Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603609N *I Conventional Munitions*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	270.585	7.245	9.286	9.030	-	9.030	7.270	7.425	7.474	7.624	Continuing	Continuing
0363: *Insensitive Munitions Adv. Development*	270.585	7.245	9.286	9.030	-	9.030	7.270	7.425	7.474	7.624	Continuing	Continuing

A. Mission Description and Budget Item Justification

Most Navy munitions react violently when exposed to unplanned stimuli such as fire, shock, and bullet or fragment impact, thus presenting a great hazard to ships, aircraft, and personnel. The Insensitive Munitions Advanced Development (IMAD) program will provide, validate, and transition technology to all new weapon developments and priority weapon systems and enable production of munitions insensitive to these stimuli with no reduction in combat performance. Insensitive Munitions (IM) is the Navy's focused effort on propellants, propulsion units, explosives, warheads, fuses, and pyrotechnics to reduce the severity of cook-off and bullet/ fragment impact reactions, minimizing the probability for sympathetic detonation, both in normal storage and in use, increasing ship and platform survivability and satisfying performance and readiness requirements.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	7.296	9.286	9.096	-	9.096
Current President's Budget	7.245	9.286	9.030	-	9.030
Total Adjustments	-0.051	0.000	-0.066	-	-0.066
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.051	0.000			
• Program Adjustments	0.000	0.000	-0.074	-	-0.074
• Rate/Misc Adjustments	0.000	0.000	0.008	-	0.008

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603609N / *Conventional Munitions*	Project (Number/Name) 0363 / *Insensitive Munitions Adv. Development*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0363: *Insensitive Munitions Adv. Development*	270.585	7.245	9.286	9.030	-	9.030	7.270	7.425	7.474	7.624	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Energetic materials producibility is demonstrated to assure national capability to produce and load munitions systems. The program leverages are being closely coordinated with other military departments, North Atlantic Treaty Organization (NATO) and allied countries to eliminate redundant efforts and maximize efficiency. A joint service IM requirement has been developed and through the IM strategic planning process, all Program Executive Offices (PEO) are implementing IM in their priority munitions. IM are identified as a Department of Defense (DoD) critical technology requirement and considered as part of a weapon design. The IMAD program matures the technology developed by a variety of Science and Technology (S&T) sources for program management integration into weapons systems to meet the IM technical deficiencies documented in the PEO IM Strategic Plans. IMAD provides the link between S&T programs and the program managers (PM) by optimizing IM technologies to meet Navy requirements. IMAD offers risk mitigation for the PMs in terms of IM technical knowledge, expertise and manpower with the state of the art expertise across IM products. Each technology area is divided into subtasks addressing specific munition and munition class IM deficiencies.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Insensitive Munitions Adv. Development	7.245	9.286	9.030	0.000	9.030
Articles:	-	-	-	-	-
Description: Validate and assess weapon systems plan of action and milestones for IM compliance. Review Insensitive Munitions Strategic Plan (IMSP) for Navy compile and analyze weapon system, energetic material and generic technology IM test data. Perform Threat Hazard Assessments (THAs). Perform analysis of energetic material properties logistic process. Review IM certification and waivers. Support Insensitive Munitions Council (IMC), Insensitive Munitions Coordination Group (IMCG), and IMC Working Group. Support and develop Insensitive Munitions Technology Tool (IMT2). Support North Atlantic Treaty Organization Standardization Agreement (NATO STANAG) and Advanced Operations (AOP) development. Support IMAD program briefs. Support all Navy Joint Services Insensitive Munitions Technical Panel (JSIMTP) meetings. Support Explosive Safety Working Group (ESWG) meetings. Provide task management support for financial management, review of programmatic deliverables and overall task coordination.					
FY 2023 Plans: Evaluate and demonstrate improved solid propellant for Insensitive Munitions (IM) compliant rocket motor systems and container cook off mitigation. Evaluate and demonstrate new rocket motor case technology that					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603609N / *Conventional Munitions*	**Project (Number/Name)** 0363 / *Insensitive Munitions Adv. Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
can significantly reduce reaction violence of missile and rocket propulsion systems exposed to unplanned stimuli. Develop, demonstrate, and qualify new rocket propellant formulations that meet and/or improve system performance for air launched weapons and meet and/or improve IM goals. Evaluate and demonstrate solid rocket propellant using Highly Loaded Grain technology. Investigate distribute fiber optic sensing for in-situ propellant health monitoring. Develop, demonstrate, and qualify a Reduced Sensitivity Solventless Gun Propellant. Develop, demonstrate, and qualify an enhanced extended range propelling charge for 5" Gun. Evaluate new ordnance and container concepts. Investigate and evaluation of next generation area attack weapon slow heating concepts. Evaluate and demonstrate shape memory alloy rock splitting technology for case venting. Demonstrate IM Improvement through Integral Rocket Solid Fuel Ramjet Technology. Evaluation, demonstration, and qualification of new explosives that reduce collateral damage when bombs are exposed to thermal and impact threats. Develop and demonstrate new and improved stowage and container materials that achieve compliance with IM criteria while significantly reducing the logistics footprint by lowering system weight. Develop and demonstrate ballistic barrier concepts to improve or eliminate IM impact threats in logistical transportation and storage conditions. Characterize new and improved IM explosives with large critical diameters that improve IM and enhance performance. Navy qualification of PBXN-110 and PBXN-112 explosives using new resonant acoustic mixing (RAM).					
FY 2024 Base Plans: Evaluate and demonstrate new rocket motor case technology to reduce reaction violence of missile and rocket propulsion systems (NAWCWD China Lake). Evaluate new ordnance and container concepts (NSWC Indian Head & NSWC Dahlgren). Evaluation, demonstration, and qualification of new explosives that reduce collateral damage when bombs are exposed to thermal and impact threats (NSWC Indian Head). Develop and demonstrate new and improved stowage and container materials that achieve compliance with IM criteria while significantly reducing the logistics footprint by lowering system weight (NSWC Indian Head & NSWC Dahlgren). Qualification of PBXIH-21 (NSWC Indian Head). Demonstrate IM Response of High Energy Density Fuel for Gas Turbine Powered Missile Systems (NAWCWD China Lake). Evaluate and demonstrate improved solid propellant for Insensitive Munitions (IM) compliant rocket motor systems and container cook off mitigation (NAWCWD China Lake). Demonstrate IM Improvement through Integral Rocket Solid Fuel Ramjet Technology (NAWCWD China Lake). Develop and Demonstrate Additively Manufactured High Order Fractal Foam Insulations for Reduced Propellant Ignition from Impact (NAWCWD China Lake). Develop, demonstrate, and qualify new rocket propellant formulations that meet and/or improve system performance for air launched weapons and meet and/or improve IM goals (NAWCWD China Lake). Maturation of test methods across Navy Labs for performance characterization in accordance with AOP-7 (NSWC Indian Head). IM Evaluation					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603609N / *Conventional Munitions*	**Project (Number/Name)** 0363 / *Insensitive Munitions Adv. Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
for Shoulder-launched Assault Munitions LAW FFE (E8, E10) (NSWC Dahlgren). Evaluate and Demonstrate High Energy Insensitive Medium Caliber Gun Propellant Formulations (NSWC Indian Head). Evaluate Nitinol/ Ceramic Band to Cut Missile Casing for Slow Cookoff Mitigation (NSWC Dahlgren & NAWC China Lake). Develop, characterize, qualify and transition new explosives that have superior vulnerability characteristics, enhanced performance, comparable or lower manufacturing costs (NSWC Indian Head). Maintenance of SW010-AG-ORD-010 Navy Qualification of Energetics (NSWC Indian Head). Develop/Demonstrate Ordnance Technologies including warhead, fuze & component/system level protection systems (NSWC Indian Head & NSWC Dahlgren). Demonstrate innovative IM Technologies applied to weapon system propulsion (NAWCWD China Lake). Develop and Demonstrate Gun Propulsion Technology for DON applications (NSWC Indian Head). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease in the amount of $0.256M is due to the anticipated completion of the following efforts: Investigation and evaluation of next generation area attack weapon slow heating concepts (NSWC Indian Head & NSWC Dahlgren). Evaluation and demonstration of shape memory alloy rock splitting technology for case venting (NSWC Indian Head). Develop and demonstration of ballistic barrier concepts to improve or eliminate IM impact threats in logistical transportation and storage conditions (NSWC Indian Head & NSWC Dahlgren). Characterization of new and improved IM explosives with large critical diameters that improve IM and enhance performance. Navy qualification of PBXN-110 and PBXN-112 explosives using new resonant acoustic mixing (RAM)(NSWC Indian Head). Qualification of PBXIH-136MOD (NSWC Indian Head).					
Accomplishments/Planned Programs Subtotals	7.245	9.286	9.030	0.000	9.030

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

IMAD is assigned as a non-ACAT program and therefore does not have program milestones like the ACAT I to IV programs. IMAD develops and evaluates IM technologies for use in Navy weapon systems and is not part of a particular weapon acquisition program

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603609N / *Conventional Munitions*	**Project (Number/Name)** 0363 / *Insensitive Munitions Adv. Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PROPULSION DEV. AND EVAL.	WR	NAWC DIV/CHINA LAKE : CA	114.882	2.553	Nov 2021	3.288	Nov 2022	3.195	Nov 2023	-		3.195	Continuing	Continuing	Continuing
EXPLOSIVES DEV. AND EVAL.	WR	NSWC/INDIAN HEAD DIV. : MD	94.831	2.490	Nov 2021	2.228	Nov 2022	2.615	Nov 2023	-		2.615	Continuing	Continuing	Continuing
ORDNANCE DEV. AND EVAL.	WR	NSWC/DAHLGREN : VA	31.306	0.737	Nov 2021	1.265	Nov 2022	1.083	Nov 2023	-		1.083	Continuing	Continuing	Continuing
GUN PROPULSION AND EVAL.	WR	NSWC/INDIAN HEAD DIV. : MD	14.531	0.592	Nov 2021	1.144	Nov 2022	0.925	Nov 2023	-		0.925	Continuing	Continuing	Continuing
		Subtotal	255.550	6.372		7.925		7.818		-		7.818	Continuing	Continuing	N/A

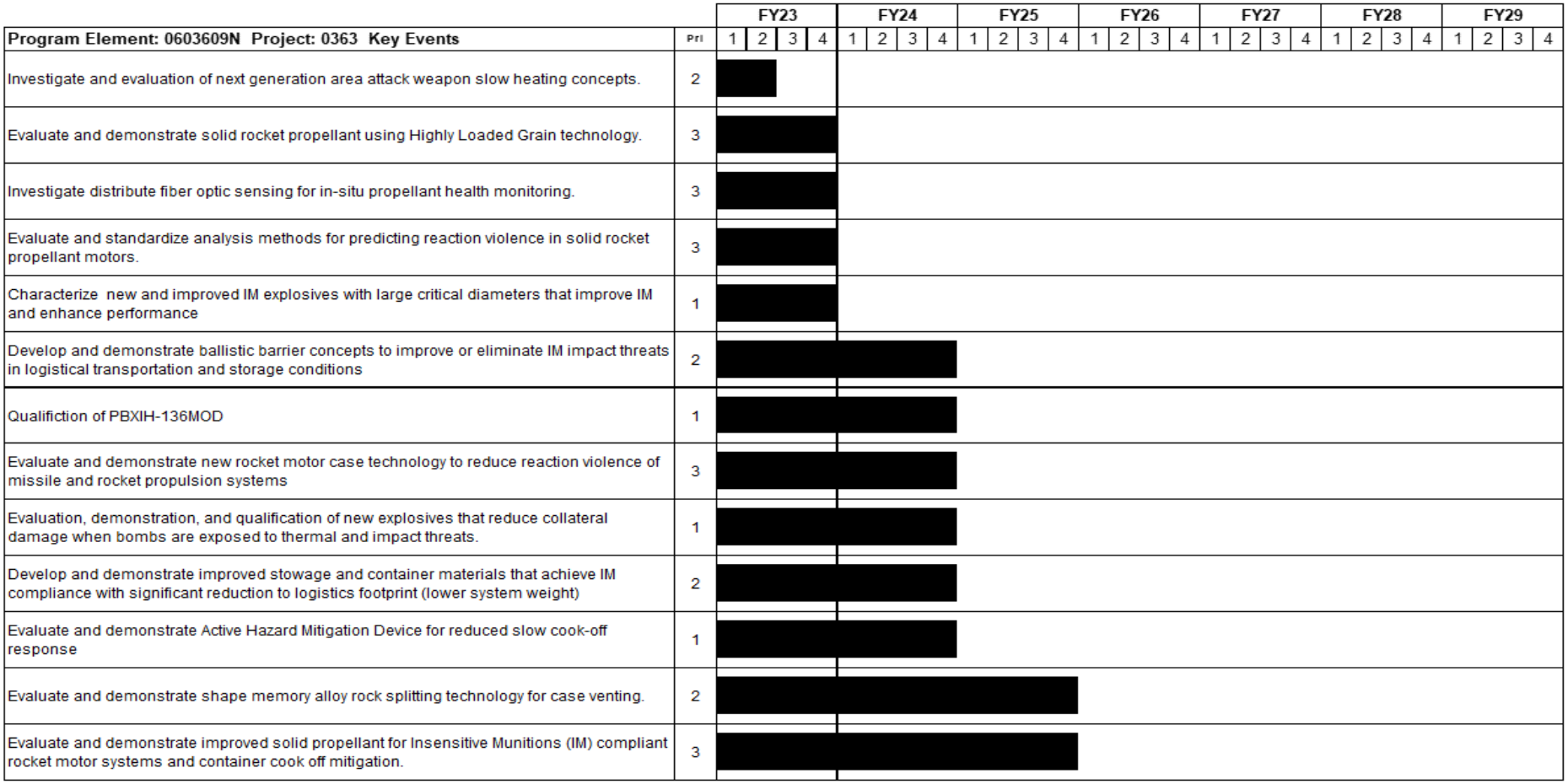
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PROGRAM MANAGEMENT SUPPORT	WR	NOSSA : IN HEAD MD	7.175	0.297	Nov 2021	0.364	Nov 2022	0.370	Nov 2023	-		0.370	Continuing	Continuing	Continuing
PROGRAM MANAGEMENT SUPPORT	MIPR	DTIC : FT BELVOIR VA	7.860	0.576	Nov 2021	0.997	Nov 2022	0.842	Nov 2023	-		0.842	Continuing	Continuing	Continuing
		Subtotal	15.035	0.873		1.361		1.212		-		1.212	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	270.585	7.245		9.286		9.030		-		9.030	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603609N / *Conventional Munitions*	**Project (Number/Name)** 0363 / *Insensitive Munitions Adv. Development*



Program Element: 0603609N Project: 0363 Key Events	Pri	FY23				FY24				FY25				FY26				FY27				FY28				FY29			
		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
Investigate and evaluation of next generation area attack weapon slow heating concepts.	2	■	■																										
Evaluate and demonstrate solid rocket propellant using Highly Loaded Grain technology.	3	■	■	■	■																								
Investigate distribute fiber optic sensing for in-situ propellant health monitoring.	3	■	■	■	■																								
Evaluate and standardize analysis methods for predicting reaction violence in solid rocket propellant motors.	3	■	■	■	■																								
Characterize new and improved IM explosives with large critical diameters that improve IM and enhance performance	1	■	■	■	■																								
Develop and demonstrate ballistic barrier concepts to improve or eliminate IM impact threats in logistical transportation and storage conditions	2	■	■	■	■	■	■	■	■																				
Qualifiction of PBXIH-136MOD	1	■	■	■	■	■	■	■	■																				
Evaluate and demonstrate new rocket motor case technology to reduce reaction violence of missile and rocket propulsion systems	3	■	■	■	■	■	■	■	■																				
Evaluation, demonstration, and qualification of new explosives that reduce collateral damage when bombs are exposed to thermal and impact threats.	1	■	■	■	■	■	■	■	■																				
Develop and demonstrate improved stowage and container materials that achieve IM compliance with significant reduction to logistics footprint (lower system weight)	2	■	■	■	■	■	■	■	■																				
Evaluate and demonstrate Active Hazard Mitigation Device for reduced slow cook-off response	1	■	■	■	■	■	■	■	■																				
Evaluate and demonstrate shape memory alloy rock splitting technology for case venting.	2	■	■	■	■	■	■	■	■	■	■	■	■																
Evaluate and demonstrate improved solid propellant for Insensitive Munitions (IM) compliant rocket motor systems and container cook off mitigation.	3	■	■	■	■	■	■	■	■	■	■	■	■																

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603609N / *Conventional Munitions*	**Project (Number/Name)** 0363 / *Insensitive Munitions Adv. Development*

Program Element: 0603609N Project: 0363 Key Events	Pri	FY23				FY24				FY25				FY26				FY27				FY28				FY29			
		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
Demonstrate IM Improvement through Integral Rocket Solid Fuel Ramjet Technology	3																												
Qualification of PBXIH-21	1																												
Develop, demonstrate, and qualify a Reduced Sensitivity Solventless Gun Propellant.	4																												
Demonstrate IM Response of High Energy Density Fuel for Gas Turbine Powered Missile Systems	2																												
Maturation of test methods across Navy Labs for performance characterization in accordance with AOP-7	1																												
IM Evaluation for Shoulder-launched Assault Munitions LAW FFE (E8, E10)	2																												
Evaluate Nitinol/Ceramic Band to Cut Missile Casing for Slow Cookoff Mitigation	1																												
Develop, demonstrate, and qualify new rocket propellant formulations that meet and/or improve system performance for air launched weapons and meet and/or improve IM goals.	3																												
Develop and Demonstrate Additively Manufactured High Order Fractal Foam Insulations for Reduced Propellant Ignition from Impact	2																												
Evaluate and Demonstrate High Energy Insensitive Medium Caliber Gun Propellant Formulations	4																												
Develop, Demonstrate and Qualify new emergent reduced smoke propellant (NWC-480)	2																												
Develop and Demonstrate venting technology for Integral Rocket Booster Chambers in Ramjet Applications	2																												
Evaluate new ordnance and container concepts.	2																												

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603609N / *Conventional Munitions*	**Project (Number/Name)** 0363 / *Insensitive Munitions Adv. Development*

Program Element: 0603609N Project: 0363 Key Events	Pri	FY23				FY24				FY25				FY26				FY27				FY28				FY29			
		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
Evaluate and Demonstrate Alternate Energetic materials in Insenstive Gun Propellant Formulations	4																												
Develop, characterize, qualify and transition new explosives that have superior vulnerability characteristice, enhanced performance, comparable or lower manufacturing costs	1																												
Maintenance of SW010-AG-ORD-010 Navy Qualification of Energetics	1																												
Develop/Demonstrate Ordnance Technologies including warhead, fuze & component/system level protection systems	2																												
Demonstrate innovative IM Technologies applied to weapon system propulsion	3																												
Develop and Demonstrate Gun Propulsion Technology for DON applications	3																												
Qualification of Fastpack Demolition Explosive (FPEX-1)	1																												

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603609N / *Conventional Munitions*	**Project (Number/Name)** 0363 / *Insensitive Munitions Adv. Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0363				
Investigate and evaluation of next generation area attack weapon slow heating concepts.	1	2022	2	2023
Evaluate and demonstrate solid rocket propellant using Highly Loaded Grain technology.	1	2022	4	2023
Investigate distribute fiber optic sensing for in-situ propellant health monitoring.	1	2022	1	2023
Evaluate and standardize analysis methods for predicting reaction violence in solid rocket propellant motors.	1	2022	1	2023
Characterize new and improved IM explosives with large critical diameters that improve IM/enhance performance. Qualification of PBXN-110 and PBXN-112 explosives using new resonant acoustic mixing	1	2022	4	2023
Develop and demonstrate ballistic barrier concepts to improve or eliminate IM impact threats in logistical transportation and storage conditions	1	2022	4	2024
Qualification of PBXIH-136MOD	1	2022	4	2024
Evaluate and demonstrate new rocket motor case technology to reduce reaction violence of missile and rocket propulsion systems	1	2022	4	2024
Evaluation, demonstration, and qualification of new explosives that reduce collateral damage when bombs are exposed to thermal and impact threats.	1	2022	4	2024
Develop and demonstrate new and improved stowage and container materials that achieve compliance with IM criteria while significantly reducing the logistics footprint by lowering system weight.	1	2022	4	2025
Evaluate and demonstrate Active Hazard Mitigation Device for reduced slow cook-off response	1	2022	4	2024
Evaluate and demonstrate shape memory alloy rock splitting technology for case venting.	1	2022	4	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603609N / *Conventional Munitions*	**Project (Number/Name)** 0363 / *Insensitive Munitions Adv. Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Evaluate and demonstrate improved solid propellant for Insensitive Munitions (IM) compliant rocket motor systems and container cook off mitigation.	1	2022	4	2025
Demonstrate IM Improvement through Integral Rocket Solid Fuel Ramjet Technology	1	2022	4	2025
Qualification of PBXIH-21	1	2022	4	2024
Develop, demonstrate, and qualify a Reduced Sensitivity Solventless Gun Propellant.	2	2022	4	2025
Demonstrate IM Response of High Energy Density Fuel for Gas Turbine Powered Missile Systems	1	2022	4	2026
Maturation of test methods across Navy Labs for performance characterization in accordance with AOP-7	1	2022	4	2026
IM Evaluation for Shoulder-launched Assault Munitions LAW FFE (E8, E10)	1	2022	4	2026
Evaluate Nitinol/Ceramic Band to Cut Missile Casing for Slow Cookoff Mitigation	1	2022	4	2026
Develop, demonstrate, and qualify new rocket propellant formulations that meet and/or improve system performance for air launched weapons and meet and/or improve IM goals.	1	2022	4	2027
Develop and Demonstrate Additively Manufactured High Order Fractal Foam Insulations for Reduced Propellant Ignition from Impact	1	2022	4	2027
Evaluate and Demonstrate High Energy Insensitive Medium Caliber Gun Propellant Formulations	1	2022	4	2027
Develop, Demonstrate and Qualify new emergent reduced smoke propellant (NWC-480)	1	2023	4	2027
Develop and Demonstrate venting technology for Integral Rocket Booster Chambers in Ramjet Applications	1	2023	4	2027
Evaluate new ordnance and container concepts.	1	2022	4	2027
Evaluate and Demonstrate Alternate Energetic materials in Insenstive Gun Propellant Formulations	1	2022	4	2028
Develop, characterize, qualify and transition new explosives that have superior vulnerability characteristice, enhanced performance, comparable or lower manufacturing costs	1	2022	4	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603609N / *Conventional Munitions*	**Project (Number/Name)** 0363 / *Insensitive Munitions Adv. Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Maintenance of SW010-AG-ORD-010 Navy Qualification of Energetics	1	2022	4	2028
Develop/Demonstrate Ordnance Technologies including warhead, fuze & component/ system level protection systems	1	2022	4	2028
Demonstrate innovative IM Technologies applied to weapon system propulsion	1	2022	4	2028
Develop and Demonstrate Gun Propulsion Technology for DON applications	1	2022	4	2023
Qualification of Fastpack Demolition Explosive (FPEX-1)	1	2023	1	2028