Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605805A *I Munitions Standardization, Effectiveness and Safety*							
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	-	52.401	55.648	43.042	-	43.042	-	-	-	-	-	-
297: *Mun Survivability & Log*	-	14.954	19.343	16.842	-	16.842	-	-	-	-	-	-
857: *DoD Explosives Safety Standards*	-	1.782	-	-	-	-	-	-	-	-	-	-
858: *Army Explosives Safety Management Program*	-	0.969	0.413	1.418	-	1.418	-	-	-	-	-	-
859: *Life Cycle Pilot Process*	-	15.370	22.487	5.501	-	5.501	-	-	-	-	-	-
F21: *NATO Ammo Evaluation*	-	0.490	0.722	0.514	-	0.514	-	-	-	-	-	-
F24: *Conventional Munitions Demil*	-	18.836	12.683	18.767	-	18.767	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) supports continuing technology investigations by providing a coordinated Tri-Service mechanism for the collection and free exchange of technical data on the performance and effectiveness of all non-nuclear conventional munitions and weapons systems in a realistic operational environment.

Project 296 - This Project will support research, development and testing to identify, characterize and resolve reliability, safety, storage and manufacturing issues that impact production availability and field use of demolitions, grenades, shoulder launched munitions, mines and mine clearing charges and pyrotechnics, including training realism. Project will result in the development and demonstration of new, safe, reliable and environmentally acceptable munitions.

Project 297 - Munitions Survivability & Logistics: This Project supports the future force by making Army units more survivable through the investigation, testing and demonstration of munitions logistics system improvements that prevent or minimize catastrophic explosive events and accelerate ammunition resupply. Key thrusts are munitions storage area survivability, Insensitive Munitions (IM) technology integration and compliance, ammunition management and asset visibility, weapon system rearm, munitions configured load enablers and advanced packaging and distribution system enhancements. Within each thrust, a broad array of solutions will be identified, tested, and evaluated against developed system measures of effectiveness. Optimum, cost effective and efficient solutions that enable the rapid projection of lethal and survivable forces will be demonstrated. The early stages of force deployment are especially critical. Theater ammunition storage areas are vulnerable and present the enemy with lucrative targets. These areas and distribution nodes contain the only available munitions stocks in theater. Loss of these munition stocks could cripple the force, jeopardize the mission, and result in high loss of life. This Project mitigates vulnerabilities and ensures a survivable fighting force.

Project 857 - DoD Explosives Safety Standards: This Project supports the Research, Development, Test, and Evaluation efforts of the Department of Defense (DoD) Explosive Safety Standards Board. It supports explosive safety effects research and testing to quantify hazards and to develop techniques to mitigate those hazards in all DoD manufacturing, testing, transportation, maintenance, storage, disposal of ammunition and explosives operations, and also to develop risk based explosives

safety standards. Results are essential to the development and improvement of quantity-distance standards, hazard classification procedures, cost effective explosion-resistant facility design procedures, and personnel hazard/protection criteria.

Project 858 - Army Explosives Safety Management Program: This Project establishes, validates or modifies explosives technical safety requirements per Department of Defense Manual 6055.09 and Department of the Army Pamphlet 385-64, Ammunition and Explosives Safety Standards. Project activities promote Research, Development, Test, and Evaluation (RDTE) of new and innovative explosives safety technologies that improve the survivability of Army personnel, facilities, and equipment as well as improve the health, safety and welfare of the general public (with highest priority directed to combat theater of operations).

Project 859 - Life Cycle Pilot Process: This Project supports the implementation of the Single Manager for Conventional Ammunition (SMCA) Industrial Base Strategic Plan through technology investigations, model based process controls, pilot prototyping, and industrial assessments. It will assess life cycle production capabilities required for all ammunition families, address design for manufacturability to facilitate economical production, identify industrial and technology requirements, and address the ability of the production base to rapidly and cost effectively produce quality products. Cost reduction is an important part of the Life Cycle Pilot Process (LCPP). LCPP provides the resources to prototype critical technologies and develop the knowledge base to establish cost effective, environmentally safe and modern production processes in support of the munitions Industrial Base transformation. In addition, the LCPP program addresses Single Point Failures (SPFs) / No Source of supply within the National Technology Industrial Base (NTIB). LCPP provides support to reduce supply chain risk by investigating, developing and evaluating additional sources of supply for a known SPF.

Project F21: North Atlantic Treaty Organization (NATO) Ammunition Evaluation program funding ensures interchangeability of ammunition and weapons among all the NATO countries with all of the associated logistic, strategic and tactical advantages of the alliance. This Project involves development and testing compliance of NATO standardization agreements (STANAGS) and staffing of the North American Regional Test Center (NARTC). In addition, this Project supports small caliber ammunition, 50mm ammunition, 40mm grenade munitions, medium caliber cannon ammunition, and large caliber ammunition enhancements to lethality, effectiveness, survivability, accuracy, and general product improvements. This Project also supports the standardization and interchangeability of legacy and new production United States (US) weapons and ammunition with Allied Nations to maximize battlefield interchangeability/ compatibility under the auspices of international agreements to include NATO working groups, the Joint Ballistics Memorandum of Understanding (JBMOU), and information/ data exchange agreements. Maximizing standardization, interchangeability, and exportability will also potentially increase Foreign Military Sales (FMS) of US indirect fire weapon and munition products to support US industrial base production and affordable Department of Defense pricing through increased economies of scale. Fiscal Year 2022 (FY22) funding will support NATO and JBMOU artillery and small arms ammunition interchangeability group meetings, documentation, and test operations.

Project F24: Conventional Munitions Demilitarization (Demil): The Conventional Munitions Demilitarization technology Project supports the SMCA responsibility per Department of Defense Instruction (DoDI) 5160.68 to plan, program, budget and fund a Joint Service Research and Development (R&D) program that develops capability and capacity as well as technology and facilities to support the SMCA mission to demil and dispose of conventional ammunition stored in the SMCA Resource, Recovery and Disposition Account (B5A). The program goals include SMCA efforts to increase efficiencies and effectiveness to reduce the demil stockpile; reduce processing costs including packaging, handling and crating; and increase capacity through improved demilitarization capabilities and processes. Project F24 includes activities: (1) to establish requirements and develop processes to focus investments, assess capabilities, analyze alternatives, and recommend and implement R&D projects; (2) to improve products and processes that support existing capabilities; (3) to develop or improve demil methods and processes related to advance the

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
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primary demilitarization core thrust areas of destruction, disassembly, removal, resource recovery and recycling, and waste stream treatment; (4) to ensure safe and environmentally acceptable demil operations; (5) to transition R&D products to United States Army depots or plants as well as commercial facilities performing demil; and (6) to mitigate risk and close-out project activities.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	54.458	40.133	41.518	-	41.518
Current President's Budget	52.401	55.648	43.042	-	43.042
Total Adjustments	-2.057	15.515	1.524	-	1.524
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-6.020			
• Congressional Rescissions	-	-			
• Congressional Adds	-	23.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.229	-			
• SBIR/STTR Transfer	-1.828	-1.465			
• Adjustments to Budget Years	-	-	1.524	-	1.524

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2020	FY 2021
Project: 297: *Mun Survivability & Log*		
Congressional Add: *Munitions Standardization, Effectiveness and Safety - Polymer-Cased Ammunition*	-	5.000
Congressional Add Subtotals for Project: 297	-	5.000
Project: 859: *Life Cycle Pilot Process*		
Congressional Add: *Congressional Add*	10.000	-
Congressional Add: *Program increase - foamable celluloid materials*	-	5.000
Congressional Add: *Program increase - neutron radiography technology*	-	5.000
Congressional Add: *Program increase - industrial base resiliency initiative*	-	8.000
Congressional Add Subtotals for Project: 859	10.000	18.000
Congressional Add Totals for all Projects	10.000	23.000

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) 297 / *Mun Survivability & Log*	

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
297: *Mun Survivability & Log*	-	14.954	19.343	16.842	-	16.842	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports the future force by making Army units more survivable through the investigation, testing and demonstration of munitions logistics system improvements that prevent or minimize catastrophic explosive events and accelerate ammunition resupply. Key thrusts are munitions storage area survivability, Insensitive Munitions (IM) technology integration and compliance, ammunition management and asset visibility, weapon system rearm, munitions configured load enablers and advanced packaging and distribution system enhancements. Within each thrust, a broad array of solutions will be identified, tested, and evaluated against developed system measures of effectiveness. Optimum, cost effective and efficient solutions that enable the rapid projection of lethal and survivable forces will be demonstrated. The early stages of force deployment are especially critical. Theater ammunition storage areas are vulnerable and present the enemy with lucrative targets. These areas and distribution nodes contain the only available munitions stocks in theater. Loss of these munition stocks could cripple the force, jeopardize the mission, and result in high loss of life. This Project mitigates vulnerabilities and ensures a survivable fighting force while providing leap ahead technology to meet the Multi-Domain Operations and the priorities identified by the Long Range Precision Fires & Solider Lethality Cross Function Teams.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Munitions Predictive Life	0.613	1.352	2.052

Description: This activity will demonstrate technologies and algorithms that can help assess munitions serviceability based upon aggregate environmental exposures, system cycling and munition degradation models. The activity will provide life cycle management tools for risk mitigation strategies, while reducing testing, inspection & surveillance required as well as improving weapon system reliability and warfighter effectiveness. This Project will specifically assess munitions serviceability based upon aggregate environmental exposures, system cycling and munition degradation models during the tactical distribution of munitions after munitions are re-configured to distribution focused multi-DODIC consolidation packs.

FY 2021 Plans:

Demonstrate improved performance of an integrated reduced footprint temperature/humidity exposure reliability sensor. Demonstrate lower cost alternative accelerometer design for Remote Readiness Asset Prognostic/Diagnostic System (RRAPDS). Conduct recurring market surveys of emerging passive Radio Frequency Identification technologies and active and passive environmental sensors for legacy munitions, select and test viable candidates. Evaluate potential for propellant temperature sensors on additional munitions. Incorporate munition monitoring technologies into an operational demonstration. Evaluate lead free solder based circuit card assembly alternatives. Conduct assessment of environmental impacts on emerging LRPF propellant components, fuze types, and projectile configurations.

FY 2022 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Develop an active ruggedized temperature/humidity/shock/vibration exposure sensor that integrates with a prototype flatrack based consolidator under development for 155mm ammunition, and will enable monitoring of the operational exposure thresholds during transport to Tactical Resupply point. Develop an active ruggedized environmental exposure sensor for ammunition that integrates with emerging hybrid ammunition packaging containers/consolidators of dismounted infantry items to monitor operational exposure thresholds during transport through last tactical mile. Develop sensor configurations to monitor environmental exposure of emerging LRPF propellant components, fuze types, and projectile configurations. Continue recurring market surveys of emerging passive Radio Frequency Identification technologies and active and passive environmental sensors for legacy munitions, select and evaluate viable candidates. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to developing a monitoring capability requirement for Long Range Precision Fires (LRPF) modernization objectives.			
Title: Insensitive Munitions (IM) Integration Program ***Description:*** Demonstrate multiple IM technologies and integrate into end item(s) to improve munitions survivability and warfighter safety. IM Technologies, using State-of-the-Art materials, will be developed in the areas of warhead, propulsion and propellants, explosives, packaging, and barriers. In addition, modeling and simulation will be used to reduce development and testing costs. Efforts will increase the number of IM compliant ammunition items fielded to mitigate munitions reaction to unplanned stimuli such as fire, fragments, enclosed heat build-up (cook-off), bullets, adjacent munitions reaction (sympathetic detonation), and shape charge jet attacks. ***FY 2021 Plans:*** Complete end item testing of high energy pressed explosives to replace Comp A5 for improved reaction violence to shock and slow heating. Demonstrate medium caliber, foamed celluloid cartridge cases for improved response to shock and thermal threats in support of Next Generation Combat Vehicle (NGCV), Future Vertical Lift (FVL) and Soldier Lethality (SL) modernization priorities. Complete fragment impact testing on new igniter formulations to replace Benite in 120mm tank munitions. Perform IM testing on the M433E1 40MM Cartridge to integrate explosive technology along with warhead, packaging venting and impact mitigation technologies. Continue development of Dinitropyrazole (DNP) based formulation in 120mm mortar for improved IM and lethality to support of LRPF modernization priority. Optimize DNP formulation with added nitramines, for an improved Insensative Munitions (IM) formulation that matched Polymer Based Explosive (PBXN-110) performance. Continue to develop Lab Resonance Acoustic Mixing (RAM) technology to coat nanonitramine formulations for improved shock sensitivity at reduced cost to support LRPF and Air and Missile Defense (AMD) priorities. Demonstrate optimized plastic containers for large caliber munitions to mitigate both fast and slow cook-off events. Conduct final testing of the non-deforming packaging configurations to prevent	6.468	5.720	6.813

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 297 / *Mun Survivability & Log*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
mass detonation events in tightly-packed medium caliber munitions. Complete development of deflection plate technology for an integrated packaged design. ***FY 2022 Plans:*** Complete demonstration of medium caliber, foamed celluloid cartridge cases for improved response to shock and thermal threats in support of NGCV, FVL and Soldier Lethality SL modernization priorities. Complete fragment impact and ballistic testing of new igniter formulations to replace Benite in 120mm tank munitions. Initiate final testing of the M433E1 40MM Cartridge to integrate explosive technology along with warhead, packaging venting and impact mitigation technologies. Complete testing of DNP based formulation in 120mm mortar for improved IM and lethality to support SL modernization priority. Complete characterization tests of Titan II samples fabricated using Lab RAM technology to coat nanonitramine formulations and for improved shock sensitivity at reduced cost to support LRPF and AMD priorities. Demonstrate optimized plastic containers for large caliber munitions to mitigate both fast and slow cook-off events. Conduct impact testing of the deflection plate technology for an integrated packaged design. Demonstrate container heat management technology to mitigate cook-off events in mortar systems. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Inflation adjustment.			
Title: Improved Munitions Packaging ***Description:*** This activity will demonstrate upgrades to existing packaging components and materials to improve legacy ammunition survivability. These upgrades will enhance ammunition survivability and reliability, improve field ammunition operations, and improve packaging. This activity will also demonstrate intermediate packaging concepts and components to improve survivability once removed from bulk packs for finer grain distribution through the BCT. ***FY 2021 Plans:*** Conduct verification testing for the Rapid Access Container Consolidator (RACC) program for the transportation of M2A2 containers. Conduct engineering and verification testing for the plastic rectangular container to integrate it for use with the next generation weapon systems. Conduct verification testing on the lightweight steel M2A2 container as part of the Lighten the Load program for use with the next generation weapon system. Conduct verification testing on the M548 Tracked Cargo Carrier container with embossed rub-rail for small and medium caliber ammunition. Conduct assessment of environmental impacts on emerging LRPF propellant components, fuze types, and projectile configurations to identify mitigation techniques/opportunities. ***FY 2022 Plans:*** Develop packaging configuration/consolidation prototypes and perform engineering testing for the 155mm family of extended range components for the transportation and resupply of extended range cannon artillery. Conduct pallet testing as part of the undervalued hardwood program. Assess viability of packaging concepts for transporting 155mm ammunition items forward of the Ammunition Storage Point to the Tactical Resupply Point to meet emerging Long Range Precision Fire CFT modernization	2.640	2.012	2.698

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 297 / *Mun Survivability & Log*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
requirements. Investigate ammunition container lids, latches, security seal, tie downs, palletization methods and environmental sealing techniques that provide more efficient automation opportunities for resupply. Develop hybrid light weight small arms packaging concepts to meet Soldier Lethality modernization resupply requirements. Conduct qualification testing on selected ammo packaging concepts that provide desired functional characteristics at acceptable unit cost supporting the JPEO Armaments & Ammunition portfolio of items. Develop packaging configurations to protect against environmental effects on emerging LRPF propellant components, fuze types, and projectile configurations. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Inflation adjustment.			
Title: Ammo Provider ***Description:*** This activity demonstrates technologies that will assure a survivable munitions logistics system by increasing distribution velocity and protecting ammo storage areas. Technology areas to be investigated include ammunition asset visibility, including environmental sensors, marking technologies, and supply chain modeling; ammunition management, including improvements in stockpile surveillance and condition based management; sustainment, including pre-configured loads (soldier to unit size); field ammo reconfiguration capability, robotic handling, and improved load building capability; and force protection, including site planning software and field storage protection. All research and development initiatives will be supporting the Long Range Precision Fires & Solider Lethality Cross Functional Teams (CFTs) and the multi domain operations modernization objectives that consume, store or transport/distribute munitions and munition components in the maneuver formations. ***FY 2021 Plans:*** Continue incremental development and user evaluations of the Class V Adaptive Demand Estimation System (CADES) prototype to demonstrate increasingly complex capabilities to include support of multi-vessel ammunition call forward planning and establishing theater wide stock objectives. Develop Munitions Survivability Software (MSS) capabilities to support disconnected operations, continue executing extended user evaluations and compile documentation to support transition to a Product Manager. Support continued validation of the Distribution and Retrograde Adaptive planning and execution Management (DRAM) prototype to prepare for transition. Perform initial user evaluations of the Configured Load Building Tool (CLBT) capability supplemented with augmented reality technology to enable more efficient load building. Receive prototype Loose Ammo Turn In capability and conduct tactical testing in representative environments. Begin blue printing for Tactical Ammunition Management System (TAMS), an ammunition Mission Command across the maneuver formations. Complete evaluation of viability of the Ammunition Quality Decision Tool. Improve logistics performance by exploiting man-machine teaming to provide supervisory control capabilities for workload tasking in an ammunition storage node. Develop technologies to facilitate the turn in, inspection, and retrograde of small	5.233	5.259	5.279

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
to medium caliber ammunition in forward tactical environments. Provide support to year 3 of the Unmanned Logistics System - Air (ULS-A) JCTD. ***FY 2022 Plans:*** Develop a suite of ammunition logistics enablers to meet the Long Range Precision Fire CFT modernization objectives for the Extended Range Cannon Artillery to include 1) Extend the current CADES to optimize configuration, location, information, consumption, and planning/forecasting for all ammo items, 2) Adapting the CLBT to anticipatory planning for allocation of ammunition demand with FSC transportation assets, 3) Enhance the MSS capability to provide explosive safety vehicle separation distances for any military vehicle uploaded with ammo, 4) Develop high fidelity models to fully assess emerging Field Artillery Automated Resupply (FAAR) concepts and the resupply and retrograde benefits that may accrue through deployment. 5) Develop ammo handling enablers to meet LRPF CFT driven requirements for increased ammunition distribution velocity and capabilities to reduce crew burden while increasing upload rates during ammunition resupply operations. Develop scoring metrics to determine operational benefits of variable levels of automation applied to ERCA resupply. Develop ammo handling enablers to meet Soldier Lethality CFT modernization objectives of improved ammunition distribution velocity and a more responsive ammunition supply chain to meet dismounted infantry lethality/mobility requirements. Conduct an extended user evaluation of MSS with the US Marines to validate all operational and interface requirements have been met. Provide and support CADES technology transition to migrate Artificial Intelligence planning tools to integrate within TAMS to enable tactical ammunition mission command. Develop Unmanned Logistics System - Air payload configuration enablers and anticipatory planning functions to reduce cycle time of routine small unit resupply operations. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Slight decrease - 2%			
Accomplishments/Planned Programs Subtotals	14.954	14.343	16.842

	FY 2020	FY 2021
Congressional Add: Munitions Standardization, Effectiveness and Safety - Polymer-Cased Ammunition	-	5.000
FY 2021 Plans: This was assigned to APE 665805 project 297 in error. It should be transferred to the Navy.		
Congressional Adds Subtotals	-	5.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 297 / *Mun Survivability & Log*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) 857 / *DoD Explosives Safety Standards*	

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
857: *DoD Explosives Safety Standards*	-	1.782	-	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element (PE) supports continuing technology investigations. It provides a coordinated tri-Service mechanism for the collection and free exchange of technical data on the performance and effectiveness of all non-nuclear conventional munitions and weapons systems in a realistic operational environment.

Project 857 - DoD Explosives Safety Standards: This Project supports the Research, Development, Test, and Evaluation efforts of the Department of Defense (DoD) Explosive Safety Standards Board. It supports explosive safety effects research and testing to quantify hazards and to develop techniques to mitigate those hazards in all DoD manufacturing, testing, transportation, maintenance, storage, disposal of ammunition and explosives operations, and also to develop risk based explosives safety standards. Results are essential to the development and improvement of quantity-distance standards, hazard classification procedures, cost effective explosion resistant facility design procedures, and personnel hazard/protection criteria.

This Project supports the Research, Development, Test, & Evaluation (RDTE) efforts of the Department of Defense (DoD) Explosive Safety Standards Board. It supports explosive safety effects research and testing to quantify hazards and to develop techniques to mitigate those hazards in all DoD manufacturing, testing, transportation, maintenance, storage, disposal of ammunition and explosives operations, and also to develop risk based explosives safety standards. Results are essential to the development and improvement of quantity-distance standards, hazard classification procedures, cost effective explosion resistant facility design procedures, and personnel hazard/protection criteria.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Explosive and Munitions Tests ***Description:*** Testing aimed at solving practical problems and increasing predictability of the effects of explosions and impacts on people, materials and structures. Additionally, testing provides data on the interaction of explosives in various configurations. Testing results are used to improve predictability of effects from explosive incidents and improve criteria to protect people, structures and the environment from the damaging effects of DoD munitions.	0.605	-	-
Title: Explosive Safety Standards (ESS) Implementation Methodologies & Tools ***Description:*** Provide tools to support site planning and risk assessment in the garrison and contingency environments. Provide tools and improvements for UFC 3-340-02 and Substantial dividing wall criteria. Provide methodologies and tools to perform site-specific analyses, databases for critical explosives safety information, and standardized designs to reduce design costs. Develop models to predict response for large scale explosion effects.	0.150	-	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Standard Development & Improvement ***Description:*** Improve and revise all DoD Explosives Safety Standards (for hazard classification, quantity distance, and protective construction) to keep them current with changing technology and incorporate knowledge gained from the testing program. Shape and leverage with international community (NATO & UN). Develop Advanced (e.g. risk-based) siting criteria.	0.456	-	-
Title: Web-Based Explosive Safety Siting (ESS) ***Description:*** Provide tools to support site planning and risk assessment in the garrison and contingency environments. Convert desktop ESS to Web-Based ESS and stand up on the government cloud on the Defense Installations Spatial Data Infrastructure (DISDI) Portal. Develop and demonstrate the ability to exchange data from Web-Based ESS dataset storage with Marine Ammunition Knowledge Enterprise (MAKE) Environmental Explosives Safety (EES) to create a DoD wide enterprise explosives safety database.	0.571	-	-
Accomplishments/Planned Programs Subtotals	1.782	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) 858 / *Army Explosives Safety Management Program*	

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
858: *Army Explosives Safety Management Program*	-	0.969	0.413	1.418	-	1.418	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project establishes, validates or modifies explosives technical safety requirements per Department of Defense Pamphlet 385-64, Ammunition and Explosives Safety Standards. Project activities promote Research, Development, Test, & Evaluation (RDTE) of new and innovative explosives safety technologies that improve the survivability of Army personnel, facilities, and equipment as well as improve the health, safety and welfare of the general public. FY 2021 funding will support continued testing, validation, and regulatory integration for permanent, temporary and mobile ammunition & explosives (A&E) facilities as well as operations. The Defense Ammunition Center/US Army Technical Center for Explosives Safety (DAC/USATCES) will team with and sponsor agencies (Joint Service, Academia, and Contractor) to improve the effectiveness of identifying, analyzing, and apply risk acceptance to ammunition and explosive environments.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Risk based explosives safety criteria ***Description:*** Development of risk based explosives safety criteria that will aid commanders and safety personnel in the transition from regulation to risk management. ***FY 2021 Plans:*** Will continue explosives testing and support of hazard research and exposure consequences. ***FY 2022 Plans:*** Will continue explosives testing and support of hazard research and exposure consequences ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding increase due to within-Project re-prioritization and adjustment for inflation.	0.135	0.050	0.285
Title: Development of enhanced protective structure designs ***Description:*** Develop enhanced protective structure designs that improve the survivability of Army personnel, facilities and equipment. ***FY 2021 Plans:*** Will continue explosives testing and support for improving protective construction designs. ***FY 2022 Plans:***	0.599	0.213	0.921

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 858 / *Army Explosives Safety Management Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Will continue explosives testing and support for improving protective construction designs. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding increase due to within-Project re-prioritization and adjustment for inflation.			
Title: Development of explosive safety tools ***Description:*** Develop explosive safety tools for use by Army personnel. Explosive safety tools allow commanders and safety personnel to make explosive safety decisions using risk management methodologies. ***FY 2021 Plans:*** Will continue development of new methods and tools for risk assessment to improve explosive safety risk management decisions. ***FY 2022 Plans:*** Will continue development of new methods and tools for risk assessment to improve explosive safety risk management decisions. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding increase due to within-Project re-prioritization and adjustment for inflation.	0.235	0.150	0.212
Accomplishments/Planned Programs Subtotals	0.969	0.413	1.418

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) 859 / *Life Cycle Pilot Process*	

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
859: *Life Cycle Pilot Process*	-	15.370	22.487	5.501	-	5.501	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

To execute the Single Manager for Conventional Ammunition (SMCA) Industrial Base Strategic Plan, this project supports: material and manufacturing technology investigations and assessments; pilot prototype processes; technology and process assessment for industrial base safety, security and environmental concerns; mitigation of supply chain risks by assessing alternative processes and materials for Army's legacy products. Projects support overall research, development and modernization efforts towards rapid technological advancements and the changing character of war. Specifically, this project assesses life cycle production capabilities required for all ammunition families; addresses design for manufacturability to facilitate economical production; identification of industrial and technology requirements; addresses production base concerns that may impact availability for cost effective quality products and assessment of security capability gaps to ensure robust manufacturing supply chain processes. In addition, the Life Cycle Pilot Process (LCPP) program addresses Single Point Failures (SPFs) and no source of supply within the National Technology Industrial Base (NTIB). LCPP provides support to reduce supply chain risk by investigating, developing and evaluating additional sources of supply for a known SPF. LCPP provides the resources to prototype critical technologies, improve security processes and requirements; develop a knowledge base to establish cost effective, environmentally safe and modern production processes in support of transforming the Industrial Base.

Funding will support various efforts to reduce manufacturing and production costs; bridge technology transition between research and production; and assess security vulnerabilities within the NTIB. Program will continue to investigate and evaluate manufacturing technology; assess improved security processes; alternative materials and processes to address supply chain risks and resiliency concerns.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Product Cost Thrust Area	2.033	0.814	1.090
Description: This thrust area seeks out new opportunities to reduce overall cost of armaments and ammunition components. Efforts will review and analyze legacy manufacturing processing for opportunities to integrate improved technology and materials to lean manufacturing processes to reduce overall unit cost.			
FY 2021 Plans: Continue to evaluate and investigate mature manufacturing process and technologies. Assess alternative materials to reduce end item and production costs for transition to the Army's Industrial Base. Efforts include but not limited to: configuration analysis to reduce amount of energetics to affect overall legacy end items grenade costs; assess alternative materials for fielded propulsion end items to cost avoid potential shutdowns and failure analyses, assess in-line process inspection technology to reduce producibility costs an increase product yields for government-owned, contractor-operated (GOCO) facilities.			
FY 2022 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Continue to evaluate and investigate mature manufacturing process and technologies to improve the efficiencies at the GOCO facilities. Assess alternative materials and alternative production processes to reduce end item and production costs for transition to the Army's Industrial Base. Efforts include but not limited to: automating load, assemble and pack operations for artillery / propulsion charge systems, assess alternative materials for fielded propulsion end items to cost avoid potential shutdowns and failure analyses. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase in program priorities to lower product cost by exploring automated manufacturing methods.			
Title: Single Point Failures (SPFs) ***Description:*** This thrust area seeks to mitigate single source and no source of supply to armaments and ammunition manufacturing operations. Thrust area tests or evaluates alternative materials and processes to mitigate SPFs. These efforts are part of the overall strategy to reduce the number of SPFs in the NTIB. Additionally, thrust area efforts will address ammunition manufacturing capability shortfalls. This area leverages RDTE accomplishments and product knowledge to satisfy manufacturing requirements. ***FY 2021 Plans:*** Continue to assess technology and material alternatives to mitigate single source and no source of supply for in production end items and end item components. Efforts include but not limited to: scale-up and optimizing manufacturing process for an energetic constituent to mitigate no source of supply risk, evaluate lubricant alternatives for artillery end items to mitigate no source of supply risk. Investigative findings will be transition to product PM via engineering change proposal to existing Technical Data Package (TDP) or include into procurement strategies for affected end items. ***FY 2022 Plans:*** Assess technologies and material alternatives to mitigate single source and no source of supply for in production end items and end item components. Investigative findings will follow similar technology transition / transfer paths to the industrial base or product PM. Efforts include but not limited to: investigate alternative base constituents for obscurant end items. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease in program priorities due to increase requirements in manufacturing technology thrust area.	1.320	1.262	0.315
Title: Manufacturing Technology for Industrial Base Transformation ***Description:*** This thrust area matures ammunition manufacturing technologies, processes to enhance manufacturing, security capabilities of legacy armaments and ammunition manufacturing operations. Thrust area will pilot and transition processes to affected industrial base for armaments and ammunition manufacturing operations.	2.017	2.411	4.096

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 859 / *Life Cycle Pilot Process*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 Plans: Continue investigation and pilot mature manufacturing technologies and processes towards transforming the Army's Industrial Base. Efforts include but not limited to: assessment of reuse and recycle technology for industrial waste applications (insensitive munition waste constituent recovery and RDX waste stream mitigation), pilot manufacturing technology to improve aging manufacturing process methods and improve manufacturing efficiencies. ***FY 2022 Plans:*** Continue investigation and pilot mature manufacturing technologies and processes towards transforming the Army's Industrial Base. Assessment of improved energetic manufacturing for back-end propellant operations; modernize explosive load, assemble and pack operations for transition to GOCO facility, investigate manufacturing technologies to reduce energetic waste, provide safer manufacturing operations and improve manufacturing efficiencies. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase in program priorities to enhance capabilities of aging legacy manufacturing technologies.			
Accomplishments/Planned Programs Subtotals	5.370	4.487	5.501

	FY 2020	FY 2021
Congressional Add: Congressional Add ***FY 2020 Accomplishments:*** Continue to execute congressional efforts to support industrial base resiliency concerns regarding energy conservation and waste treatment technologies and neutron high-energy radiography.	10.000	-
Congressional Add: Program increase - foamable celluloid materials ***FY 2021 Plans:*** Foamable celluloid products provides a lighter weight, robust product at a lower cost than the currently fielded items. This effort continues development of Foamable Celluloid manufacturing technologies and evaluation of munition components made out of foamable celluloid at various funding and maturity levels.	-	5.000
Congressional Add: Program increase - neutron radiography technology ***FY 2021 Plans:*** Effort will improve reliability, dependability and robustness to mature digital imaging technology; and explore delivery and installation of high energy photon technology to the Munitions Industrial Base.	-	5.000
Congressional Add: Program increase - industrial base resiliency initiative	-	8.000

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 859 / *Life Cycle Pilot Process*

	FY 2020	FY 2021
FY 2021 Plans: Effort will develop technology to strengthen energy security and resiliency for the Army?s munition industrial base.		
Congressional Adds Subtotals	10.000	18.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) F21 / *NATO Ammo Evaluation*	

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
F21: *NATO Ammo Evaluation*	-	0.490	0.722	0.514	-	0.514	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

North Atlantic Treaty Organization (NATO) Ammunition Evaluation program funding ensures interchangeability of ammunition and weapons among all the NATO countries with all of the associated logistic, strategic and tactical advantages of the alliance. This Project involves development and testing compliance of NATO standardization agreements (STANAGS) and staffing of the North American Regional Test Center (NARTC). In addition, this Project supports small caliber ammunition, 50mm ammunition, 40mm grenade munitions, medium caliber cannon ammunition, and large caliber ammunition enhancements to lethality, effectiveness, survivability, accuracy, and general product improvements. This Project also supports the standardization and interchangeability of legacy and new production United States (US) weapons and ammunition with Allied Nations to maximize battlefield interchangeability/ compatibility under the auspices of international agreements to include NATO working groups, the Joint Ballistics Memorandum of Understanding (JBMOU), and information/ data exchange agreements. Maximizing standardization, interchangeability, and exportability will also potentially increase Foreign Military Sales (FMS) of US indirect fire weapon and munition products to support United States industrial base production and affordable Department of Defense pricing through increased economies of scale. Fiscal Year 2022 (FY22) funding will support NATO and JBMOU artillery and small arms ammunition interchangeability group meetings, documentation, and test operations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: New Ammo Design Qualification & NATO Mission Support	0.194	0.300	0.298
Description: This activity ensures complete interchangeability of small caliber, automated cannon-caliber, 40mm grenade ammunition, air burst capable 30mm/40mm ammunition, 50mm ammunition, large caliber ammunition and weapons among NATO countries to achieve the associated logistic, strategic and tactical advantages. ***FY 2021 Plans:*** Will continue work to support NATO small arms ammunition, direct fire grenade, and large caliber interchangeability group meetings, documentation and test operations. ***FY 2022 Plans:*** Will continue work to support NATO small arms ammunition, direct fire grenade, and large caliber interchangeability group meetings, documentation and test operations. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The decrease is not a significant difference and will not impact program mission			
Title: Joint Ballistics Program Support	0.296	0.422	0.216

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** F21 / *NATO Ammo Evaluation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: The activity supports the maturation, validation, and risk reduction of battlefield interchangeability/ compatibility and associated enabling technologies between domestic US and NATO/ Allied Nations indirect fires weapons and munitions. ***FY 2021 Plans:*** FY 2021 will continue interoperability testing and interchangeability group meetings. ***FY 2022 Plans:*** FY 2022 will continue interoperability testing and interchangeability group meetings. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 decrease to support reduced number of testing events and meetings.			
Accomplishments/Planned Programs Subtotals	0.490	0.722	0.514

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) F24 / *Conventional Munitions Demil*	

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
F24: *Conventional Munitions Demil*	-	18.836	12.683	18.767	-	18.767	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Conventional Munitions Demilitarization Technology Project supports the Single Manager for Conventional Ammunition (SMCA) responsibility per Department of Defense Instruction (DoDI) 5160.68 to plan, program, budget and fund a Joint Service research and development program that develops capability and capacity as well as technology and facilities to support the SMCA mission to demilitarize and dispose of conventional ammunition stored in the SMCA Resource, Recovery and Disposition Account (B5A). Project goals include SMCA efforts to increase efficiencies and effectiveness to reduce the demil stockpile; reduce processing costs including packaging, handling and crating; and increase capacity through improved demil capabilities and processes. Project F24 includes several activities: (1) to establish requirements and develop processes to focus investments, assess capabilities, analyze alternatives, and recommend and implement RDT&E projects; (2) to improve products and processes that support existing capabilities; (3) to develop or improve demil methods and processes related to advance the primary demilitarization core thrust areas of destruction, disassembly, removal, resource recovery and recycling, and waste stream treatment; (4) to ensure safe and environmentally acceptable demil operations; (5) to transition RDT&E products to United States Army depots or plants as well as commercial facilities performing demil; and (6) to mitigate risk and close-out Project activities.

During Fiscal Year (FY) 2022 Project F24 will focus efforts on fielding alternative capabilities to open burn and open detonation as well as enhancing existing ones. In FY22 Project F24 will also conduct conventional ammunition demilitarization operational testing on a Castalia system as well as bring the upgraded capabilities of the McAlester Army Ammunition Plant deactivation furnace to bear on the stockpile.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Advanced Destruction	4.084	2.069	4.624
Description: This effort focuses on developing capabilities and capacities for the destruction of munitions.			
FY 2021 Plans: Conduct an operational test of a reactive armor tile demil oven. Conduct operational testing of a capability to demil plastic walled shotgun cartridges. Initiate a design for a capability to demilitarize Honest John Warheads.			
FY 2022 Plans: Final Design of a reactive armor tile demil oven. Install and test a capability to demil plastic walled shotgun cartridges. Fabricate Hardware to demilitarize Honest John Warheads.			
FY 2021 to FY 2022 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** F24 / *Conventional Munitions Demil*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Increase from FY 2021 to FY 2022 to fund systems construction and validation testing of the tile oven and conducting an extended testing of the Improved Conventional Munition (ICM) Demil system to ensure operational safety with all configurations			
Title: Resource Recovery and Recycling (R3) ***Description:*** This effort focuses on enhancing existing methods of munitions R3. ***FY 2021 Plans:*** Conduct an operational test for Automated Scrap Inspection System comparing visual inspection to machine based inspection. ***FY 2022 Plans:*** Design and Start Fabrication for full sized Automated Scrap Inspection System. Initiate a design for Reuse of Rocket Motor Grains ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase from FY 2021 to FY 2022 to fund constructing an advanced Automated Scrap Inspection capability system for validation testing.	2.530	2.780	4.354
Title: Advanced Removal ***Description:*** This effort develops technology to remove propellant and energetics from munitions. ***FY 2021 Plans:*** Complete installation of Shaped Charge Removal equipment to allow thermal treatment. Fabricate components for the capability to demil 155mm Illumination Projectiles. Complete transition of 2.75" Rocket Motor Capability. ***FY 2022 Plans:*** Initiate operational test of Shaped Charge Removal equipment to allow thermal treatment. Conduct operational Test for the capability to demil 155mm Illumination Projectiles. Conduct LRIP of 2.75" Rocket Motor Capability. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase to support shaped charge removal and support testing of 2.75? rocket motor capability.	2.887	1.570	1.836
Title: Advanced Waste Stream Treatment ***Description:*** This effort focuses on handling waste streams from munitions items. ***FY 2021 Plans:*** Initiate installation of the APE 1236 Feed System Upgrade at the Tooele Army Depot (TEAD). Complete Bangbox emissions testing of munitions to determine additional emission factors for stockpile munitions. Conduct analysis of pyrotechnic munitions. ***FY 2022 Plans:***	3.533	1.082	2.082

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** F24 / *Conventional Munitions Demil*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Conduct Integration testing of the APE 1236 Feed System Upgrade at TEAD. Initiate design of thermal treatment of pyrotechnic munitions. Initiate design of Thermal Treatment System Hardware changes for Per- and poly-FluoroAlkyl Substances (PFAS). Implement Feed Recipes Efficiency Evaluation (FREE) findings at Depot. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase to support increase costs of system development of PFAS and support testing.			
Title: Advanced Munitions Disassembly ***Description:*** This effort focuses on developing innovative and efficient processes to disassemble munitions. ***FY 2021 Plans:*** Complete Transition of a Reactive Armor Tile Size Reduction Capability. Install and test a delinking and sorting capability for small arms cartridges to be fed into the APE 1236 RKI. Conduct the Final design review of Smoke Hand Grenade Demil Capability. ***FY 2022 Plans:*** Complete Fabrication of Hardware for Flechette capability. Conduct LRIP for delinking and sorting capability for small arms cartridges to be fed into the APE 1236 RKI. Initiate Hardware Design and Fabrication of Smoke Hand Grenade Demil Capability. Complete Final Analysis of CS Riot Water Jet Capability. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase to support increase costs fabricating the capability hardware and testing to support delinking system qualification.	5.802	5.182	5.871
Accomplishments/Planned Programs Subtotals	18.836	12.683	18.767

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A