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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0101125F / <i>Nuclear Weapons Modernization</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	700.249	10.157	9.665	0.000	0.000	0.000	-	-	-	-	-	-
657007: <i>B61 LIFE EXTENSION PROGRAM</i>	700.249	10.157	9.665	0.000	0.000	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 468

A. Mission Description and Budget Item Justification

The purpose of this program element is to conduct and support United States Air Force (USAF) and Joint Department of Defense (DoD) / Department of Energy (DOE) acquisition activities for the modernization of nuclear weapons.

B61-12 Life Extension Program (LEP): The B61-12 LEP will integrate DOE efforts to extend the service life of the warhead with DoD efforts to develop a guided Tail Kit Assembly (TKA) required to maintain current B61 mission characteristics. Programmatic integration of the Air Force-led, joint DoD-DOE program is accomplished through the B61 LEP Project Officers Group (POG) and its subgroups. In accordance with Air Force Materiel Command mission assignment memo (dated 17 Feb 11) and National Nuclear Security Administration (NNSA)-Air Force Nuclear Weapons Center (AFNWC) Memorandum of Understanding (MOU dated 28 Jun 12), the USAF is responsible for development, acquisition and delivery of a guided TKA and All Up Round (AUR) technical integration, system qualification and fielding of the B61-12 variant on multiple platforms.

Funds may be used to address emerging and short-notice Diminishing Manufacturing Sources and Material Shortage (DMSMS) issues.

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 0605831F. In FY20 \$0M was expended for civilian pay expenses in this program element, and in FY21 \$0M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full rate production.

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B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	27.564	9.683	0.000	0.000	0.000
Current President's Budget	10.157	9.665	0.000	0.000	0.000
Total Adjustments	-17.407	-0.018	0.000	0.000	0.000
• Congressional General Reductions	0.000	-0.018			
• 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	-16.539	0.000			
• SBIR/STTR Transfer	-0.868	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000
Change Summary Explanation					
FY 2020 Adjustments					
-\$1.300M, ATR, AF FY20-23 PA DoD FY20-10 PA - FY20 Omnibus (Part 1, Base Implementation II)					
-\$14.000M, ATR, AF FY20-23 PA DoD FY20-10 PA - FY20 Omnibus (Part 1)					
-\$2.539M, BTR, Nuclear Weapons Center civilian pay					
-\$0.868M, SBIR					
FY 2021 Adjustments					
-\$0.018M, Congressional General Reduction					
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022		
Title: Engineering & Manufacturing Development Contract (B61)	8.490	0.000	0.000		
Description: Prime contract to develop, test, integrate and nuclear certify a guided TKA in support of the B61-12 LEP.					
FY 2021 Plans:					
Finalizes B61-12 TKA program practices to ensure the following are met: requirements flow down, requirement allocation to hardware and software, requirements compliance matrix, system performance, reliability, maintainability, product assurance, testability, producibility and supportability.					
FY 2022 Plans:					
N/A					
FY 2021 to FY 2022 Increase/Decrease Statement:					

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
Funding decreased because FY21 is the last year of RDT&E funding for this program. There is no RDT&E funding in FY22 and beyond.				
<p>Title: AUR Technical Integration (B61)</p> <p>Description: Covers all system engineering tasks in support of AUR technical integration, qualification & fielding, including program support to the B61 LEP POG.</p> <p>FY 2021 Plans: Finalizes B61-12 system qualification plan, warhead component qualification, TKA qualifications, and B61-12 AUR integration activities, along with any support to maintain technical and programmatic schedules.</p> <p>FY 2022 Plans: N/A</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding decreased because FY21 is the last year of RDT&E funding for this program. There is no RDT&E funding in FY22 and beyond.</p>		0.100	0.100	0.000
<p>Title: Aircraft Integration (B61)</p> <p>Description: B61-12 activities associated with integration on threshold aircraft, including mission planning system upgrades to accommodate the new weapon variant. Also includes activities related to weapon design compatibility with both threshold and objective aircraft.</p> <p>FY 2021 Plans: Finalizes aircraft F-15E integration activities to support B61-12 AUR technical integration and aircraft integration. Integration activities include verifications for TKA and AUR design verification. Continues integration of B-2, F-15E, F-16 system qualification testing for B61-12 AUR and B-2 mission planning.</p> <p>FY 2022 Plans: N/A</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding decreased because FY21 is the last year of RDT&E funding for this program. There is no RDT&E funding in FY22 and beyond.</p>		1.149	9.465	0.000
<p>Title: Test Support (B61)</p>		0.418	0.100	0.000

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p>Description: Test activities and support for TKA design validation & verification and nuclear certification, as well as B61-12 AUR system qualification (includes design and operational certification activities).</p> <p>FY 2021 Plans: Continues test planning and execution activities to support B61-12 weapon development, AUR technical integration and aircraft integration.</p> <p>FY 2022 Plans: N/A</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding decreased because FY21 is the last year of RDT&E funding for this program. There is no RDT&E funding in FY22 and beyond.</p>			
Accomplishments/Planned Programs Subtotals	10.157	9.665	0.000

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• PAAF 01 354040: B61	55.773	35.634	2.709	-	2.709	-	-	-	-	-	-

Remarks

E. Acquisition Strategy

The Milestone Decision Authority directed a three-fold competitive acquisition strategy at the 30 April 2012 Materiel Development Decision. 1) A single prime contractor was chosen to develop the B61-12 TKA through Engineering Manufacturing and Development (EMD) using full and open competition. EMD consists of two phases; 2) the prime contractor is to maintain competition at the subcomponent level; and 3) a sole source contract was awarded for production to the EMD contractor.

MS-C in 1QFY19 approved entry into Low Rate Initial Production/Lot 1 and the purchase of both long-lead items and life-of-type buys supporting Lot 2 Advanced Procurement for Full Rate Production.

The MDA approved entry into Full Rate Production on October 19, 2020.

B61-12 AUR integration, qualification and acceptance will be conducted through the joint DoD-DOE/NNSA Phase 6.X process and managed through the B61 LEP POG. Sandia National Laboratory will conduct the TKA/Bomb Assembly (BA) technical integration on behalf of the Air Force.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0101125F / Nuclear Weapons Modernization	Project (Number/Name) 657007 / B61 LIFE EXTENSION PROGRAM
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
B61 LEP EMD Contracts	C/CPIF	Boeing : St Charles, MO	325.470	-		-		-		-		-	-	-	325.470
Subtotal			325.470	-		-		-		-		-	-	-	N/A

Remarks
FY21 EMD contract cost decrease due to conclusion of program testing.
EMD Phase II Period of Performance ends June 2020.

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AUR Technical Integration	MIPR	Various : various	72.002	0.100	Jun 2020	0.100	Apr 2021	-		-		-	-	-	-
Aircraft Integration	MIPR	Various : various	184.880	1.149	Feb 2020	0.215	Apr 2021	-		-		-	-	-	-
Subtotal			256.882	1.249		0.315		-		-		-	-	-	N/A

Remarks
FY21 AUR Technical Integration and Aircraft Integration cost aligns with program schedule and requirements in aircraft integration activities.

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support for B61 LEP Development	PO	96 TW : Eglin, FL	63.041	0.418	Mar 2020	0.100	Jun 2021	-		-		-	-	-	-
526.1 Assets	MIPR	Various : Various	8.207	-		-		-		-		-	-	-	-
Subtotal			71.248	0.418		0.100		-		-		-	-	-	N/A

Remarks
FY21 Test Support cost decrease aligns with program schedule and conclusion of test activities.

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Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA	Various	various : various	46.649	8.490	Jan 2020	9.250	Mar 2021	-		-		-	-	-	-
Subtotal			46.649	8.490		9.250		-		-		-	-	-	N/A

Remarks
FY20/21 3600 funds supporting AFNWC/FM Nuclear Surety requirement.

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	700.249	10.157	9.665	-	-	-	-	-	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0101125F / Nuclear Weapons Modernization	Project (Number/Name) 657007 / B61 LIFE EXTENSION PROGRAM

	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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
<i>B61 LIFE EXTENSION PROGRAM</i>																												
Engineering & Manufacturing Development Phase 1	■																											
Engineering & Manufacturing Development Phase 2	■	■	■																									
All-Up-Round Developmental/System Qualification Testing	■	■	■	■																								
Ground Test/Wind Tunnel Test/Flight Test	■	■	■	■																								
Aircraft Integration	■	■	■	■	■	■	■	■																				
TKA Milestone C Decision	■																											
Production Phase	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0101125F / <i>Nuclear Weapons Modernization</i>	Project (Number/Name) 657007 / <i>B61 LIFE EXTENSION PROGRAM</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>B61 LIFE EXTENSION PROGRAM</i>				
Engineering & Manufacturing Development Phase 1	1	2020	1	2020
Engineering & Manufacturing Development Phase 2	1	2020	3	2020
All-Up-Round Developmental/System Qualification Testing	1	2020	4	2020
Ground Test/Wind Tunnel Test/Flight Test	1	2020	4	2020
Aircraft Integration	1	2020	4	2021
TKA Milestone C Decision	1	2020	1	2020
Production Phase	1	2020	1	2023