

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL					
COST (\$ in Thousands)	FY 2001 Actual	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	48,216	47,519	63,025	54,198	63,907	471,897	627,339	Continuing	TBD
1020 ICBM Guidance Applications	14,835	18,109	24,924	20,574	24,737	23,378	21,023	Continuing	TBD
1021 ICBM Propulsion Applications	176	1,650	4,345	4,414	4,536	4,587	4,684	Continuing	TBD
1022 ICBM Reentry Vehicle Applications	18,699	21,439	24,901	21,090	24,737	23,546	22,450	Continuing	TBD
1023 Rocket System Launch Program	12,116	3,531	31	32	33	34	35	Continuing	TBD
1024 ICBM Command & Control (C2) Applications	170	436	1,433	443	451	469	477	Continuing	TBD
4209 Long Range Planning (LRP)	2,220	2,354	7,391	7,645	9,413	419,883	578,670	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

Note 1: In FY 2003, Projects 1020, Guidance Applications; 1021, ICBM Propulsion Applications; and 4209, Long Range Planning, include new start efforts.

Note 2: In FY 2003, ICBM Dem/Val anticipates receiving \$7.5M from the Cost of War Transfer Account. These funds are not included in the FY03 Air Force baseline. Funding will be used to support broader, intensified Solid Rocket Motor planning and design activities leading to a more aggressive full-scale static test fire demonstration of technologies relevant to the strategic environment.

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<p>(U) <u>A. Mission Description</u> This program's 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.</p>																																																											
<p>(U) <u>B. Budget Activity Justification</u> 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.</p>																																																											
<p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table border="0"> <thead> <tr> <th></th> <th align="right"><u>FY 2001</u></th> <th align="right"><u>FY 2002</u></th> <th align="right"><u>FY 2003</u></th> <th align="right"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td align="right">50,975</td> <td align="right">44,484</td> <td align="right">47,952</td> <td align="right">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td align="right">51,446</td> <td align="right">47,984</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td align="right">-365</td> <td align="right">-465</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td align="right">-123</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td align="right">-2,630</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td align="right">-112</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2002 PBR</td> <td></td> <td></td> <td align="right">15,073</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2003 PBR</td> <td align="right">48,216</td> <td align="right">47,519</td> <td align="right">63,025</td> <td align="right">TBD</td> </tr> </tbody> </table>						<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget	50,975	44,484	47,952	TBD	(U) Appropriated Value	51,446	47,984			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-365	-465			b. Small Business Innovative Research	-123				c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram	-2,630				e. Rescissions	-112				(U) Adjustments to Budget Years Since FY 2002 PBR			15,073		(U) Current Budget Submit/FY 2003 PBR	48,216	47,519	63,025	TBD
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<p>(U) <u>Significant Program Changes:</u> FY01: \$2,630K BTR includes \$1,182 from the ICBM Guidance Applications Project (1020) and \$1,448 from the ICBM Reentry Vehicle Applications Project (1022) for higher Air Force priorities. FY02: Includes a Congressional add of \$3,500K in the Rocket System Launch Project (1023) to support a Northern Edge Exercise activity. FY03: Includes adjustments to ICBM Guidance Applications, ICBM Propulsion Applications, ICBM Reentry Vehicle Applications and Long Range Planning to meet funding goals. See individual project R-2A Exhibits for details.</p>																																																											

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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT 1020
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COST (\$ in Thousands)	FY 2001 Actual	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	14,835	18,109	24,924	20,574	24,737	23,378	21,023	Continuing	TBD

Note: In FY 2003, this project includes new start efforts to assess guidance flight test experiment options.

(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 2001 (\$ in Thousands)

- (U) \$2,337** Completed development and testing of advanced inertial measurement unit (AIMU) concepts.
- (U) \$2,731** Continued follow-on development and demonstration of concepts for future common strategic guidance system technology.
- (U) \$3,090** Continued development of radiation hard application-specific integrated circuits (ASICs) and high throughput microprocessors for strategic applications.
- (U) \$4,858** Continued the design, test, and integration of thrust axis accelerometer.
- (U) \$1,819** Continued design and development of micro-electrical mechanical (MEMs) instruments and electronics for common guidance system.
- (U) \$14,835** Total

(U) FY 2002 (\$ in Thousands)

- (U) \$5,346** Continue development and prototype of concepts for future common strategic guidance system technology.
- (U) \$3,176** Continue development of radiation hard application-specific integrated circuits (ASICs) and high throughput microprocessor.
- (U) \$9,587** Continue development and test of alternate instrument technology (e.g. Accelerometer, Gyro, MEMs).
- (U) \$18,109** Total

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BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1020		
(U) <u>A. Mission Description Continued</u>										
(U) <u>FY 2003 (\$ in Thousands)</u>										
(U) \$7,247 Continue development and prototype of concepts for future common strategic guidance system technology.										
(U) \$3,499 Continue assessment, evaluation and test of radiation hard electronics for strategic guidance applications.										
(U) \$8,800 Continue development and test of alternate instrument technology (e.g. Accelerometer, Gyro, MEMs).										
(U) \$5,378 Assess and evaluate flight test experiment options to demonstrate future strategic guidance system concepts.										
(U) \$24,924 Total										
(U) <u>B. Project Change Summary</u>										
FY03: Funding added to meet Scientific Advisory Group (SAG) objectives for guidance technology.										
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</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>Complete</u>		
(U) None.										
(U) <u>D. Acquisition Strategy</u>										
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) <u>E. Schedule Profile</u>										
		<u>FY 2001</u>				<u>FY 2002</u>			<u>FY 2003</u>	
		1	2	3	4	1	2	3	4	
(U) Complete Advanced IMU Integration Assessments *										
(U) Development/Demonstration of Future Common System Concepts (Ongoing) *										
(U) -- Progress Reports * X X										
(U) Alternate Instrument Technology Development (Ongoing) - Progress Report * X X										
(U) Radiation Hardened Parts Analysis (Ongoing) - Progress Report * X X										
(U) Flight Test Options Analysis Progress Report X										
Project 1020			Page 4 of 28 Pages				Exhibit R-2A (PE 0603851F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 2002					
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
04 - Demonstration and Validation				0603851F ICBM - DEM/VAL			1020				
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Advanced IMU Concepts					2,337					
(U)	Common System Concepts					2,731		5,346		7,247	
(U)	Radiation Hardness					3,090		3,176		3,499	
(U)	Alternate instrument technology (e.g. Accelerometer, Gyro, MEMs).					6,677		9,587		8,800	
(U)	Flight Test Options Analysis									5,378	
(U)	Total					14,835		18,109		24,924	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<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 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	TRW (Prime)	C/CPAF	Dec 97	Continuing	Continuing	20,652	14,775	18,049	24,864	Continuing	TBD
	<u>Support and Management Organizations</u>										
	Other Engineering Support	Various	As Req'd	Continuing	Continuing	3,395	60	60	60	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>Date</u>							
	None										
	<u>Support and Management Property</u>										
	None										
Project 1020						Page 6 of 28 Pages	Exhibit R-3 (PE 0603851F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 2002	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Demonstration and Validation		0603851F ICBM - DEM/VAL			1020	
(U) <u>Government Furnished Property Continued:</u>						
<u>Test and Evaluation Property</u>						
None						
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
						<u>Total</u>
	<u>Subtotals</u>					<u>Program</u>
	Subtotal Product Development	20,652	14,775	18,049	24,864	TBD
	Subtotal Support and Management	3,395	60	60	60	TBD
	Subtotal Test and Evaluation					
	Total Project	24,047	14,835	18,109	24,924	TBD

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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT 1021
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COST (\$ in Thousands)	FY 2001 Actual	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	176	1,650	4,345	4,414	4,536	4,587	4,684	Continuing	TBD

Note: In FY 2003, this project includes new start efforts to assess ICBM propulsion technology development.

(U) A. Mission Description

(U) The ICBM Propulsion Application Program develops 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 2001 (\$ in Thousands)

- (U) \$176 Continued 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 continue assessments of technological developments in support of ICBM propulsion systems.
- (U) \$1,293 Design and evaluate through static-fire test demonstrations of Air Force Research Laboratory (AFRL) technology in support of ICBM propulsion systems.
- (U) \$1,650 Total

(U) FY 2003 (\$ in Thousands)

- (U) \$160 Conduct assessments of technology developments in support of ICBM propulsion systems.
- (U) \$2,665 Design and evaluate solid propulsion technologies for application to ICBM subsystems through analysis and tests leading to static-fire demonstrations.
- (U) \$400 Define ordnance demo requirements and continue subsystem design and material/component testing.
- (U) \$520 Conduct post-boost propulsion design and evaluation of advanced technologies to support ICBM applications.
- (U) \$600 Conduct assessments and demonstration of advanced service life prediction technology in ICBM propulsion subsystems.
- (U) \$4,345 Total

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<p>(U) <u>B. Project Change Summary</u> FY03: Funding increased to support Nuclear Posture Review (NPR) requirement and ensure viability of solid rocket propulsion technology base.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:10%;"><u>FY 2001</u></th> <th style="width:10%;"><u>FY 2002</u></th> <th style="width:10%;"><u>FY 2003</u></th> <th style="width:10%;"><u>FY 2004</u></th> <th style="width:10%;"><u>FY 2005</u></th> <th style="width:10%;"><u>FY 2006</u></th> <th style="width:10%;"><u>FY 2007</u></th> <th style="width:10%;"><u>Cost to</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td style="text-align: center;"><u>Actual</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) None</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> Studies, analyses, and motor ground test firings will be accomplished. 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Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th colspan="3" style="text-align: center;"><u>FY 2001</u></th> <th colspan="3" style="text-align: center;"><u>FY 2002</u></th> <th colspan="3" style="text-align: center;"><u>FY 2003</u></th> </tr> <tr> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> </thead> <tbody> <tr> <td>(U) Studies/Assessments of technology developments</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) --Begin/Complete Annual Studies</td> <td></td><td></td><td style="text-align: center;">*</td><td></td><td></td><td></td><td></td><td></td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td></td><td style="text-align: center;">X</td> </tr> <tr> <td>(U) Solid stage demo design and evaluation of solid propulsion technology</td> <td></td><td></td><td></td><td></td><td></td><td></td><td style="text-align: center;">*</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) --Periodic Status Report/Reviews</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td style="text-align: center;">X</td><td></td><td style="text-align: center;">X</td><td></td><td style="text-align: center;">X</td> </tr> <tr> <td>(U) Ordnance demo design and evaluation of technologies</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) --Periodic Status Report/Reviews</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td style="text-align: center;">X</td><td></td><td style="text-align: center;">X</td> </tr> <tr> <td>(U) Post-boost propulsion design and evaluation of technologies</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) --Periodic Status Report/Reviews</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td style="text-align: center;">X</td><td></td><td style="text-align: center;">X</td> </tr> <tr> <td>(U) Studies/assessments of advanced service life prediction technologies</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) --Periodic Status Report/Reviews</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td style="text-align: center;">X</td><td></td><td style="text-align: center;">X</td> </tr> </tbody> </table> <p>* - Completed Event X - Planned Event</p>											<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>Complete</u>		(U) None											<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) Studies/Assessments of technology developments													(U) --Begin/Complete Annual Studies			*						X	X		X	(U) Solid stage demo design and evaluation of solid propulsion technology							*						(U) --Periodic Status Report/Reviews								X		X		X	(U) Ordnance demo design and evaluation of technologies													(U) --Periodic Status Report/Reviews										X		X	(U) Post-boost propulsion design and evaluation of technologies													(U) --Periodic Status Report/Reviews										X		X	(U) Studies/assessments of advanced service life prediction technologies													(U) --Periodic Status Report/Reviews										X		X
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Project 1021			Page 9 of 28 Pages				Exhibit R-2A (PE 0603851F)																																																																																																																																																																																									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
04 - Demonstration and Validation				0603851F ICBM - DEM/VAL				1021			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Contract Engineering Support					176		357		0	
(U)	Studies/Assessments of technology developments									160	
(U)	Solid stage demo design and evaluation of solid propulsion technologies							1,293		2,665	
(U)	Ordnance demo design and evaluation of technologies									400	
(U)	Post-boost propulsion design and evaluation of technologies									520	
(U)	Studies/assessments of advanced service life prediction technologies									600	
(U)	Total					176		1,650		4,345	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<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 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	TRW (Prime)	C/CPAF	Dec 97	Continuing	Continuing	465	169	1,640	4,245	Continuing	TBD
	AFRL-Edwards	PO	TBD	30	30	30	0	0	0	0	30
	<u>Support and Management Organizations</u>										
	Prog Management	Various	As Req'd	Continuing	Continuing	39	7	10	100	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
	None										
(U) Government Furnished Property:											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002		
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation				0603851F ICBM - DEM/VAL			1021		
(U) <u>Government Furnished Property Continued:</u>									
	<u>Contract</u>	<u>Award or</u>							
<u>Item</u>	<u>Method/Type</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>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
Subtotal Product Development					495	169	1,640	4,245	TBD
Subtotal Support and Management					39	7	10	100	TBD
Subtotal Test and Evaluation									
Total Project					534	176	1,650	4,345	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002			
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1022			
COST (\$ in Thousands)		FY 2001 Actual	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	18,699	21,439	24,901	21,090	24,737	23,546	22,450	Continuing	TBD	
<p>(U) <u>A. Mission Description</u> ICBM Reentry Vehicle (RV) Applications efforts support the deployed ICBM force with emphasis on the capability to implement arms control treaties/initiatives which direct the Minuteman force to a single RV configuration. The RV Applications efforts also equip the Minuteman force with the safest and most reliable RVs and explore options to meet future requirements. These efforts 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 develops 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 skills 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. Program products are tested on a space available basis on Minuteman and Peacekeeper FDE flights.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$5,400 Continued evaluation of RV material subsystems, materials aging, and material replacements by performing ground and flight tests.</p> <p>(U) \$3,276 Continued design, development, and prototype testing of selected fuze assessment/measurement methodologies.</p> <p>(U) \$1,523 Continued identification and ground testing of potential replacement options for critical RV components.</p> <p>(U) \$1,205 Continued evaluation of improved accuracy measurements and methodologies.</p> <p>(U) \$1,853 Evaluated alternate flight test experiment options.</p> <p>(U) \$3,019 Continued evaluation of advanced common RV designs, applications, and technologies.</p> <p>(U) \$2,423 Continued development and assessment of RV Test & Evaluation methodologies and subsystems.</p> <p>(U) \$18,699 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$5,249 Continue evaluation of RV material subsystems, materials aging, and material replacements by performing ground and flight tests.</p> <p>(U) \$4,026 Continue design, development, and prototype flight testing of selected fuze assessment/measurement.</p> <p>(U) \$1,594 Continue identification and ground testing of potential replacement options for critical RV components.</p> <p>(U) \$1,056 Continue evaluation of improved accuracy measurements and methodologies.</p>											
Project 1022				Page 12 of 28 Pages				Exhibit R-2A (PE 0603851F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2002																																						
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT 1022																																						
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands) Continued</u></p> <p>(U) \$3,229 Continue evaluation of alternate flight test experiment options.</p> <p>(U) \$3,790 Continue evaluation of advanced common RV designs, applications, and technologies.</p> <p>(U) \$2,495 Continue development and assessment of RV Test & Evaluation methodologies and subsystems.</p> <p>(U) \$21,439 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$5,445 Continue evaluation of RV material subsystems, materials aging, and material replacements by performing ground and flight tests.</p> <p>(U) \$2,746 Continue design, development, and prototype flight testing of selected fuze assessment/measurement.</p> <p>(U) \$1,254 Continue identification and ground testing of potential replacement options for critical RV components.</p> <p>(U) \$756 Continue evaluation of improved accuracy measurements and methodologies.</p> <p>(U) \$4,764 Continue evaluation of alternate flight test experiment options.</p> <p>(U) \$5,246 Continue evaluation of advanced common RV designs, applications, and technologies.</p> <p>(U) \$4,690 Continue development and assessment of RV Test & Evaluation methodologies and subsystems.</p> <p>(U) \$24,901 Total</p> <p>(U) <u>B. Project Change Summary</u> FY03: Funding adjusted to meet Scientific Advisory Group (SAG) objectives for sustainment of reentry vehicle technologies.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>FY 2003</u></th> <th style="width: 10%; text-align: center;"><u>FY 2004</u></th> <th style="width: 10%; text-align: center;"><u>FY 2005</u></th> <th style="width: 10%; text-align: center;"><u>FY 2006</u></th> <th style="width: 10%; text-align: center;"><u>FY 2007</u></th> <th style="width: 10%; text-align: center;"><u>Cost to</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td style="text-align: center;"><u>Actual</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) None</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> 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.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 20%; text-align: center;"><u>FY 2001</u></th> <th style="width: 20%; text-align: center;"><u>FY 2002</u></th> <th style="width: 20%; text-align: center;"><u>FY 2003</u></th> </tr> </thead> <tbody> <tr> <td>Project 1022</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				<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>Complete</u>		(U) None											<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	Project 1022			
	<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>Complete</u>																																
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Project 1022																																								
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
04 - Demonstration and Validation					0603851F ICBM - DEM/VAL					1022			
(U) <u>E. Schedule Profile Continued</u>													
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U)	Materials Replacement & Aging Evaluations												
(U)	--Periodic Status Reports/Reviews												
(U)	Fuze Assessment/Measurement Tool Development												
(U)	--Periodic Status Reports/Reviews												
(U)	Critical Components Evaluations												
(U)	--Periodic Status Reports/Reviews												
(U)	RV Test & Evaluation Methodologies Development												
(U)	--Periodic Status Reports/Reviews												
(U)	Accuracy Assessment Methodologies Development												
(U)	--Periodic Status Reports/Reviews												
(U)	Advanced Common RV Designs, Applications & Technologies Evaluations												
(U)	--Periodic Status Reports/Reviews												
(U)	Alternate Flight Test Options Development												
(U)	--Periodic Status Reports/Reviews												
(U)	Flight Tests												
	* - Completed Event X - Planned Event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation					0603851F ICBM - DEM/VAL			1022		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Evaluate Materials Subsystems and Replacements					5,400		5,249		5,445
(U)	Fuze Assessment					3,276		4,026		2,746
(U)	Identify/Ground Test Critical Components					1,523		1,594		1,254
(U)	Accuracy Assessment Measures/Methodologies					1,205		1,056		756
(U)	Flight Test Experiments Options					1,853		3,229		4,764
(U)	Evaluate Advanced Common RV					3,019		3,790		5,246
(U)	Develop & Assess RV T&E Methods					2,423		2,495		4,690
(U)	Total					18,699		21,439		24,901
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
TRW (Prime)	C/CPAF	Dec 97	Continuing	Continuing	21,916	17,266	19,929	23,341	Continuing	TBD
<u>Support and Management Organizations</u>										
Other Engineering & Management Support	Various	Ongoing	Continuing	Continuing	1,346	100	60	60	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Wright Lab	MIPR	Annual	Continuing	Continuing	1,035	555	450	500	Continuing	TBD
AEDC	PO	Annual	Continuing	Continuing	1,202	700	750	750	Continuing	TBD
Vandenberg AFB	PO	As Req'd	Continuing	Continuing	68	78	250	250	Continuing	TBD
Project 1022					Page 15 of 28 Pages			Exhibit R-3 (PE 0603851F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002		
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation				0603851F ICBM - DEM/VAL			1022		
(U) <u>Government Furnished Property:</u>									
	<u>Contract</u>	<u>Award or</u>							
<u>Item</u>	<u>Method/Type</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>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
Subtotal Product Development					21,916	17,266	19,929	23,341	TBD
Subtotal Support and Management					1,346	100	60	60	TBD
Subtotal Test and Evaluation					2,305	1,333	1,450	1,500	TBD
Total Project					25,567	18,699	21,439	24,901	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002																					
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1023																					
	FY 2001 Actual	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	12,116	3,531	31	32	33	34	35	Continuing	TBD																				
<p>(U) <u>A. Mission Description</u> This task supports studies/analyses on hardware for cost effective use of excess missile assets.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$34 Continued on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets. (U) \$10,082 Provided target launch vehicle in support of Northern Edge exercise and demonstrated common strategic missile technology. (U) \$2,000 Integrated Global Positioning System (GPS) range safety certification with Northern Edge target launch vehicle. (U) \$12,116 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$31 Continue on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets. (U) \$3,500 Provide operational support of Northern Edge exercise and demonstrate common strategic missile technology. (U) \$3,531 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (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</p> <p>(U) <u>B. Project Change Summary</u> FY02: Includes a Congressional add of \$3.5M to support Northern Edge Exercise activity.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;"></td> <td style="width:10%; text-align: center;"><u>FY 2001</u></td> <td style="width:10%; text-align: center;"><u>FY 2002</u></td> <td style="width:10%; text-align: center;"><u>FY 2003</u></td> <td style="width:10%; text-align: center;"><u>FY 2004</u></td> <td style="width:10%; text-align: center;"><u>FY 2005</u></td> <td style="width:10%; text-align: center;"><u>FY 2006</u></td> <td style="width:10%; text-align: center;"><u>FY 2007</u></td> <td style="width:10%; text-align: center;"><u>Cost to</u></td> <td style="width:10%; text-align: center;"><u>Total Cost</u></td> </tr> <tr> <td></td> <td style="text-align: center;"><u>Actual</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Complete</u></td> <td></td> </tr> </table> <p>(U) Other APPN (U) None</p>											<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>Complete</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>Complete</u>																					
Project 1023			Page 17 of 28 Pages				Exhibit R-2A (PE 0603851F)																						

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002																																																																													
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1023																																																																												
<p>(U) <u>D. Acquisition Strategy</u> 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.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th colspan="3" style="text-align: center;"><u>FY 2001</u></th> <th colspan="3" style="text-align: center;"><u>FY 2002</u></th> <th colspan="3" style="text-align: center;"><u>FY 2003</u></th> </tr> <tr> <th></th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> </tr> </thead> <tbody> <tr> <td>(U) (U) Start/Complete Annual Studies/Analysis</td> <td style="text-align: center;">*</td> <td></td> <td></td> <td style="text-align: center;">*</td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td>(U) (U) Quick Reaction Launch Capability Demo</td> <td></td> </tr> <tr> <td>(U) -- (U) Northern Edge launch</td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> </tr> <tr> <td>(U) -- (U) ASAS launch canceled (See note)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Note: Due to technical difficulties in preparing for flight test, ASAS launch was cancelled. Previously completed static firing was deemed sufficient to successfully conclude project.</p> <p>* - Completed Event X - Planned Event</p>											<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>				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													(U) -- (U) Northern Edge launch		*								X			(U) -- (U) ASAS launch canceled (See note)				*								
	<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>																																																																													
	1	2	3	4	1	2	3	4	1	2	3	4																																																																								
(U) (U) Start/Complete Annual Studies/Analysis	*			*	*				X	X		X																																																																								
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Project 1023			Page 18 of 28 Pages				Exhibit R-2A (PE 0603851F)																																																																													

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04 - Demonstration and Validation				0603851F ICBM - DEM/VAL				1023		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Studies/Analyses					34		31		31
(U)	Quick Reaction Launch Capability Demonstrations									
(U)	-- Northern Edge Exercise Quick Reaction Launch					12,082		3,500		0
(U)	Total					12,116		3,531		31
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
AF Research Lab	MIPR	Mar 97/Jun 01	2,742	2,742	1,894	848	0	0	0	2,742
Florida National Guard	MIPR	Jul 97/Jan 00	5,600	5,600	5,600	0	0	0	0	5,600
Various	Various	As Req'd	N/A	7,338	3,104	2,259	1,975	0	0	7,338
Space Vector	FFP	Jun 00	883	883	883	0	0	0	0	883
Draper Labs	CPFF	Apr 00	700	700	700	0	0	0	0	700
DTIC	MIPR	Mar 01	2,125	2,125	1,875	250	0	0	0	2,125
Orbital Sciences Corp	FFP	Feb 00/Jan 01	10,050	10,050	4,750	5,300	0	0	0	10,050
Kodiak Launch Complex	SS/FFP	Aug 00	1,405	1,405	505	900	0	0	0	1,405
OO-ALC/LM (ICBM SPO)	MIPR	Mar 01	752	752	641	111	0	0	0	752
Thiokol	FFP	Apr 02	600	600	0	0	600			600

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE
BUDGET ACTIVITY										PROJECT
04 - Demonstration and Validation										1023
PE NUMBER AND TITLE										
0603851F ICBM - DEM/VAL										
(U) Performing Organizations Continued:										
<u>Support and Management Organizations</u>										
TRW	SS/T&M	As Req'd	N/A	N/A	6,989	1,114	300	0	Continuing	TBD
Various	Various	As Req'd	Continuing	Continuing	808	34	656	31	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Pt Magu Missile Range	MIPR	Feb 01	2,600	2,600	1,300	1,300	0	0	0	2,600
(U) Government Furnished Property:										
<u>Contract</u>										
<u>Method/Type</u>										
<u>Item</u>	<u>Method/Type</u>	<u>Award or</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>Obligation</u>	<u>Date</u>		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
None										
<u>Support and Management Property</u>										
None										
<u>Test and Evaluation Property</u>										
None										
					<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 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					19,952	9,668	2,575	0	0	32,195
Subtotal Support and Management					7,797	1,148	956	31	TBD	TBD
Subtotal Test and Evaluation					1,300	1,300	0	0	0	2,600
Total Project					29,049	12,116	3,531	31	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1024		
COST (\$ in Thousands)		FY 2001 Actual	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	170	436	1,433	443	451	469	477	Continuing	TBD
<p>(U) <u>A. Mission Description</u> 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.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$170 Continued to develop and refine alternatives and concepts for a Command and Control (C2) system architecture supporting strategic missile applications. (U) \$170 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$193 Continue to develop and refine alternatives and concepts for a C2 system architecture supporting strategic missile applications. (U) \$243 Demonstrate, test and evaluate alternative network architectures, applications, and technologies. (U) \$436 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$838 Continue to develop and refine alternatives and concepts that incorporate information assurance, joint interoperability, and other applicable DOD initiatives. Include options identification and analyses for an improved, survivable C2 system. (U) \$595 Continue demonstrations, testing and evaluation of alternative network architectures, applications, and technologies. (U) \$1,433 Total</p> <p>(U) <u>B. Project Change Summary</u> FY03: Funding increased to ensure viability of strategic C2 industrial base.</p>										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002						
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1024					
(U) C. Other Program Funding Summary (\$ in Thousands)													
	<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>Complete</u>					
(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													
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			
		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													
						*							
(U) --Periodic Progress Reports/Reviews													
										X			X
* - Completed Event X - Planned Event													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
04 - Demonstration and Validation				0603851F ICBM - DEM/VAL				1024			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	System Architecture Study					170		193		838	
(U)	Demonstration of Alternate Network					0		243		595	
(U)	Total					170		436		1,433	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	TRW (Prime)	C/CPAF	Dec 97	Continuing	Continuing	1,792	166	431	1,428	Continuing	TBD
	<u>Support and Management Organizations</u>										
	Various	Various	As Req'd	N/A	N/A	18	4	5	5	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
	None										
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>										
	None										
	<u>Support and Management Property</u>										
	None										
	<u>Test and Evaluation Property</u>										
	None										
Project 1024				Page 23 of 28 Pages				Exhibit R-3 (PE 0603851F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 2002	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Demonstration and Validation		0603851F ICBM - DEM/VAL			1024	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
						<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development		1,792	166	431	1,428	TBD
Subtotal Support and Management		18	4	5	5	TBD
Subtotal Test and Evaluation						
Total Project		1,810	170	436	1,433	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT 4209
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COST (\$ in Thousands)	FY 2001 Actual	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)	2,220	2,354	7,391	7,645	9,413	419,883	578,670	Continuing	TBD

Note: In FY 2003, this project includes new start efforts to establish Threats and Scenarios Database with Modeling and Simulation capability.

(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. The LRP also lays the groundwork for analysis supporting future ICBM weapon systems development and deployment.

(U) FY 2001 (\$ in Thousands)

- (U) \$492 Continued 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 Continued to perform feasibility and life extension studies.
- (U) \$783 Continued to perform technology insertion studies in support of changing ICBM environments.
- (U) \$2,220 Total

(U) FY 2002 (\$ in Thousands)

- (U) \$468 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) \$2,354 Total

(U) FY 2003 (\$ in Thousands)

- (U) \$476 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) \$3,059 Continue to perform feasibility and life extension studies.
- (U) \$800 Continue to perform technology insertion studies in support of changing ICBM environments.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002																																																																																																													
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT 4209																																																																																																													
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands) Continued</u></p> <p>(U) \$3,056 Begin development of Threats and Scenarios database with Modeling and Simulation (M&S) capability.</p> <p>(U) \$7,391 Total</p> <p>(U) <u>B. Project Change Summary</u></p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:10%;"><u>FY 2001</u></th> <th style="width:10%;"><u>FY 2002</u></th> <th style="width:10%;"><u>FY 2003</u></th> <th style="width:10%;"><u>FY 2004</u></th> <th style="width:10%;"><u>FY 2005</u></th> <th style="width:10%;"><u>FY 2006</u></th> <th style="width:10%;"><u>FY 2007</u></th> <th style="width:10%;"><u>Cost to</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td style="text-align: center;"><u>Actual</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) None</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> Studies and analyses will be accomplished. Efforts will be conducted using contracting strategies deemed most appropriate.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th colspan="4" style="text-align: center;"><u>FY 2001</u></th> <th colspan="4" style="text-align: center;"><u>FY 2002</u></th> <th colspan="4" style="text-align: center;"><u>FY 2003</u></th> </tr> <tr> <td></td> <td style="text-align: center;">1</td><td style="text-align: center;">2</td><td style="text-align: center;">3</td><td style="text-align: center;">4</td> <td style="text-align: center;">1</td><td style="text-align: center;">2</td><td style="text-align: center;">3</td><td style="text-align: center;">4</td> <td style="text-align: center;">1</td><td style="text-align: center;">2</td><td style="text-align: center;">3</td><td style="text-align: center;">4</td> </tr> </thead> <tbody> <tr> <td>(U) Contract Award for Annual Studies/Analyses</td> <td style="text-align: center;">*</td><td></td><td></td><td></td> <td></td><td style="text-align: center;">X</td><td></td><td></td> <td></td><td style="text-align: center;">X</td><td></td><td></td> </tr> <tr> <td>(U) --Program Reviews</td> <td></td><td style="text-align: center;">*</td><td style="text-align: center;">*</td><td></td> <td></td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td></td> <td></td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td></td> </tr> <tr> <td>(U) --Reports Received</td> <td></td><td></td><td></td><td style="text-align: center;">*</td> <td></td><td></td><td></td><td style="text-align: center;">X</td> <td></td><td></td><td></td><td style="text-align: center;">X</td> </tr> <tr> <td>(U) Threats & Scenarios DB with Modeling & Simulation capability develop</td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td><td style="text-align: center;">X</td><td></td><td></td> </tr> </tbody> </table> <p>* - Completed Event X - Planned Event</p>										<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>Complete</u>		(U) None											<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>					1	2	3	4	1	2	3	4	1	2	3	4	(U) Contract Award for Annual Studies/Analyses	*					X				X			(U) --Program Reviews		*	*			X	X			X	X		(U) --Reports Received				*				X				X	(U) Threats & Scenarios DB with Modeling & Simulation capability develop										X		
	<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>																																																																																																											
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(U) --Program Reviews		*	*			X	X			X	X																																																																																																									
(U) --Reports Received				*				X				X																																																																																																								
(U) Threats & Scenarios DB with Modeling & Simulation capability develop										X																																																																																																										
Project 4209			Page 26 of 28 Pages			Exhibit R-2A (PE 0603851F)																																																																																																														

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603851F ICBM - DEM/VAL				4209		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Long Range Planning Tasks					492		468		476
(U)	Feasibility Studies					945		1,069		3,059
(U)	Technology Insertion Studies					783		817		800
(U)	Threats & Scenarios database with Modeling & Simulation capability development					0		0		3,056
(U)	Total					2,220		2,354		7,391
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
TRW (Prime)	C/CPAF	Dec 97	N/A	N/A	2,427	1,982	441	476	Continuing	TBD
Alliant	SS/CPAF	Dec 99	40	40	40	0	0	0	0	40
McCallie	SS/C/FFP	Nov 99	227	227	128	99	0	0	0	227
TBD - Annual Studies/Analysis	TBD	Annually	N/A	N/A	0	0	1,759	3,718	Continuing	TBD
TBD - Threat & Scenario	TBD	Jan 03	N/A	3,056	0	0	0	3,056	Continuing	TBD
<u>Support and Management Organizations</u>										
Various	Various	Ongoing	N/A	N/A	2,208	139	154	141	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
(U) Government Furnished Property:										
<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
Project 4209										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT 4209	
(U) Government Furnished Property Continued:								
	<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>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
<u>Product Development Property</u>								
None								
<u>Support and Management Property</u>								
None								
<u>Test and Evaluation Property</u>								
None								
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
				<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
<u>Subtotals</u>								<u>Total</u>
Subtotal Product Development				2,595	2,081	2,200	7,250	TBD
Subtotal Support and Management				2,208	139	154	141	TBD
Subtotal Test and Evaluation								
Total Project				4,803	2,220	2,354	7,391	TBD