

**UNCLASSIFIED**

PE NUMBER: 0603851F  
 PE TITLE: ICBM - DEM/VAL

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2004</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603851F ICBM - DEM/VAL</b>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	56.741	60.117	72.503	79.186	94.734	79.346	81.446	Continuing	TBD
1020 ICBM Guidance Applications	22.852	17.369	16.979	16.913	24.979	18.664	18.979	Continuing	TBD
1021 ICBM Propulsion Applications	4.205	17.875	30.419	41.928	41.978	39.759	40.449	Continuing	TBD
1022 ICBM Reentry Vehicle Applications	23.444	16.756	16.979	17.475	24.869	18.704	19.045	Continuing	TBD
1023 Rocket System Launch Program	0.029	1.031	0.033	0.033	0.034	0.035	0.035	Continuing	TBD
1024 ICBM Command & Control (C2) Applications	1.327	0.429	0.443	0.457	0.464	0.471	0.478	Continuing	TBD
4209 Long Range Planning (LRP)	4.884	6.657	7.650	2.380	2.410	1.713	2.460	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**  
 This program's efforts identify methods to reduce life cycle costs, improve nuclear safety and surety, 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.  
 This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component and subsystem maturity, and provide risk reduction.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	62.087	67.632	91.992
(U) Current PBR/President's Budget	56.741	60.117	72.503
(U) Total Adjustments	-5.346	-7.515	
(U) Congressional Program Reductions		-8.515	
Congressional Rescissions			
Congressional Increases		1.000	
Reprogrammings	-2.600		
SBIR/STTR Transfer	-2.746		

(U) **Significant Program Changes:**  
 FY05: Includes total -\$19.489M adjustments distributed as follows: ICBM Guidance Applications (-\$3.444M); ICBM Propulsion Applications (-\$10.980M); ICBM Reentry Vehicle Applications (-\$3.444M); ICBM Command & Control Applications (-\$.001M); Long Range Planning (-\$1.620M).

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

DATE

**February 2004**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>		PROJECT NUMBER AND TITLE <b>1020 ICBM Guidance Applications</b>	
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
1020 ICBM Guidance Applications	22.852	17.369	16.979	16.913	24.979	18.664	18.979	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

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, Commander, USSTRATCOM guidance, and the Defense Science Board Task Force on Nuclear Deterrence. Efforts within this project are focused on current and future requirements, 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 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.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue development and prototype of concepts for future common strategic guidance system technology	6.645	5.365	4.691
(U) Continue assessment, evaluation and test of radiation hard electronics for strategic guidance applications	3.208	0.771	0.797
(U) Continue development and test of alternate instrument technologies (e.g., accelerometers, gyros, micro electromechanical systems)	8.068	5.473	3.990
(U) Continue assessment, development and implementation of flight test experiment options to demonstrate future strategic guidance system concepts	4.931	5.760	7.501
(U) Total Cost	22.852	17.369	16.979

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</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**

Accomplish studies, analyses, and limited engineering/pre-prototype hardware development; efforts will be conducted using contracting strategies deemed most appropriate.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2004**

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603851F ICBM - DEM/VAL</b>						<b>1020 ICBM Guidance Applications</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u> Prior to FY 2003 <u>Cost</u>	<u>FY</u> 2003 <u>Cost</u>	<u>FY</u> 2003 <u>Award</u> <u>Date</u>	<u>FY</u> 2004 <u>Cost</u>	<u>FY</u> 2004 <u>Award</u> <u>Date</u>	<u>FY</u> 2005 <u>Cost</u>	<u>FY</u> 2005 <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT	52.273	22.792	Dec-02	17.209	Dec-03	15.919	Dec-04	Continuing	TBD	TBD
Others TBD	TBD	TBD	0.000	0.000	N/A	0.100	Jan-04	1.000	Jan-05	Continuing	TBD	TBD
Subtotal Product Development			52.273	22.792		17.309		16.919		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
SPO/Other Program Support	Various	ICBM Program Office, Hill AFB	3.515	0.060	N/A	0.060	N/A	0.060	N/A	Continuing	TBD	TBD
Subtotal Support			3.515	0.060		0.060		0.060		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Program Management											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			55.788	22.852		17.369		16.979		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

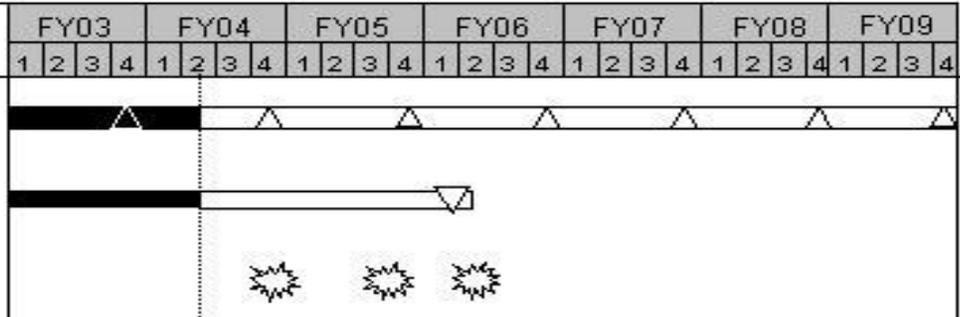
0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1020 ICBM Guidance Applications

**Guidance Applications**

- Analyze, evaluate, develop concepts
- Flexure Mass Accelerometer prototype
- Guidance flight tests



☀ Major test event

△ Report/Review/Analysis

▽ Prototype hardware delivery

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</b>
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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>	PROJECT NUMBER AND TITLE <b>1020 ICBM Guidance Applications</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>			
(U) Development/Demonstration of Future Common System Concepts (Ongoing)	1-4Q	1-4Q	1-4Q
(U) -- Progress Reports	4Q	4Q	4Q
(U) Alternate Instrument Technology Development (Ongoing)	1-4Q	1-4Q	1-4Q
(U) -- Progress Report	4Q	4Q	4Q
(U) Radiation Hardened Parts Analysis (Ongoing)	1-4Q	1-4Q	1-4Q
(U) -- Progress Report	4Q	4Q	4Q
(U) Flight Test Options Analysis	1-4Q	1-4Q	1-4Q
(U) -- Progress Report	4Q	4Q	4Q
(U) -- Flight Test		4Q	3Q

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

DATE  
**February 2004**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>PE NUMBER AND TITLE</b> <b>0603851F ICBM - DEM/VAL</b>			<b>PROJECT NUMBER AND TITLE</b> <b>1021 ICBM Propulsion Applications</b>			
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
1021 ICBM Propulsion Applications	4.205	17.875	30.419	41.928	41.978	39.759	40.449	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

(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 submarine-launched ballistic missile (SLBM) propulsion systems, and demonstrating application of technology developed by the Science and Technology community to the ICBM strategic systems. This approach maintains critical design development and system engineering skills and capabilities for the future.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Conductd assessments of technology developments in support of ICBM propulsion systems	0.154		
(U) Designed and evaluated solid propulsion technologies for application to ICBM subsystems through analysis and test leading to static-fire demonstrations	2.579		
(U) Defined ordnance demo requirements and continued subsystem design and material/component testing	0.388		
(U) Conducted post-boost propulsion design and evaluation of advanced technologies to support ICBM applications	0.503		
(U) Conducted assessments and demonstration of advanced service life prediction technology in ICBM propulsion subsystems	0.581		
(U) Continue evaluation and test of solid propulsion technologies for ICBM application through process development and stage manufacture leading to static fire testing		14.448	23.850
(U) Continue assessment and demonstration of ordnance and post-boost components technology developments		2.915	5.952
(U) Continue evaluation of test protocols in support of hazard classification methods for ICBM solid rocket motors		0.512	0.617
(U) Total Cost	4.205	17.875	30.419

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
(U) None									

**(U) D. Acquisition Strategy**

Studies, analyses, and motor ground test firings will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2004**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603851F ICBM - DEM/VAL</b>				<b>1021 ICBM Propulsion Applications</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Contract</u>
			<u>Cost</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>			
(U) <u>Product Development</u>												
ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT	2.204	4.175	Dec-02	17.775	Dec-03	28.819	Dec-04	Continuing	TBD	TBD
Component Development	PO or MIPR	AFRL, Edwards AFB	0.000	0.000	N/A	0.000	N/A	0.500	Jan-05	Continuing	TBD	TBD
Others TBD	TBD	TBD	0.000	0.000	N/A	0.000	N/A	1.000	Jan-05	Continuing	TBD	TBD
Subtotal Product Development			2.204	4.175		17.775		30.319		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
SPO/Other Program Support	Various	ICBM Program Office, Hill AFB	0.056	0.030	N/A	0.100	N/A	0.100	N/A	Continuing	TBD	TBD
Subtotal Support			0.056	0.030		0.100		0.100		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) Total Cost			2.260	4.205		17.875		30.419		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

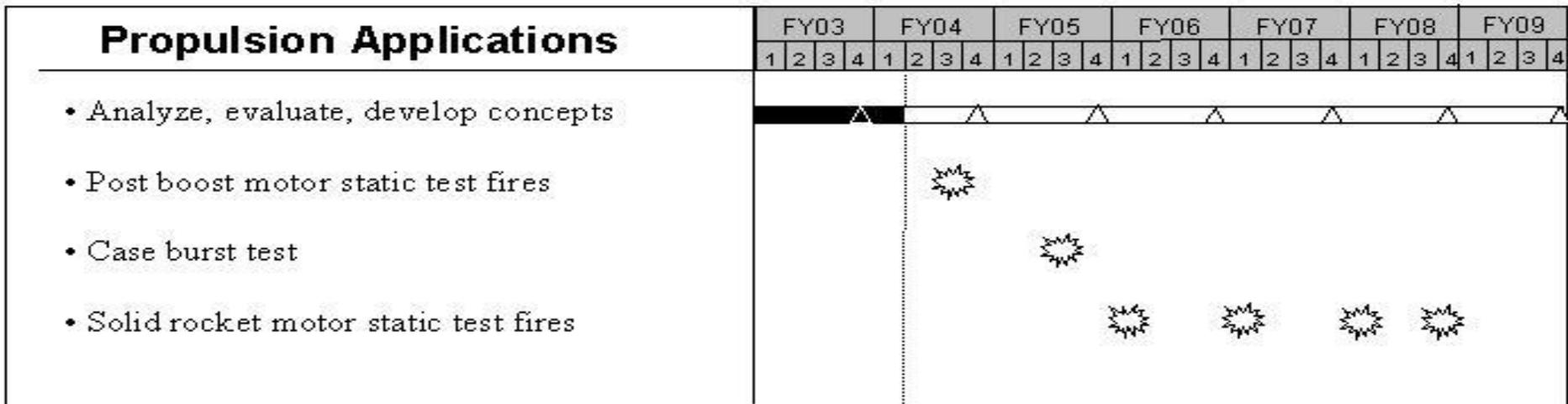
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1021 ICBM Propulsion Applications



☀ Major test event

▽ Report/Review/Analysis

▾ Prototype hardware delivery

UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2004</b>		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603851F ICBM - DEM/VAL</b>	<b>1021 ICBM Propulsion Applications</b>		
		<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>				
(U) Studies/Assessments of technology developments		1-4Q		
(U) --Begin/Complete Annual Studies		2-4Q		
(U) Solid stage design and evaluation of solid propulsion technology		1-4Q		
(U) --Begin/Complete Annual Studies		2-4Q		
(U) Ordnance demo design and evaluation of technologies		1-4Q		
(U) --Periodic Status Report/Reviews		2-4Q		
(U) Post-boost propulsion design and evaluation of technologies		1-4Q		
(U) --Periodic Status Report/Reviews		2-4Q		
(U) Studies/assessments of advanced service life prediction technologies		1-4Q		
(U) --Begin/Complete Annual Studies		2-4Q		
(U) Evaluate and test solid propulsion technologies for ICBM application			1-4Q	1-4Q
(U) -- Periodic Status Reports/Review			2-4Q	2-4Q
(U) Assessment/demonstration of ordnance and post-boost components tech			1-4Q	1-4Q
(U) --Periodic Status Report/Reviews			2-4Q	2-4Q
(U) Evaluate test protocols in support of hazard classification methods			1-4Q	1-4Q
(U) --Periodic Status Report/Reviews			2-4Q	2-4Q

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

DATE  
**February 2004**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>			PROJECT NUMBER AND TITLE <b>1022 ICBM Reentry Vehicle Applications</b>			
Cost (\$ in Millions)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
1022	ICBM Reentry Vehicle Applications	23.444	16.756	16.979	17.475	24.869	18.704	19.045	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

ICBM Reentry Vehicle (RV) Applications efforts ensure the Minuteman force is equipped 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 Force Development Evaluation (FDE) flights.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue evaluation of RV material subsystems, aging, and replacements by performing ground and flight tests	5.126	4.874	4.089
(U) Continue identification and ground testing of potential replacement options for critical RV components	1.181	1.422	1.067
(U) Continue evaluation of improved accuracy measurements and methodologies	0.712	0.831	0.821
(U) Continue evaluation of alternate flight test experiment options	4.486	2.726	3.246
(U) Continue evaluation of advanced common RV designs, applications, and technologies	4.938	3.426	3.417
(U) Continue development and assessment of RV Test & Evaluation methodologies and subsystems	4.415	2.384	3.370
(U) Continue design, development, and prototype flight testing of selected fuze assessment/measurement	2.586	1.093	0.969
(U) Total Cost	23.444	16.756	16.979

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</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, analyses, limited engineering, and pre-prototype hardware development will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE  
**February 2004**

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>			<b>0603851F ICBM - DEM/VAL</b>					<b>1022 ICBM Reentry Vehicle Applications</b>				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
<u>(U) Product Development</u>												
ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield, UT	57.513	21.884	Dec-02	16.096	Dec-03	14.919	Dec-04	Continuing	TBD	TBD
Others TBD	Various	TBD	0.000	0.000	N/A	0.000	N/A	1.000	Jan-05	Continuing	TBD	TBD
Subtotal Product Development			57.513	21.884		16.096		15.919		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>												
SPO/Other Program Support	Various	ICBM Program Office Hill AFB	1.506	0.060	N/A	0.060	N/A	0.060	N/A	Continuing	TBD	TBD
Subtotal Support			1.506	0.060		0.060		0.060		Continuing	TBD	TBD
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Materials	MIPR	AFRL Wright Lab, Wright-Patterson AFB	2.040	0.500	Jan-03	0.200	Jan-04	0.500	Jan-05	Continuing	TBD	TBD
Ground Testing	PO	Arnold Engineering & Development Center	2.652	0.750	Jan-03	0.300	Jan-04	0.250	Jan-05	Continuing	TBD	TBD
Flight Testing	PO	Vandenberg AFB	0.396	0.250	Jan-03	0.100	Jan-04	0.250	Jan-05	Continuing	TBD	TBD
Subtotal Test & Evaluation			5.088	1.500		0.600		1.000		Continuing	TBD	TBD
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			64.107	23.444		16.756		16.979		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

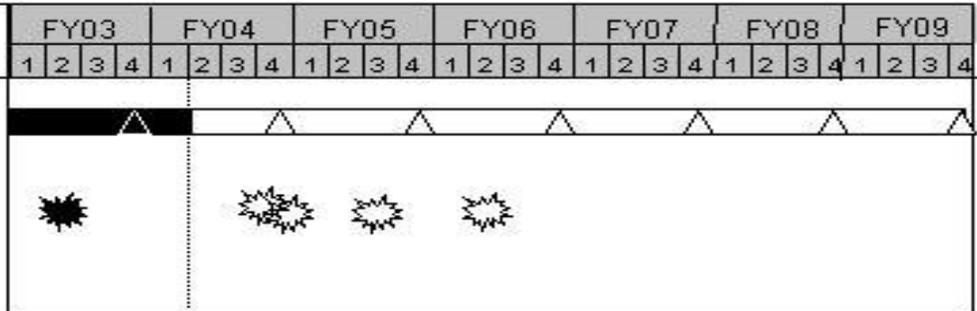
0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1022 ICBM Reentry Vehicle Applications

**Reentry Vehicle Applications**

- Analyze, evaluate, develop concepts
- Flight tests



☀ Major test event

▲ Report/Review/Analysis

▽ Prototype hardware delivery

UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603851F ICBM - DEM/VAL</b>	<b>PROJECT NUMBER AND TITLE</b> <b>1022 ICBM Reentry Vehicle Applications</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Materials Replacement & Aging Evaluations	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q
(U) Fuze Assessment/Measurement Tool Development	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q
(U) Critical Components Evaluations	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q
(U) RV Test & Evaluation Methodologies Development	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q
(U) Accuracy Assessment Methodologies Development	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q
(U) Advanced Common RV Designs, Applications & Technologies Evaluations	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q
(U) Alternate Flight Test Options Development	1-4Q	1-4Q	1-4Q
(U) --Periodic Status Reports/Reviews	2-4Q	2-4Q	2-4Q
(U) Flight Tests	2Q	4Q	3Q

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

DATE  
**February 2004**

<b>BUDGET ACTIVITY</b> 04 Advanced Component Development and Prototypes (ACD&P)				<b>PE NUMBER AND TITLE</b> 0603851F ICBM - DEM/VAL			<b>PROJECT NUMBER AND TITLE</b> 1023 Rocket System Launch Program			
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
1023 Rocket System Launch Program	0.029	1.031	0.033	0.033	0.034	0.035	0.035	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

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

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets	0.029	0.031	0.033
(U) Conduct California Space Infrastructure Program		1.000	
(U) Total Cost	0.029	1.031	0.033

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</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) Other APPN									
(U) None									

**(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.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT NUMBER AND TITLE 1023 Rocket System Launch Program				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
California Space Infrastructure Program	TBD	California Spaceport Authority	0.000	0.000	N/A	1.000	Apr-04	0.000	N/A	0.000	1.000	1.000
Various	Various	Various	7.338	0.000	N/A	0.000	N/A	0.000	N/A	0.000	7.338	7.338
Subtotal Product Development			7.338	0.000		1.000		0.000		0.000	8.338	8.338
Remarks:												
(U) <u>Support</u>												
Engineering Support	SS/T&M	Northrop Grumman	8.403	0.000	N/A	0.000	N/A	0.000	N/A	0.000	8.403	8.403
Engineering Support	Various	SMC Det 12 Kirtland AFB	1.488	0.029	Jan-03	0.031	Jan-04	0.033	Jan-05	0.000	1.581	TBD
Subtotal Support			9.891	0.029		0.031		0.033		0.000	9.984	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			17.229	0.029		1.031		0.033		0.000	18.322	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1023 Rocket System Launch Program

Rocket System Launch Program	FY03				FY04				FY05				FY06				FY07				FY08				FY09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<ul style="list-style-type: none"> <li>Analyze, evaluate concepts</li> <li>California Space Infrastructure</li> </ul>				▲				▲				▲				▲				▲				▲				▲
								◻▲																				



Major test event



Report/Review/  
Analysis



Prototype hardware  
delivery

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</b>
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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>	PROJECT NUMBER AND TITLE <b>1023 Rocket System Launch Program</b>
--	---	--

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Start/Complete Annual Studies/Analysis	1-4Q	1-4Q	1-4Q
(U) California Space Infrastructure Contract Award		3Q	
(U) California Space Infrastructure Contract Complete			2Q

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

DATE  
**February 2004**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>			PROJECT NUMBER AND TITLE <b>1024 ICBM Command &amp; Control (C2) Applications</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
1024 ICBM Command & Control (C2) Applications	1.327	0.429	0.443	0.457	0.464	0.471	0.478	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

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 President and Secretary of Defense. 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 more 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.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continued to develop and refine alternatives and concepts that incorporate information assurance, joint interoperability and other applicable DOD initiatives. Included options identification and analyses for an improved, survivable C2 system	0.775		
(U) Continued demonstrations, testing and evaluation of alternative network architectures, applications, and technologies. Ensured compatibility with transformational communications studies and integrate activities.	0.552		
(U) Continue development of concepts for transformation of ICBM command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) architecture for future ICBM missions, including analysis of requirements for modeling, simulation, demonstrations, and flight tests; continue developing plans for preserving unique strategic C2 skills and capabilities.		0.429	0.443
(U) Total Cost	1.327	0.429	0.443

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</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									

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1024 ICBM Command & Control (C2)  
Applications(U) D. Acquisition Strategy

Studies and analyses, and limited engineering and pre-prototype hardware development will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE <b>February 2004</b>		
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>				PROJECT NUMBER AND TITLE <b>1024 ICBM Command &amp; Control (C2) Applications</b>				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u> ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT	2.362	1.312	Dec-02	0.419	Dec-03	0.433	Dec-04	Continuing	TBD	TBD
Subtotal Product Development			2.362	1.312		0.419		0.433		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u> SPO/other program support	Various	ICBM Program Office Hill AFB	0.027	0.015	N/A	0.010	N/A	0.010	N/A	Continuing	TBD	TBD
Subtotal Support			0.027	0.015		0.010		0.010		Continuing	TBD	TBD
Remarks:												
<u>(U) Test &amp; Evaluation</u>  Subtotal Test & Evaluation			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
<u>(U) Management</u>  Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			2.389	1.327		0.429		0.443		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1024 ICBM Command & Control (C2) Applications

**Command & Control Applications**

- Analyze, evaluate, develop concepts

FY03				FY04				FY05				FY06				FY07				FY08				FY09			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

 Major test event

 Report/Review/Analysis

 Prototype hardware delivery

UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2004</b>
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>	PROJECT NUMBER AND TITLE <b>1024 ICBM Command &amp; Control (C2) Applications</b>

<b>(U) <u>Schedule Profile</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Future Concepts Study for Command & Control (Ongoing)	1-4Q	1-4Q	2-4Q
(U) --Periodic Progress Reports/Reviews	2-4Q	2-4Q	2-4Q
(U) Demonstrations, test, and evaluations of alternate networks	1-4Q		
(U) --Periodic Progress Reports/Reviews	2-4Q		

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

DATE  
**February 2004**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>			PROJECT NUMBER AND TITLE <b>4209 Long Range Planning (LRP)</b>			
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
4209 Long Range Planning (LRP)	4.884	6.657	7.650	2.380	2.410	1.713	2.460	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

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.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) 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	0.315	0.504	0.510
(U) Complete feasibility and life extension studies	2.020	1.248	
(U) Completed technology insertion studies in support of changing ICBM environments	0.529		
(U) Completed development of Threats and Scenarios database with Modeling and Simulation (M&S) capability	2.020		
(U) Continue Analysis of Alternatives (AoA) and pre-systems acquisition planning for follow on Land-Based Strategic Deterrent (LBSD)		4.905	7.140
(U) Total Cost	4.884	6.657	7.650

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</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 will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT NUMBER AND TITLE 4209 Long Range Planning (LRP)				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2003 Cost</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT	4.818	2.719	Dec-02	1.047	Dec-03	0.510	Dec-04	Continuing	TBD	TBD
Threat/Scenario/Database Studies	Various MIPR/PO	Various	0.000	2.020	Jan-03	0.000	N/A	0.000	N/A	0.000	2.020	2.020
Land Based Strategic Deterrent AoA and pre-systems acquisition planning	Various	Various	1.628	0.000	N/A	0.560	Nov-03	0.000	N/A	0.000	2.188	0.560
Subtotal Product Development			0.000	0.000	N/A	4.905	Jan-04	6.995	Jan-05	0.000	11.900	11.529
Remarks:			6.446	4.739		6.512		7.505		Continuing	TBD	TBD
(U) <u>Support</u>												
SPO/Other program support	Various	ICBM Program Office, Hill AFB UT	2.492	0.145	N/A	0.145	N/A	0.145	N/A	Continuing	TBD	
Subtotal Support			2.492	0.145		0.145		0.145		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			8.938	4.884		6.657		7.650		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

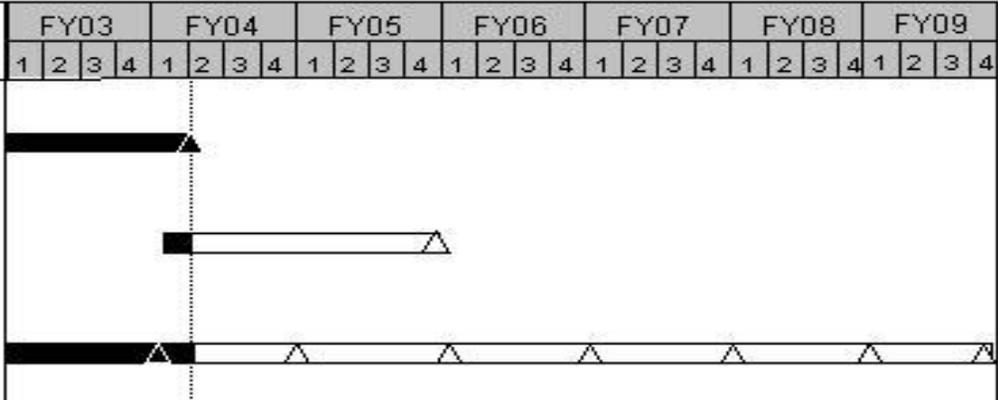
PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

4209 Long Range Planning (LRP)

**Long Range Planning**



 Major test event

 Report/Review/Analysis

 Prototype hardware delivery

**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603851F ICBM - DEM/VAL</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4209 Long Range Planning (LRP)</b>
---	--	--

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b>Schedule Profile</b>			
(U) Contract Award for Annual Studies/Analyses	2Q	2Q	
(U) --Program Reviews/ Reports Received	2-4Q	2-4Q	
(U) -Threats & Scenarios DB w/Modeling & Simulation capability development	1-4Q		
(U) LBSD Analysis of Alternatives & pre-acquisition planning		1-4Q	1-4Q
(U) -- AoA Report			4Q