Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force											Date: March 2024	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0101328F / *ICBM Reentry Vehicles*							
COST ($ in Millions)	**Prior Years**	**FY 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Cost To Complete**	**Total Cost**
Total Program Element	302.119	112.282	475.415	629.928	0.000	629.928	740.334	955.013	710.312	332.728	Continuing	Continuing
674920: *Mk21A Reentry Vehicle*	302.119	112.282	459.880	613.806	0.000	613.806	690.272	903.999	610.194	230.990	122.767	4,046.309
675920: *Next Generation Reentry Capabilities*	0.000	0.000	15.535	16.122	0.000	16.122	50.062	51.014	100.118	101.738	Continuing	Continuing
Program MDAP/MAIS Code: 576												

Note

Project 674920, Mk21A Reentry Vehicle, changed from Mk21A/W87-1.
Project 675920, Next Generation Reentry Capabilities, changed from Next Generation Reentry Vehicle.

A. Mission Description and Budget Item Justification

The Intercontinental Ballistic Missile (ICBM) Reentry Vehicles (RVs) activity will design, develop, produce, and deploy advanced countermeasures and integrated RV systems capable of delivering the W87-1 warhead and future warheads when released from the LGM-35A Sentinel weapon system.

The Mk21A program will meet the requirements laid out in the LGM-35A Sentinel weapon system Capability Development Document (CDD) as directed by Air Force Global Strike Command and will provide needed performance and security enhancements over the Mk21 RV to meet the upgraded requirements for the Department of Energy (DOE)/ National Nuclear Security Administration (NNSA) W87-1 warhead. The Mk21A RV includes: shape stable nose tip; high impulse transducer; arming and fuzing subsystem (AFS); aeroshell forward section, body section, and rear cover; radio frequency subsystem with antennas; RV spin subsystem; in-flight disconnect cable; and other electrical cables.

The Next Generation Reentry Capabilities (NGRC) program will ensure the LGM-35A Sentinel weapon system continues to meet CDD requirements in an evolving threat landscape by leveraging advanced technologies matured by the Research & Development (R&D) and ICBM Demonstration/Validation communities in support of the Air Force's Reentry Strategy. Future NGRC solutions will integrate Next Generation Reentry Vehicle (NGRV) with current and/or future warheads and includes acquisition of complementary advanced countermeasures, embracing the modular and adaptable tenets of the LGM-35A Sentinel weapon system.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, and 0606398F. In FY 2023 0.000M was expended for civilian pay expenses in this program element, and in FY 2024 2.388M is forecasted for civilian pay expenses in this program element. All FY 2024 civilian pay expenses will be executed on BPAC 675920 - Next Generation Reentry Capabilities.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force					Date: March 2024
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*			**R-1 Program Element (Number/Name)** PE 0101328F / *ICBM Reentry Vehicles*		
B. Program Change Summary ($ in Millions)	**FY 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**
Previous President's Budget	115.616	475.415	657.623	0.000	657.623
Current President's Budget	112.282	475.415	629.928	0.000	629.928
Total Adjustments	-3.334	0.000	-27.695	0.000	-27.695
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-3.334	0.000			
• Other Adjustments	0.000	0.000	-27.695	0.000	-27.695

Change Summary Explanation

FY25 decreased from the FY24 PB to the FY25 PB to better align Mk21A with the Sentinel program flight test requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101328F / *ICBM Reentry Vehicles*	Project (Number/Name) 674920 / *Mk21A Reentry Vehicle*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
674920: *Mk21A Reentry Vehicle*	302.119	112.282	459.880	613.806	0.000	613.806	690.272	903.999	610.194	230.990	122.767	4,046.309
Quantity of RDT&E Articles	-	-	-	-	-	-	3	12	16	-		

Note

Project 674920, Mk21A Reentry Vehicle, changed from Mk21A/W87-1.

A. Mission Description and Budget Item Justification

The Mk21A Reentry Vehicle (RV) program will design, develop, produce, and deploy an integrated RV capable of delivering the W87-1 warhead when released from the LGM-35A Sentinel weapon system. The Mk21A program will provide needed performance and security enhancements over the Mk21 RV to meet the upgraded requirements for the Department of Energy (DOE)/ National Nuclear Security Administration (NNSA) W87-1 warhead, while ensuring the time certain delivery of both the W87-1 and Mk21A programs. The Mk21A will also meet the requirements laid out in the LGM-35A Sentinel weapon system Capability Development Document (CDD) as directed by Air Force Global Strike Command. The Mk21A RV includes: shape stable nose tip; high impulse transducer; arming and fuzing subsystem (AFS); aeroshell forward section, body section, and rear cover; radio frequency subsystem with antennas; RV spin subsystem; in-flight disconnect cable; and other electrical cables.

During the Engineering and Manufacturing Development (EMD) phase, the Mk21A program will include prime contractor development of a critical RV design, applicable support equipment, data, flight test hardware, infrastructure, and training materials while examining and mitigating weapon system integration risks, nuclear surety, hardness and certification, and system vulnerability assessments. Additionally, the program, in conjunction with the DOE/NNSA, will develop test assets to ensure the integration and qualification of the Mk21A and W87-1 on the LGM-35A Sentinel weapon system.

IAW 10 USC 4252, this program has not yet fully satisfied the certification requirement that the heatshield technology has been demonstrated in a relevant environment as required prior to Milestone B approval. The Mk21A uses similar materials and process as currently fielded and should have the necessary data to certify the demonstration in 1QFY25.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, and 0606398F. In FY 2023 0.000M was expended for civilian pay expenses in this budget program activity code (BPAC), and in FY 2024 0.000M is forecasted for civilian pay expenses in this BPAC.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Mk21A Technology Maturation and Risk Reduction (TMRR)	102.338	0.000	0.000
Description: The objectives of TMRR for Mk21A are as follows: (1) Deliver one preliminary design and three prototypes for flight testing to inform DOE/NNSA designs and further technology maturation			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101328F / *ICBM Reentry Vehicles*	**Project (Number/Name)** 674920 / *Mk21A Reentry Vehicle*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
(2) Incorporate a modular, open systems architecture (3) Implement Model Based System Engineering (MBSE) enabling the government to own the technical baseline (4) Demonstrate performance of weapon system capabilities through prototyping, modeling, simulation, and testing (5) Conduct flight test of prototype RVs in an ICBM-like environment ***FY 2024 Plans:*** N/A ***FY 2025 Plans:*** N/A			
Title: Mk21A Engineering & Manufacturing Development (EMD) ***Description:*** The objectives of EMD for Mk21A are as follows: (1) Develop and build a Mk21A RV capable of delivering DOE/NNSA W87-1 (2) Incorporate a modular, open systems architecture (3) Implement MBSE enabling the government to own the technical baseline (4) Demonstrate performance of weapon system capabilities through modeling, simulation, and testing of the EMD design (5) Integrate Mk21A/W87-1 into the LGM-35A Sentinel weapon system ***FY 2024 Plans:*** • Awarded EMD contract • Executed EMD contract to continue advancing Mk21A major activities to include systems engineering activities, information technology, data management, analytical capabilities and delivery of mature, low risk reentry vehicle design • Conducted delta preliminary design review from TMRR RV design • Developed and build test assets supporting the qualification of the Mk21A and W87-1 on the LGM-35A Sentinel weapon system in conjunction with the DOE/NNSA • Initiated LGM-35A Sentinel weapon system integration activities to support delivery of the Mk21A and W87-1 • Began ground testing and flight test planning with the LGM-35A Sentinel weapon system to collect relevant environmental data to feed W87-1 development at DOE/NNSA • Continued activities to mitigate RV development risks including prototype RV/heatshield flight test • Implemented and mature MBSE enabling the government to own the technical baseline • Continued to develop, mature, and execute a unified certification strategy which meets nuclear surety, cyber security, and nuclear safety requirements ***FY 2025 Plans:***	9.944	459.880	613.806

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101328F / *ICBM Reentry Vehicles*	**Project (Number/Name)** 674920 / *Mk21A Reentry Vehicle*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
• Execute EMD contract to continue advancing Mk21A major activities to include systems engineering activities, information technology, data management, analytical capabilities and delivery of mature, low risk reentry vehicle design • Conduct critical design review for RV hardware • Develop and build test assets supporting the qualification of the Mk21A and W87-1 on the LGM-35A Sentinel weapon system in conjunction with the DOE/NNSA • Continue LGM-35A Sentinel integration activities to support delivery of the Mk21A and W87-1 • Continue ground testing and flight test planning with the LGM-35A Sentinel weapon system to collect relevant environmental data to feed W87-1 development at DOE/NNSA • Continue activities to mitigate RV development risks including prototype RV/heatshield flight test • Continue maturing MBSE enabling the government to own the technical baseline • Continue to develop, mature, and execute a unified certification strategy which meets nuclear surety, cyber security, and nuclear safety requirements ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase due to continued ramp up of EMD activities with the prime contractor and LGM-35A Sentinel integration and test activities.			
Accomplishments/Planned Programs Subtotals	112.282	459.880	613.806

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• RDTE 05 PE 0605238F: *Ground Based Strategic Deterrent EMD*	3,434.623	3,746.935	3,721.024	-	3,721.024	3,791.551	3,568.798	2,890.209	2,012.009	7,557.200	30,722.349
• MPAF 01 MGBSD0: *GBSD*	0.000	539.300	0.000	-	0.000	1,634.097	4,131.827	5,073.777	5,697.755	69,015.349	86,092.105
• RDTE 04 0603851F: *Intercontinental Ballistic Missile - Dem/Val*	45.751	45.319	119.197	-	119.197	91.584	73.250	136.982	126.651	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Mk21A RV program acquisition strategy delivers an integrated RV capable of delivering the W87-1 warhead to target beginning in FY32. For the EMD phase, the Program Office awarded a sole-source cost plus incentive/award fee contract in October 2023. The Air Force is responsible for developing, producing, and maintaining the RV. The DOE/NNSA develops/modifies the nuclear weapon inside the RV, including the Weapon Electrical System, which is the firing set that interfaces with the DoD fuze. Mk21A includes the use of Mk21 Mod 6 aeroshells which were originally developed as test vehicles for the legacy Peacekeeper ICBM and must be modified

for use as war reserve aeroshells. Mk21A subsystems include the shape stable nose tip, high impulse transducer, arming and fuzing subsystem (AFS), aeroshell forward section/body section and rear cover, radio frequency subsystem, antennas, spin subsystem, and cables.

The objectives of EMD for Mk21A are as follows: (1) develop and build a Mk21A RV capable of delivering the W87-1 warhead; (2) incorporate a modular, open systems architecture; (3) implement MBSE enabling the government to own the technical baseline; (4) demonstrate performance of weapon system capabilities through prototyping, modeling, simulation, and testing of the EMD design; (5) integrate Mk21A/W87-1 into the LGM-35A Sentinel weapon system.

The EMD phase includes an EMD contractor update to the Preliminary Design Review, a Critical Design Review, and a Production Readiness Review. Testing includes ground and flight test vehicles which support the integration on LGM-35A Sentinel weapon system. The contractor will convert Mod 6 (Mk21) to Mod 3 (war reserve) RVs and perform integration of the W87-1 with the Mk21A and the LGM-35A Sentinel weapon system. The combined EMD and Production & Deployment contract is a thirteen year contract with EMD efforts through 3QFY29.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101328F / *ICBM Reentry Vehicles*	Project (Number/Name) 674920 / *Mk21A Reentry Vehicle*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Mk21A EMD Contract	SS/CPIF	Lockheed Martin : King of Prussia, PA	0.000	9.944	Oct 2023	357.428	Oct 2023	466.024	Oct 2024	-		466.024	960.097	1,793.493	1,793.493
Mk21A LGM-35A Sentinel Integration Contract	C/CPIF	Northrop Grumman Sys Corp : El Segundo, CA	0.000	-		35.863	Jul 2024	87.093	Mar 2025	-		87.093	454.941	577.897	-
Mk21A TMRR Contract	C/CPFF	Lockheed Martin : King of Prussia, PA	201.557	71.068	Nov 2022	-		-		-		-	0.000	272.625	272.650
		Subtotal	201.557	81.012		393.291		553.117		-		553.117	1,415.038	2,644.015	N/A

Remarks

- FY25 funding includes EMD and long-lead assets for initial operational test and evaluation units.
- The efforts within this cost category cover both TMRR and EMD phases of the program.
- Target value for the EMD contract is based on government estimates.
- Target value for Sentinel Integration contract will be listed after contract award occurs.
- The EMD contract includes options for low-rate initial production units used for initial operational test and evaluation.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Mk21A Integration Support: ISC 2.0	C/CPAF	TBD : TBD	0.000	-		-		7.231	Oct 2024	-		7.231	42.310	49.541	-
Mk21A Other Support	Various	Various : Various	0.505	0.606	Nov 2022	0.652	Nov 2023	0.719	Nov 2024	-		0.719	6.585	9.067	-
Mk21A Integration Support: FFRDC/UARC	MIPR	Various : Various	1.648	0.874	Oct 2022	0.708	Nov 2023	0.729	Nov 2024	-		0.729	6.679	10.638	-
Mk21A Integration Support: ISC 1.0	C/FP	BAE : Hill AFB, UT	9.746	4.688	Oct 2022	6.633	Oct 2023	-		-		-	0.000	21.067	-
Mk21A Direct Cite Civilian Pay	Various	US Gov Civilians : Hill AFB, UT	5.211	-		-		-		-		-	0.000	5.211	-
Mk21A Fuze Trade Study (TMRR)	MIPR	Sandia National Lab : Albuquerque, NM	1.654	-		-		-		-		-	0.000	1.654	-
		Subtotal	18.764	6.168		7.993		8.679		-		8.679	55.574	97.178	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101328F / *ICBM Reentry Vehicles*	**Project (Number/Name)** 674920 / *Mk21A Reentry Vehicle*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

• Mk21A Other Support includes cost estimation support, information technology support, and government furnished equipment
• The efforts within this cost category cover both TMRR and EMD phases of the program.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Mk21A Test & Evaluation	Various	Various : Various	61.192	4.398	Nov 2022	37.183	Nov 2023	26.132	Nov 2024	-		26.132	998.849	1,127.754	-
Mk21A W87-1 Test and Integration	MIPR	DOE/NNSA : Various	1.865	19.335	Oct 2022	17.000	Oct 2023	19.197	Oct 2024	-		19.197	45.837	103.234	-
Mk21A Test Support	Various	Various : Various	0.658	1.044	Aug 2023	1.262	Oct 2023	1.458	Oct 2024	-		1.458	13.356	17.778	-
Mk21A Test & Evaluation: Air Force and DOE/NNSA Demonstrator Initiative (ANDI) (TMRR)	MIPR	Various : Various	13.966	-		-		-		-		-	0.000	13.966	-
		Subtotal	77.681	24.777		55.445		46.787		-		46.787	1,058.042	1,262.732	N/A

Remarks

Prior years Mk21A Test & Evaluation amount includes $15.8M increase from Above Threshold Reprogramming (ATR) from ICBM Fuze Mod.
• The Mk21A Test Support line includes developing ground and flight test plans to support development of prototype test vehicles and conduct flight test(s). The test plans will support testing providing detailed, reliable data to inform EMD and informing Mk21A development and risk reduction, and DOE/NNSA for the W87-1 development.
• The Mk21A Test & Evaluation line includes incremental funding to launch RV prototypes on Rocket Systems Launch Program (RSLP) missiles. The incremental funding allows contracts to be established for support and the build-up of the flight test vehicles and missiles in order to meet Prototype RV Flight Tests #3 and #4.
• Prototype RV Flight Test #2 costs in FY23 were shared between the Mk21A and ICBM Demonstration/Validation program elements to meet combined interests.
• Mk21A Test & Evaluation: Air Force and DOE/NNSA Demonstrator Initiative (ANDI) is a former ICBM Demonstration/Validation study that was transitioned to the Mk21A program office. The ANDI effort spanned over FY20, FY21, and FY22.
• The efforts within this cost category cover both TMRR and EMD phases of the program.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101328F / *ICBM Reentry Vehicles*	Project (Number/Name) 674920 / *Mk21A Reentry Vehicle*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Mk21A Program Support Costs	C/Various	Various : Various	4.117	0.325	Nov 2022	3.151	Nov 2023	5.223	Nov 2024	-		5.223	29.568	42.384	-
		Subtotal	4.117	0.325		3.151		5.223		-		5.223	29.568	42.384	N/A

Remarks

- Increase from FY24 to FY25 due to the the ramp up of EMD and associated administrative costs to support.
- The efforts within this cost category cover both TMRR and EMD phases of the program.
- Management services item Mk21A Program Support Costs changed from Mk21A PMA in FY25.

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	302.119	112.282		459.880		613.806		-		613.806	2,558.222	4,046.309	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101328F / *ICBM Reentry Vehicles*	**Project (Number/Name)** 674920 / *Mk21A Reentry Vehicle*

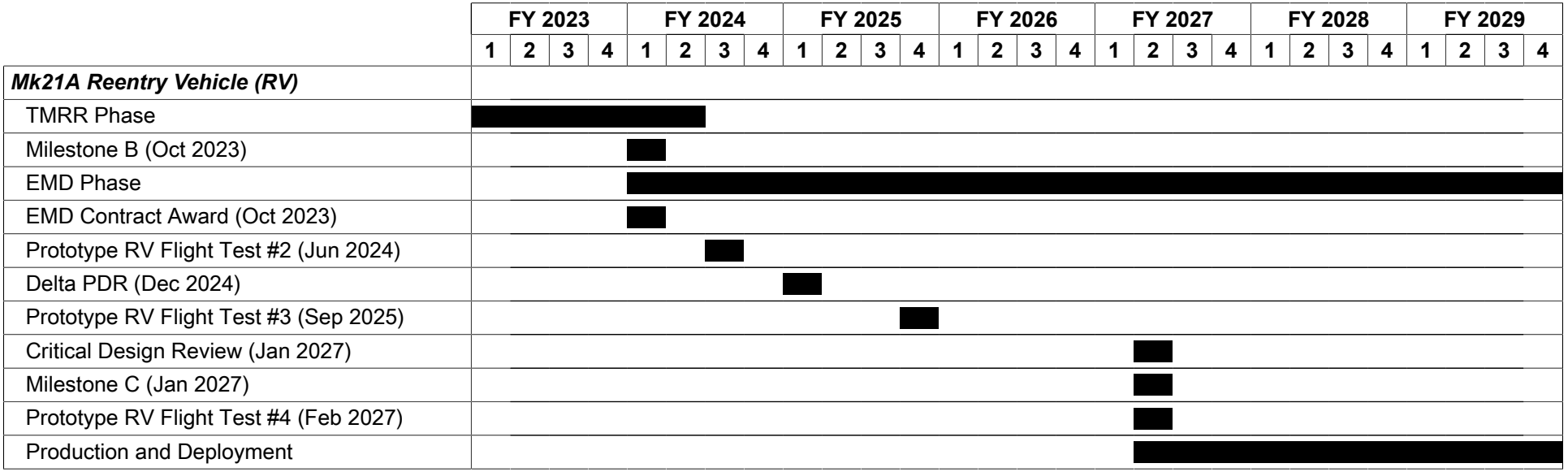

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101328F / *ICBM Reentry Vehicles*	**Project (Number/Name)** 674920 / *Mk21A Reentry Vehicle*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Mk21A Reentry Vehicle (RV)				
TMRR Phase	1	2023	2	2024
Milestone B (Oct 2023)	1	2024	1	2024
EMD Phase	1	2024	4	2029
EMD Contract Award (Oct 2023)	1	2024	1	2024
Prototype RV Flight Test #2 (Jun 2024)	3	2024	3	2024
Delta PDR (Dec 2024)	1	2025	1	2025
Prototype RV Flight Test #3 (Sep 2025)	4	2025	4	2025
Critical Design Review (Jan 2027)	2	2027	2	2027
Milestone C (Jan 2027)	2	2027	2	2027
Prototype RV Flight Test #4 (Feb 2027)	2	2027	2	2027
Production and Deployment	2	2027	4	2029

Note

• TMRR Phase began in 1QFY20
• Flight test #2 was delayed to Jun 2024 (3QFY24)
• Flight Test #4 is currently scheduled for Feb 2027 (2QFY27) and is a rideshare on the Experimental Flight Test 2 funded by PE 0603851F, ICBM Demonstration/ Validation
• Due to differing level of complexity of the RV components, the program anticipates aeroshells will start production sooner, while subcomponents like the fuze may remain in development resulting in overlap of EMD and Production & Deployment (P&D). EMD phase ends 4QFY2029. P&D phase continues beyond FY2029.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101328F / *ICBM Reentry Vehicles*	Project (Number/Name) 675920 / *Next Generation Reentry Capabilities*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
675920: *Next Generation Reentry Capabilities*	0.000	0.000	15.535	16.122	0.000	16.122	50.062	51.014	100.118	101.738	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project 675920, Next Generation Reentry Capabilities, changed from Next Generation Reentry Vehicle.

A. Mission Description and Budget Item Justification

The Next Generation Reentry Capabilities (NGRC) program will design, develop, produce, and deploy new payload system suites (reentry vehicles and/or countermeasures) and integrate them into the LGM-35A Sentinel weapon system. Key next generation payload attributes include enhancements in accuracy, lethality, and ICBM Reentry System/Reentry Vehicle (RS/RV) interoperable operations. Next Generation Reentry Vehicle (NGRV) and advanced countermeasure capabilities are based on emerging threats, AF priorities, and development capacity. Program activities will also include the employment of digital acquisitions through the application of digital engineering, agile software development, and open systems architectures. The NGRC program will leverage investments by the ICBM Demonstration/Validation program, the Science & Technology community, and Navy reentry systems application program.

FY2025 funding supports early acquisition activities that lead to competitive contract awards for a NGRV and advanced countermeasures to strengthen the atrophied industrial base, posturing the nation and the AF to counter adversary threats both projected and unforeseen. These efforts support Milestone A equivalent event in FY2026. This strategy enables a diverse pool of vendors to contribute in the development of materiel solutions which support mission requirements that combat future and immediate threats to drive ultimate effectiveness requirements for the weapon system. This funding includes program management support, operational concept exploration, technology trade studies, operational and system architecture development, maturation and risk reduction of RV/ Countermeasure related technologies including weapons systems and integrated system concept development/demonstration.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, and 0606398F. In FY 2023 0.000M was expended for civilian pay expenses in this budget program activity code (BPAC), and in FY 2024 2.388M is forecasted for civilian pay expenses in this BPAC.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: NGRC Early Acquisition Activities	0.000	15.535	16.122
Description: NGRV and countermeasure assessments and personnel requirements are critical to sufficiently standup the program management team and execute pre-Milestone A acquisition activities to avoid significant schedule risk. The NGRC			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101328F / *ICBM Reentry Vehicles*	**Project (Number/Name)** 675920 / *Next Generation Reentry Capabilities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Program Management Team will serve to integrate the results of the NGRC Requirements Study with a cogent acquisition strategy leading to a Milestone A equivalent event. ***FY 2024 Plans:*** • Initiated NGRV and countermeasure market research • Supported DOE/NNSA NGRV Phase 1 study • Conducted pre-Milestone A operational assessments and integration studies • Conducted Materiel Development Decision (MDD) • Prepared for Milestone A equivalent event ***FY 2025 Plans:*** • Continue NGRV and countermeasure market research • Continue supporting DOE/NNSA NGRV Phase 1 study • Conduct pre-Milestone A operational assessments and integration studies • Continue preparation for Milestone A equivalent event ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increased due to inflationary adjustment.			
Accomplishments/Planned Programs Subtotals	0.000	15.535	16.122

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• RDTE 05 0605238F: *Ground Based Strategic Deterrent EMD*	3,434.623	3,746.935	3,721.024	-	3,721.024	3,791.551	3,568.798	2,890.209	2,012.009	7,557.200	30,722.349
• MPAF 01 MGBSD0: *Ground Based Strategic Deterrent*	0.000	539.300	0.000	-	0.000	1,634.097	4,131.827	5,073.777	5,697.755	69,015.349	86,092.105
• RDTE 04 0603851F: *Intercontinental Ballistic Missile - Dem/Val*	44.751	45.319	119.197	-	119.197	91.584	73.250	136.982	126.651	Continuing	Continuing
• RDTE 03 0603273F: *Science & Technology for Nuclear Re-entry Systems*	22.893	70.321	91.885	-	91.885	127.244	164.414	170.367	173.931	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
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D. Acquisition Strategy

The NGRC acquisition strategy will include competitively awarded contracts, prototype demonstrations and continued engagement and synchronization with the Department of Energy (DOE)/ National Nuclear Security Administration (NNSA). The Air Force is responsible for developing, producing, and maintaining next generation payload systems. DOE/NNSA develops/modifies the nuclear weapon inside the RV and all internal systems and components of the nuclear weapon. Program objectives are to develop and build a next generation payload suite leveraging model based systems engineering (MBSE), Modeling & Simulation, and Open System Architecture (OSA).

The program will employ agile contracting strategies for the next generation RV and advanced countermeasures to fill capability gaps based on a rapidly evolving threat. This will include multiple competitive contract awards, rapid onboarding and offboarding of capabilities, and maintaining a constant link with DOE/NNSA to ensure continued weapon system effectiveness. Overall objectives are to bolster the LGM-35A Sentinel weapon system payload suite by continually leveraging MBSE, M&S, and OSA throughout the mission sets.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101328F / *ICBM Reentry Vehicles*	**Project (Number/Name)** 675920 / *Next Generation Reentry Capabilities*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGRC Operational Assessments and Integration Studies	TBD	TBD : TBD	0.000	-		5.303	Feb 2024	3.158	Feb 2025	-		3.158	Continuing	Continuing	-
		Subtotal	0.000	-		5.303		3.158		-		3.158	Continuing	Continuing	N/A

Remarks

Program plans to explore agile contract vehicle strategies to develop technology trade space for the program, to include countermeasure development, through a widely distributed pool of defense industrial base companies.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGRC Direct Cite Civilian Pay	Various	US Gov Civilians : Hill AFB, UT	0.000	-		2.388	Oct 2023	4.875	Oct 2024	-		4.875	Continuing	Continuing	-
NGRC Integration Support: ISC 1.0	C/CPAF	TBD : TBD	0.000	-		4.114	Feb 2024	-		-		-	Continuing	Continuing	-
NGRC Integration Support: ISC 2.0	C/CPAF	TBD : TBD	0.000	-		-		4.238	Feb 2025	-		4.238	Continuing	Continuing	-
NGRC FFRDC/UARC Support	TBD	TBD : TBD	0.000	-		0.750	Feb 2024	0.773	Feb 2025	-		0.773	Continuing	Continuing	-
NGRC Mission Modeling Framework Support	MIPR	MSIC : Huntsville, AL	0.000	-		1.505	Feb 2024	1.559	Feb 2025	-		1.559	Continuing	Continuing	-
		Subtotal	0.000	-		8.757		11.445		-		11.445	Continuing	Continuing	N/A

Remarks

• NGRC Integration Support: ISC 2.0; FY24 execution may occur on ISC 1.0 depending on contract award timelines; FY25 and out are planned on ISC 2.0.

Acronyms:
Missile and Space Intelligence Center (MSIC)

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force		Date: March 2024
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGRC Program Support Costs	Various	Various : Various	0.000	-		1.475	Feb 2024	1.519	Feb 2025	-		1.519	Continuing	Continuing	-
		Subtotal	0.000	-		1.475		1.519		-		1.519	Continuing	Continuing	N/A

Remarks

- Management services item NGRC Program Support Costs changed from NGRV PMA in the FY25 BES.
- Program support costs may fund Information Technology infrastructure.

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		15.535		16.122		-		16.122	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101328F / *ICBM Reentry Vehicles*	**Project (Number/Name)** 675920 / *Next Generation Reentry Capabilities*

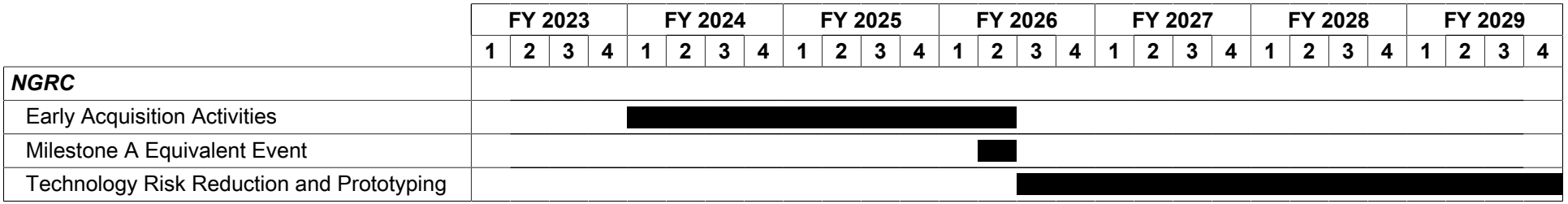

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0101328F / *ICBM Reentry Vehicles*	**Project (Number/Name)** 675920 / *Next Generation Reentry Capabilities*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
NGRC				
Early Acquisition Activities	1	2024	2	2026
Milestone A Equivalent Event	2	2026	2	2026
Technology Risk Reduction and Prototyping	3	2026	4	2029