability demonstrations; one in support of the Northern Edge Joint Training Exercise and the other as part of the Advanced Solid Axial Stage (ASAS) development effort.
(U) $18,185 Total

(U) FY 2001 ($ in Thousands)
(U) $34 Continue on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets.
(U) $10,087 Provide target launch vehicle in support of Northern Edge exercise and demonstrate common strategic missile technology.
(U) $2,000 Integrate Global Positioning System (GPS) range safety certification with Northern Edge target launch vehicle.
(U) $12,121 Total

(U) FY 2002 ($ in Thousands)
(U) $31 Continue on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets.
(U) $31 Total

(U) B. Project Change Summary

FY00: The $19,200K congressional add was used to demonstrate quick launch capabilities consistent with congressional language.
FY01: The $12,200K congressional add is being used for quick reaction launch capability demonstration(s) consistent with congressional language.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE June 2001
BUDGET ACTIVITY **04 - Demonstration and Validation**	PE NUMBER AND TITLE **0603851F ICBM - DEM/VAL**	PROJECT **1023**

(U) C. Other Program Funding Summary ($ 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
(U) Other APPN										
(U) None										
(U) Related RDT&E, AF										
PE 0605860F, RSLP (Space) (BA-06, R-097)										

(U) D. Acquisition Strategy

Studies and analyses will be performed primarily in-house augmented with contractor support as required. Special projects that might be funded under this project that require the development and/or evaluation of hardware along with the associated employment concepts will be awarded to qualified industry sources following open competition. Type contract used (e.g., CPIF, FPIF, etc) will be that deemed most advantageous to the government.

(U) E. Schedule Profile

	FY 2000				FY 2001				FY 2002			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) (U) Start/Complete Annual Studies/Analysis	*			*	*			X	X			X
(U) (U) Quick Reaction Launch Capability Demo (Start)		*										
(U) -- (U) Northern Edge launch						*						
(U) -- (U) ASAS launch (See note)								X				

Note: Hardware for ASAS flight tests developed/procured in PE 0605860F, RSLP (Space)

* - Completed Event

X - Planned Event

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE June 2001

BUDGET ACTIVITY **04 - Demonstration and Validation**

PE NUMBER AND TITLE **0603851F ICBM - DEM/VAL**

PROJECT **1023**

(U) A. Project Cost Breakdown ($ in Thousands)

		FY 2000	FY 2001	FY 2002
(U)	Studies/Analyses	32	34	31
(U)	Quick Reaction Launch Capability Demonstrations			
(U)	--Northern Edge Exercise Quick Reaction Launch	8,667	12,087	
(U)	--ASAS Quick Reaction Launch	9,486		
(U)	Total	18,185	12,121	31

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

(U) Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Product Development Organizations										
AF Research Lab	MIPR	Mar 97/Jun 00	2,742	2,742	1,744	150	848	0	0	2,742
Florida National Guard	MIPR	Jul 97/Jan 00	5,600	5,600	2,500	3,100	0	0	0	5,600
Various	Various	As Req'd	N/A	5,368	1,995	1,109	2,264	0	0	5,368
Space Vector	FFP	Jun 00	883	883	0	883	0	0	0	883
Draper Labs	CPFF	Apr 00	700	700	0	700	0	0	0	700
DTIC	MIPR	Mar 00	2,125	2,125	0	1,875	250	0	0	2,125
Orbital Sciences Corp	FFP	Feb 00/Jan 01	10,050	10,050	0	4,750	5,300	0	0	10,050
Kodiak Launch Complex	SS/FFP	Aug 00	1,405	1,405	0	505	900	0	0	1,405
OO-ALC/LM (ICBM SPO)	MIPR	Mar 00	752	752	0	641	111	0	0	752
Support and Management Organizations										
TRW	SS/T&M	As Req'd	N/A	N/A	4,077	2,912	1,114	0	Continuing	TBD
Various	Various	As Req'd	Continuing	Continuing	548	260	34	31	Continuing	TBD

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE June 2001

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603851F ICBM - DEM/VAL	1023

(U) Performing Organizations Continued:

Test and Evaluation Organizations

Pt Magu Missile Range	MIPR	Feb 00	2,600	2,600	0	1,300	1,300	0	0	2,600

(U) Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Product Development Property									
None									
Support and Management Property									
None									
Test and Evaluation Property									
None									

Subtotals	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Subtotal Product Development	6,239	13,713	9,673	0	0	29,625
Subtotal Support and Management	4,625	3,172	1,148	31	TBD	TBD
Subtotal Test and Evaluation	0	1,300	1,300	0	0	2,600
Total Project	10,864	18,185	12,121	31	TBD	TBD

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603851F ICBM - DEM/VAL	1024

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
1024 ICBM Command & Control (C2) Applications	168	176	441	436	446	455	474	483	Continuing	TBD

FY02: Begin new task to perform evaluations/analyses of alternative command and control network.

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

To maintain the ICBM weapon systems as a credible deterrent to a hostile attack requires an extremely high confidence in the command and control (C2) systems providing connectivity to the National Command Authority (NCA). To ensure the ICBMs can be tasked in all manners of hostile environments requires assured, survivable, and secure channels of communication to the missile Launch Control Centers (LCCs). While assured connectivity is mandated for ICBMs, ways must be found to make the C2 systems cost effective. Continuing studies are needed to identify existing and future technologies as well as concepts that exploit state-of-the-art communications and information transfer techniques that will guarantee the required C2 support to both the current ICBM mission and those ICBM systems and missions that will evolve in the 21st century. This program accomplishes studies, demonstrations, and tests to ensure future ICBM C2 architectures, networks, and systems evolve in a planned, orderly, and cost effective manner while meeting the stringent requirements of nuclear command and control.

(U) FY 2000 ($ in Thousands)
(U) $168 Studied alternatives and future concepts for a command and control (C2) system architecture supporting ballistic missile applications.
(U) $168 Total

(U) FY 2001 ($ in Thousands)
(U) $176 Continue to develop and refine alternatives and concepts for a command and control (C2) system architecture supporting strategic missile applications.
(U) $176 Total

(U) FY 2002 ($ in Thousands)
(U) $198 Continue to develop and refine alternatives and concepts for a command and control (C2) system architecture supporting strategic missile applications.
(U) $243 Begin demonstrations, testing and evaluation of alternative network architectures, applications, and technologies.
(U) $441 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001	
BUDGET ACTIVITY **04 - Demonstration and Validation**	PE NUMBER AND TITLE **0603851F ICBM - DEM/VAL**	PROJECT **1024**

(U) B. Project Change Summary

No significant changes.

(U) C. Other Program Funding Summary ($ 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
(U) None										

(U) D. Acquisition Strategy

Studies and analyses, and limited engineering and pre-prototype hardware development will be accomplished. All efforts will be conducted under the ICBM Prime Integration Contract unless other strategies are deemed more appropriate.

(U) E. Schedule Profile

	FY 2000				FY 2001				FY 2002			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Future Concepts Study for Command & Control (Ongoing)	*											
(U) --Periodic Progress Reports/Reviews				*		*		X		X		X
(U) Begin demonstrations, test, and evaluations of alternate networks									X			
(U) --Periodic Progress Reports/Reviews												X

* - Completed Event

X - Planned Event

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE June 2001

BUDGET ACTIVITY **04 - Demonstration and Validation**

PE NUMBER AND TITLE **0603851F ICBM - DEM/VAL**

PROJECT **1024**

(U) A. Project Cost Breakdown ($ in Thousands)

		FY 2000	FY 2001	FY 2002
(U)	Contract Engineering Support	168	176	441
(U)	Total	168	176	441

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

(U) Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Product Development Organizations										
TRW (Prime)	C/CPAF	Dec 97	Continuing	Continuing	1,628	164	172	436	Continuing	TBD
Support and Management Organizations										
Various	Various	As Req'd	N/A	N/A	14	4	4	5	Continuing	TBD
Test and Evaluation Organizations										
None										

(U) Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Product Development Property									
None									
Support and Management Property									
None									
Test and Evaluation Property									
None									

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE
June 2001

BUDGET ACTIVITY
04 - Demonstration and Validation

PE NUMBER AND TITLE
0603851F ICBM - DEM/VAL

PROJECT
1024

Subtotals	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Subtotal Product Development	1,628	164	172	436	TBD	TBD
Subtotal Support and Management	14	4	4	5	TBD	TBD
Subtotal Test and Evaluation						
Total Project	1,642	168	176	441	TBD	TBD

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603851F ICBM - DEM/VAL	4209

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
4209 Long Range Planning (LRP)	2,054	2,233	2,381	2,353	2,402	2,452	2,575	2,629	Continuing	TBD

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 Long Range Planning (LRP) task analyzes ICBM systems to identify potential modifications required to meet user objectives relative to long term sustainment, technology insertion, employment, and force structure. The studies focus on system supportability, operability, reliability, and maintainability. Options/concepts generated by these studies are evaluated for feasibility, system impacts, and cost.

(U) FY 2000 ($ in Thousands)

(U) $505 Continued support of Long Range Planning tasks, development of the Systems Options Report, and updated of the Logistics Program Management Plan and the ICBM Master Plan.

(U) $817 Continued to perform feasibility and life extension studies.

(U) $732 Continued to perform technology insertion studies in support of changing ICBM environments.

(U) $2,054 Total

(U) FY 2001 ($ in Thousands)

(U) $505 Continue support of Long Range Planning tasks, development of the Systems Options Report, and update of the Logistics Program Management Plan and the ICBM Master Plan.

(U) $945 Continue to perform feasibility and life extension studies.

(U) $783 Continue to perform technology insertion studies in support of changing ICBM environments.

(U) $2,233 Total

(U) FY 2002 ($ in Thousands)

(U) $495 Continue support of Long Range Planning tasks, development of the Systems Options Report, and update of the Logistics Program Management Plan and the ICBM Master Plan.

(U) $1,069 Continue to perform feasibility and life extension studies.

(U) $817 Continue to perform technology insertion studies in support of changing ICBM environments.

(U) $2,381 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE June 2001
BUDGET ACTIVITY **04 - Demonstration and Validation**	PE NUMBER AND TITLE **0603851F ICBM - DEM/VAL**	PROJECT **4209**

(U) B. Project Change Summary

No significant changes.

(U) C. Other Program Funding Summary ($ 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
(U) None										

(U) D. Acquisition Strategy

Studies and analyses will be accomplished. Efforts will be conducted using contracting strategies deemed most appropriate.

(U) E. Schedule Profile

	FY 2000				FY 2001				FY 2002			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Contract Award for Annual Studies/Analyses	*				*				X			
(U) Program Reviews		*	*			*	*			X	X	
(U) Reports Received				*				X				X

* - Completed Event
X - Planned Event

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE June 2001

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603851F ICBM - DEM/VAL	4209

(U) A. Project Cost Breakdown ($ in Thousands)

		FY 2000	FY 2001	FY 2002
(U)	Long Range Planning Tasks	505	505	495
(U)	Feasibility Studies	817	945	1,069
(U)	Technology Insertion Studies	732	783	817
(U)	Total	2,054	2,233	2,381

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

(U) Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Product Development Organizations										
TRW (Prime)	C/CPAF	Dec 97	N/A	N/A	894	1,533	1,995	468	Continuing	TBD
Alliant	SS/CPAF	Dec 99	N/A	N/A		40				40
McCallie	SS/C/FFP	Nov 99	N/A	N/A		128	99			227
TBD	TBD	Annually	N/A	N/A				1,759	Continuing	TBD
Support and Management Organizations										
Various	Various	Ongoing	N/A	N/A	1,855	353	139	154	Continuing	TBD
Test and Evaluation Organizations										
None										

(U) Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Product Development Property									
None									

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603851F ICBM - DEM/VAL	4209

(U) **Government Furnished Property Continued:**

Support and Management Property

None

Test and Evaluation Property

None

Subtotals	Total Prior to FY 2000	Budget FY 2000	Budget FY 2001	Budget FY 2002	Budget to Complete	Total Program
Subtotal Product Development	894	1,701	2,094	2,227	TBD	TBD
Subtotal Support and Management	1,855	353	139	154	TBD	TBD
Subtotal Test and Evaluation						
Total Project	2,749	2,054	2,233	2,381	TBD	TBD