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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604222F / <i>Nuclear Weapons Support</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	4.311	4.406	35.033	0.000	35.033	32.108	27.202	26.928	25.525	Continuing	Continuing
654236: <i>Engineering Analysis</i>	-	2.822	2.421	4.458	0.000	4.458	5.402	5.097	4.412	2.579	Continuing	Continuing
654807: <i>Nuclear Weapon System Technology and Integration</i>	-	0.000	0.000	19.357	0.000	19.357	19.767	20.123	20.498	20.891	Continuing	Continuing
655708: <i>Nuclear Weapons Support</i>	-	1.489	1.985	11.218	0.000	11.218	6.939	1.982	2.018	2.055	Continuing	Continuing

Note

This program, BA 5, PE 0604222F, project 654807, Weapons Effects, is a new start.
 This program, BA 5, PE 0604222F, project 654807, Air Force Nuclear Red Team (AFNRT), is a new start.
 This program, BA 5, PE 0604222F, project 654807, Advanced Concepts Studies (ACS), is a new start.
 This program, BA 5, PE 0604222F, project 654807, Nuclear Certification, is a new start.

A. Mission Description and Budget Item Justification

The Air Force Nuclear Weapons Center (AFNWC), Kirtland AFB, NM, is the primary executing agency for this program. AFNWC is tasked with maintaining and providing technical expertise on all AF nuclear weapons and weapon systems. This program provides resources for technical and programmatic activities which includes researching, developing and testing new nuclear-certified equipment/systems as well as performing independent analyses on all AF nuclear weapons systems activities including weapons development and sustainment; interoperability; compatibility; safety, security, and reliability; Air Force legacy nuclear stockpile management/retirement; nuclear certification and nuclear certification management.

In FY2021, PE 0104222F, (various projects listed above as New Starts) were transferred to PE 0604222F, Project 654807 (Nuclear Weapons System Technology and Integration), in order to more properly align these efforts with an RDT&E program element.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Nuclear Weapons Support and Integration capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F and 0605833F.

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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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force	Date: February 2020
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604222F / <i>Nuclear Weapons Support</i>
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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	4.468	4.406	16.376	0.000	16.376
Current President's Budget	4.311	4.406	35.033	0.000	35.033
Total Adjustments	-0.157	0.000	18.657	0.000	18.657
• 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	-0.157	0.000			
• Other Adjustments	0.000	0.000	18.657	0.000	18.657

Change Summary Explanation

FY21 increase due to existing activities moving from an O&M portfolio (0104222F) to this RDTE program element (project 654807).

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force										Date: February 2020		
Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 0604222F / Nuclear Weapons Support				Project (Number/Name) 654236 / Engineering Analysis			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
654236: <i>Engineering Analysis</i>	-	2.822	2.421	4.458	0.000	4.458	5.402	5.097	4.412	2.579	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Air Force Nuclear Weapons Center is the executing agency for this program. The Air Force is tasked with maintaining and providing technical expertise on all AF nuclear weapons and weapon systems and conducting mission-level cyber risk analysis, integrating cybersecurity into systems engineering, enhancing adaptability and agility via modular design and approaches, developing a cyber-savvy workforce, increasing assurance in fielded systems in a cost effective and efficient manner, increasing the integration of cyber intelligence and enabling cyber operation flights and cyber protection teams. This program provides resources for technical and programmatic activities which includes performing independent analyses on all AF nuclear weapons systems activities including weapons development and sustainment; interoperability; compatibility; training; safety, security, and reliability; Air Force legacy nuclear stockpile management/retirement; nuclear certification and nuclear certification management. The AFNWC will partner with external agencies to achieve cross cutting solutions to mitigate cyber vulnerabilities. The development of Model Based System Engineering will facilitate the testing and analysis of nuclear weapons systems.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Engineering Analysis	2.822	2.421	4.458	0.000	4.458
Description: Provide the technical oversight of all Air Force (AF) nuclear weapons, delivery systems, and support systems. Provide the engineering and technical management expertise required in critical areas of nuclear weapons safety, security, reliability, operations, modernization, testing, certification, and counter proliferation.					
FY 2020 Plans: Continue to analyze and document nuclear weapons issues related to risk assessment, data collection, model development, model validation and verification, weapon effectiveness, and nuclear stockpile planning and requirements assessment.					
FY 2021 Base Plans: Increase analysis and documentation of nuclear weapons issues related to risk assessment, data collection, model development, model validation and verification, weapon effectiveness, and nuclear stockpile planning and requirements assessment.					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force	Date: February 2020
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Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604222F / <i>Nuclear Weapons Support</i>	Project (Number/Name) 654236 / <i>Engineering Analysis</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Increase efforts on cybersecurity vulnerability analyses and broaden the spectrum to include ground and aircraft systems.					
Accomplishments/Planned Programs Subtotals	2.822	2.421	4.458	0.000	4.458

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

N/A

Remarks

D. Acquisition Strategy

Cost Plus Award Fee (CPAF) and Military Interdepartmental Purchase Request (MIPR) will be used to obtain technical analyses and technical support for safety, operations, and counter proliferation assessments. Supporting activities are contracted separately using contract strategies deemed most appropriate to the effort. All contracts will be openly competed.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604222F / Nuclear Weapons Support	Project (Number/Name) 654236 / Engineering Analysis
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Federally Funded Research and Development Center (FFRDC) Cybersecurity Vulnerability Analysis	MIPR	AEROSPACE : Kirtland AFB, NM	-	1.072	Aug 2019	0.292	Nov 2019	0.600	Nov 2020	-		0.600	Continuing	Continuing	-
FFRDC Emulation of the Strategic Missile Integration Complex (SMIC)	MIPR	AEROSPACE : Kirtland AFB, NM	-	1.170	Jun 2019	0.545	Feb 2020	1.200	Feb 2021	-		1.200	Continuing	Continuing	-
Subtotal			-	2.242		0.837		1.800		-		1.800	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Secure Cyber Facility Support	MIPR	Various : Kirtland AFB, NM	-	0.273	Feb 2019	0.227	Nov 2019	0.500	Nov 2020	-		0.500	0.000	1.000	-
Mission Support	MIPR	AEROSPACE : Kirtland AFB, NM	-	0.227	Oct 2019	0.629	Feb 2020	0.900	Feb 2021	-		0.900	0.000	1.756	-
Model Based Systems Engineering (MBSE)	Reqn	Not specified. : Kirtland AFB, NM	-	-		0.128	Feb 2020	0.458	Feb 2021	-		0.458	Continuing	Continuing	-
Subtotal			-	0.500		0.984		1.858		-		1.858	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
EZ A&AS	Various	Various : Kirtland AFB, NM	-	0.049	Aug 2019	0.431	Feb 2020	0.600	Feb 2021	-		0.600	Continuing	Continuing	-
Program Management Support (PMA)	Various	Various : Kirtland AFB, NM	-	0.031	Oct 2018	0.169	Mar 2020	0.200	Mar 2021	-		0.200	Continuing	Continuing	-
Subtotal			-	0.080		0.600		0.800		-		0.800	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force								Date: February 2020			
Appropriation/Budget Activity 3600 / 5				R-1 Program Element (Number/Name) PE 0604222F / <i>Nuclear Weapons Support</i>				Project (Number/Name) 654236 / <i>Engineering Analysis</i>			
	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals	-	2.822	2.421	4.458	-	4.458	Continuing	Continuing	N/A		

Remarks

FFRDC Cybersecurity Vulnerability Analysis: FY18 carryover permitted funding of FY19 activities. FY20 reflects current allocated FY20 Staff Years of Technical Effort (STE) allocations that have been decreased across AFNWC.

FFRDC Emulation of the Strategic Missile Integration Complex (SMIC): PY increases reflect actuals to initiate an accelerated program through FY19.

Secure Cyber Facility Support PY increase (\$0.273M) reflects actuals supporting the stand-up of engineering analysis capabilities within AFNWC/EZ. FY20 has decreased to reflect actual program operations into FY21, to include facility requirements supporting increase in personnel and mission.

Mission Support PY through FY20 requirements increased reflecting additional PY STE support.

Model Based Systems Engineering (MBSE) PY requirements were delayed into FY20, as manpower was established and will continue to grow into future years.

EZ A&AS requirements reflect PY actuals that were decreased due alternative funding options. The FY20 increase supports increased program requirements supporting establishment of program capabilities across AFNWC/EZ cybersecurity and engineering analysis.

Program Management Support (PMA) PY reflects actuals decreased by alternative funding sources. FY20-21 increases as program capabilities increase overall.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604222F / <i>Nuclear Weapons Support</i>	Project (Number/Name) 654236 / <i>Engineering Analysis</i>
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	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Engineering & Cyber Security Analysis																												
Cyber Security Vulnerability Assessments & Analysis																												
Emulation of the SMIC																												
Secure Cyber Facility Support																												
MBSE																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604222F / <i>Nuclear Weapons Support</i>	Project (Number/Name) 654236 / <i>Engineering Analysis</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Engineering & Cyber Security Analysis</i>				
Cyber Security Vulnerability Assessments & Analysis	1	2019	4	2025
Emulation of the SMIC	1	2019	4	2025
Secure Cyber Facility Support	1	2019	4	2025
MBSE	2	2020	4	2025

Note

MBSE delayed from FY19Q1 into FY20Q2 due to inadequate manpower and facility support. Sufficient support expected in FY20.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force										Date: February 2020		
Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 0604222F / Nuclear Weapons Support				Project (Number/Name) 654807 / Nuclear Weapon System Technology and Integration			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
654807: Nuclear Weapon System Technology and Integration	-	0.000	0.000	19.357	0.000	19.357	19.767	20.123	20.498	20.891	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 5, PE 0604222F, project 654807, Weapons Effects, is a new start.
 This program, BA 5, PE 0604222F, project 654807, Air Force Nuclear Red Team (AFNRT), is a new start.
 This program, BA 5, PE 0604222F, project 654807, Advanced Concepts Studies (ACS), is a new start.
 This program, BA 5, PE 0604222F, project 654807, Nuclear Certification, is a new start.

A. Mission Description and Budget Item Justification

The Air Force Nuclear Weapons Center (AFNWC) is the executing agency for this program that ensures the safety, survivability, security, and reliability of Air Force nuclear weapon systems in direct support to the National Command Structure and military warfighter with emphasis placed on assurance of survivability and mitigation of vulnerabilities to these unique systems. These requirements are met through studies and analyses, demonstration, modeling and simulation (M&S), test and evaluation (T&E), trade studies, requirements analysis, and recommendations to planning, policy, and doctrine.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Weapons Effects	0.000	0.000	6.051	0.000	6.051
<p>Description: Ensures survivable and effective AF systems through evaluation, test, and analyses of nuclear environments and their impact to AF platforms. Develops and maintains the sole AF analytical capability to assess nuclear effects, systems inherent hardness and mission degradation within a nuclear environment. These efforts shape requirements for new acquisitions, fielded systems, as well as providing critical expertise for exercises and operational planning.</p> <p>FY 2020 Plans: FY 2021 new start. Program moves from O&M (PE 0104222F) into RDT&E beginning in FY21.</p> <p>FY 2021 Base Plans: Development, modernization, verification and validation of modeling and simulation (M&S) tools. Develop rigorous methods and tools for testing and predictive response to nuclear effects. Perform analysis to establish hardness requirements within the weapon system specification for current and future delivery aircraft, support</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604222F / <i>Nuclear Weapons Support</i>	Project (Number/Name) 654807 / <i>Nuclear Weapon System Technology and Integration</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>aircraft, weapon systems, Intercontinental Ballistic Missiles (ICBM), and associated Nuclear Command, Control, and Communication (NC3) assets. Develop methods and tools used to assure weapon effectiveness in operationally relevant environments.</p> <p>FY 2021 OCO Plans: N/A</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: FY 2021 new start. Program moves from O&M (PE 0104222F) into RDT&E beginning in FY21.</p>					
<p>Title: Air Force Nuclear Red Team (AFNRT)</p> <p>Description: The Air Force Nuclear Red Team (AFNRT) independently evaluates vulnerabilities of current and future strategic systems across their lifecycle vs near term and emerging threats. These strategic systems capability assessments include nuclear weapon systems fragility analyses, Vulnerability Modes & Effects Analysis, M&S and effects testing. As part of the effort to assess the vulnerabilities, data is used from various tests and modeling and simulation tools to develop mitigation strategies for consideration by program offices. This analysis of various threats to AF nuclear weapons systems is used to inform warfighter concept of operations (CONOPS), modernization activities, and new acquisitions.</p> <p>FY 2020 Plans: FY 2021 new start. Program moves from O&M (PE 0104222F) into RDT&E beginning in FY21.</p> <p>FY 2021 Base Plans: Assessing strategic system capabilities/vulnerabilities relative to Air-Delivered (AD) nuclear weapon systems, ICBMs, and NC3. Threat evaluations and analyses to address current and future threats that include, but not limited to, kinetic, Electronic Warfare (EW), cyber, supply chain and maintenance/logistics vulnerabilities. Assessments are evaluated using existing weapon/platform pairing with current and emerging threat vectors, as well as proposed modernization requirements. AD, ICBM, and NC3 assessments are used in the development of requirements, CONOPS and TTPs for modernization activities, and new acquisitions. These assessments include nuclear weapon systems fragility analyses, Vulnerability Modes & Effects Analysis, M&S and conduct effects testing.</p> <p>FY 2021 OCO Plans: N/A</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement:</p>	0.000	0.000	13.306	0.000	13.306

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force				Date: February 2020	
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604222F / <i>Nuclear Weapons Support</i>		Project (Number/Name) 654807 / <i>Nuclear Weapon System Technology and Integration</i>		
B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
FY 2021 new start. Program moves from O&M (PE 0104222F) into RDT&E beginning in FY21.					
<p>Title: Advanced Concepts Studies (ACS)</p> <p>Description: Provides independent, analytical assessments to address current capability gaps and emerging warfighting needs of the nuclear enterprise through execution of early systems acquisition studies, analyses, and facilitation of technical demonstrations. Efforts are centered on future threats and requirements with a focus on maintaining or increasing system survivability. Activities inform the efforts of the science and technology community and are coordinated with the NNSA/DOE to enhance synergy within Joint DoD-DOE Nuclear Weapons Lifecycle activities.</p> <p>FY 2020 Plans: FY 2021 new start. Program moves from O&M (PE 0104222F) into RDT&E beginning in FY21.</p> <p>FY 2021 Base Plans: This activity is being transferred from other AFNWC program elements, the extent of which was not known when this document was created.</p> <p>FY 2021 OCO Plans: N/A</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: N/A</p>	0.000	0.000	0.000	0.000	0.000
<p>Title: Nuclear Certification</p> <p>Description: Nuclear certification management provides AF independent technical evaluations for delivery systems, support equipment, and facilities to ensure compliance with DoD and AF nuclear safety/compatibility policies in support of fielded system sustainment, modifications, and upgrades, seven new ACAT I/II acquisition programs, five new weapon generations facilities, and upgrades to the Master Nuclear Certification List infrastructure.</p> <p>FY 2020 Plans: FY 2021 new start. Program moves from O&M (PE 0104222F) into RDT&E beginning in FY21.</p> <p>FY 2021 Base Plans:</p>	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604222F / <i>Nuclear Weapons Support</i>	Project (Number/Name) 654807 / <i>Nuclear Weapon System Technology and Integration</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
This activity is being transferred from other AFNWC program elements, the extent of which was not known when this document was created. FY 2021 OCO Plans: N/A FY 2020 to FY 2021 Increase/Decrease Statement: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	19.357	0.000	19.357

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

N/A

Remarks

D. Acquisition Strategy

Multiple Cost Plus Fixed Fee (CPFF) and/or Time and Material (T&M) and Military Interdepartmental Purchase Requests (MIPR) are/will be used to obtain technical analyses and/or technical support for the technology and integration processes. All contracts will be openly competed.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604222F / Nuclear Weapons Support	Project (Number/Name) 654807 / Nuclear Weapon System Technology and Integration
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Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Assessments	MIPR	SNL, LLNL, LANL (LABS) : Kirtland AFB, NM	-	0.000		0.000		5.630	Jan 2021	0.000		5.630	Continuing	Continuing	-
Modeling & Simulation	C/CPFF	Peerless : Kirtland AFB, NM, NM	-	0.000		0.000		3.095	Apr 2021	0.000		3.095	Continuing	Continuing	-
RV Analysis	MIPR	MSIC : Kirtland AFB, NM	-	0.000		0.000		1.800	Jun 2021	0.000		1.800	Continuing	Continuing	-
Engineering Support	MIPR	Aerospace (SMC) : Kirtland AFB, NM	-	0.000		0.000		2.075	Oct 2020	0.000		2.075	Continuing	Continuing	-
Security Support	MIPR	ManTech : Kirtland AFB, NM	-	0.000		0.000		0.633	Jan 2021	0.000		0.633	Continuing	Continuing	-
Program Support	C/CPFF	DTIC (DS-TAT) : Kirtland AFB, NM	-	0.000		0.000		3.700	Jun 2021	0.000		3.700	Continuing	Continuing	-
Subtotal			-	0.000		0.000		16.933		0.000		16.933	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Weapons Effects Uncertainty Testing	MIPR	Not specified. : Kirtland AFB, NM	-	0.000		0.000		1.600	May 2021	-		1.600	Continuing	Continuing	-
Thermal Test	Allot	AFRL : Kirtland AFB, NM	-	0.000		0.000		0.300	Jan 2021	-		0.300	Continuing	Continuing	-
Subtotal			-	0.000		0.000		1.900		-		1.900	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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 : Kirtland AFB, NM	-	0.000		0.000		0.524	Sep 2021	0.000		0.524	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force **Date:** February 2020

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Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	0.000		0.000		0.524		0.000		0.524	Continuing	Continuing	N/A
Project Cost Totals			-	0.000		0.000		19.357		0.000		19.357	Continuing	Continuing	N/A

Remarks
The funding increase is due to activities moved into PE 0604222F (BPAC 654807) to more properly align with RDT&E activities.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604222F / <i>Nuclear Weapons Support</i>	Project (Number/Name) 654807 / <i>Nuclear Weapon System Technology and Integration</i>

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
AF Nuclear Red Team																												
SSCA Vulnerability Assessments																												
Weapons Effects																												
Thermal Testing																												
Weapons Uncertainty																												
Modeling & Simulation																												
Program Support																												
Engineering																												
Security																												
Program																												
PMA																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force		Date: February 2020
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>AF Nuclear Red Team</i>				
SSCA Vulnerability Assessments	2	2021	1	2025
<i>Weapons Effects</i>				
Thermal Testing	2	2021	1	2025
Weapons Uncertainty	3	2021	2	2022
Modeling & Simulation	3	2021	2	2025
<i>Program Support</i>				
Engineering	1	2021	4	2025
Security	2	2021	4	2025
Program	3	2021	2	2025
PMA	4	2021	4	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force										Date: February 2020		
Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 0604222F / Nuclear Weapons Support				Project (Number/Name) 655708 / Nuclear Weapons Support			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
655708: Nuclear Weapons Support	-	1.489	1.985	11.218	0.000	11.218	6.939	1.982	2.018	2.055	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

New Weapon Generation Facilities (WGF) within AFGSC are adopting a new concept of operations by integrating maintenance and storage mission sets into one facility. To support mission generation requirements, facility support equipment and capabilities must be reviewed, modified or in extreme cases, re-developed in order to maintain operational readiness. Examples of equipment under review include, but not limited, munition trailers/accessories, munition lifts/accessories, tow vehicles and munition test/maintenance stands such as the MHU-141, MHU-174, MHU-83, MHU-196/204 & MB-4. This review and potential modification of existing equipment ensures mission generation remains executable.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Weapon Generation Facility Material Handling Systems	1.489	1.985	11.218	0.000	11.218
Description: Weapon Generation Facility Material Handling System Review					
FY 2020 Plans: This effort will continue the review of material handling system equipment to accommodate the new WGF concept of operations by integrating maintenance and storage mission sets into one facility. Analysis will determine the ability of existing equipment capability to support mission generation requirements and facility support equipment. Analysis will determine whether modification or re-development of equipment is required.					
FY 2021 Base Plans: This effort will continue the review of material handling system equipment to accommodate the new WGF concept of operations by integrating maintenance and storage mission sets into one facility. Examples of equipment under review include, but not limited, munition trailers/accessories, munition lifts/accessories, tow vehicles and munition test/maintenance stands such as the MHU-141, MHU-174, MHU-83, MHU-196/204 & MB-4. Current efforts will include the development, design, and test of suitable WGF munition tow equipment. Budget include funds for PMA, A&AS, travel and other equipment required to execute program activities as well as develop nuclear-related requirements across the enterprise that impact operations of the WGF.					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force	Date: February 2020
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Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604222F / <i>Nuclear Weapons Support</i>	Project (Number/Name) 655708 / <i>Nuclear Weapons Support</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
FY21 funding increase due to greater efforts in analyzing existing equipment capability to support mission requirements. Results will determine whether modification or re-development of equipment is required.					
Accomplishments/Planned Programs Subtotals	1.489	1.985	11.218	0.000	11.218

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

N/A

Remarks

D. Acquisition Strategy

The acquisition strategy for a WGF-capable munitions tow equipment is expected to be modified commercial off-the-shelf (COTS) based on market research but may change pending any industry responses to government solicitation. The acquisition strategy for any additional equipment is on-going and will focus on determining if existing support equipment can be modified or if a re-development effort is required. Once the analysis determines which course of action is required the appropriate acquisition strategy will be defined.

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604222F / <i>Nuclear Weapons Support</i>	Project (Number/Name) 655708 / <i>Nuclear Weapons Support</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>WGF - Facility Support Equipment</i>				
Market Research/Contract Development (Tug)	3	2019	2	2020
Facility Support Equipment Modification/Development	1	2020	4	2025
Requirements Definition (Munition Loader)	1	2020	2	2020
Market Research (Munition Loader)	3	2020	4	2020