Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy											Date: May 2017	
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 0603654N *I JT Service Explosive Ordn Dev*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	567.807	14.957	50.411	53.367	-	53.367	44.474	41.678	39.099	46.907	Continuing	Continuing
0377: *JT Service Expl Ord Disp System*	359.533	5.966	14.039	13.572	-	13.572	9.002	8.528	7.149	12.277	Continuing	Continuing
1317: *EOD Diving System*	105.501	1.947	5.467	5.113	-	5.113	4.499	4.606	4.707	4.801	Continuing	Continuing
3177: *Joint Counter Radio-Controlled IED Elec Warfare*	0.000	0.000	13.345	15.564	-	15.564	13.501	10.644	10.949	11.165	Continuing	Continuing
4023: *VSW MCM/Force Protection UUV*	102.773	7.044	17.560	19.118	-	19.118	17.472	17.900	16.294	18.664	Continuing	Continuing

A. Mission Description and Budget Item Justification

This is a Joint Service Program.

This program provides for the development of Explosive Ordnance Disposal tools and equipment for use by all military services. The responsibility is assigned to the Navy as single service manager, by Department of Defense Directive 5160.62 of 26 April 1989, for management of the Joint Service Explosive Ordnance Disposal Research and Development Program.
Proliferation of sophisticated types of foreign and domestic ordnance and Improvised Explosive Devices necessitate a continuing development program to provide Explosive Ordnance Disposal personnel of all military services with the special equipment and tools required to support this mission.

This program also provides life support related equipment necessary to support the performance of Navy Explosive Ordnance Disposal tasks underwater. This equipment must have inherently low acoustic and magnetic signatures in order to allow the Explosive Ordnance Disposal technician to safely approach, render-safe and dispose of sea mines and other underwater ordnance.

This program also provides for the research and development of Electronic Warfare (EW) systems, equipment, procedures, and tactical aids for all military services against the threat posed by Radio-Controlled Improvised Explosive Devices (RCIEDs) and to prevent initiation of RCIEDs across the spectrum of Joint military operations. Utilize Joint requirements to provide a system of systems approach for a suite of equipment for mounted, dismounted, and fixed site operations; provide a Joint Counter RCIED EW (CREW) development of equipment, procedures, and tactical aids to make rapid improvements to performance, supportability and affordability, while maintaining pace with evolving global threat.

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy					Date: May 2017
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 0603654N *I JT Service Explosive Ordn Dev*			
B. Program Change Summary ($ in Millions)	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**
Previous President's Budget	15.329	46.911	49.624	-	49.624
Current President's Budget	14.957	50.411	53.367	-	53.367
Total Adjustments	-0.372	3.500	3.743	-	3.743
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.372	0.000			
• Program Adjustments	0.000	3.500	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	3.743	-	3.743

Change Summary Explanation

Other Rate/Misc Adjustments: Additional funding in support of Counter Unmanned Aerial System (C-UAS) $3.743M.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603654N / *JT Service Explosive Ordn Dev*	Project (Number/Name) 0377 / *JT Service Expl Ord Disp System*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
0377: *JT Service Expl Ord Disp System*	359.533	5.966	14.039	13.572	-	13.572	9.002	8.528	7.149	12.277	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element (PE) Project (0377) provides funding for the detailed design, development, risk mitigation, issue resolution, integrations, test, test equipment, simulations and post-deployment improvements of specialized equipment, tools and assessment of accessories that expand range of military operations required to support DoD's only Joint Explosive Ordnance Disposal (EOD) programs.

EOD exclusively executes world-wide missions for detection/location, identification, render-safe, recovery, field and laboratory evaluation, and disposal of hazards and unexploded ordnance (UXO) that is a threat to military operations, installations, personnel, or material. UXO includes foreign and domestic, both conventional and non-conventional, including Improvised Explosive Devices (IEDs); hazards includes fuels weapons and weapons of mass destruction devices using radiological and biological means with or without explosives.

The responsibility is assigned to the Navy as single service manager, by Department of Defense Directive 5160.62 of 3 June 2011, for management of the Joint Service Explosive Ordnance Disposal Research and Development Program. EOD programs are designed to reduce the EOD operator's exposure to explosive hazards or limit the risk to an acceptable level. EOD operations range from hand entry of explosive devices by EOD technicians to robotic actions and sensing capabilities that provide a safe distance of the explosive hazard at a greatly reduced cost to trained and experienced EOD operators.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS)	0.874	2.238	2.296	0.000	2.296
Articles:	-	-	-	-	-
FY 2016 Accomplishments: Continued limited improvements to JEOD Decision Support System (DSS) based on user input, provide Analysis of Alternatives for warfighter initiated improvements and conduct procurement, testing and evaluation of potential commercial non-development items (CNDI) meeting EOD warfighter needs.					
FY 2017 Plans: Continue improvements to the JEOD Portal, Mobile Field Kit (MFK), and Common Control platform based on user input/prioritization, provide Analysis of Alternatives for warfighter initiated improvements and conduct					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 0377 / *JT Service Expl Ord Disp System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
procurements, testing and evaluation of potential commercial non-development items (CNDI) meeting EOD warfighters needs. ***FY 2018 Base Plans:*** Continue AEODRS Inc 2 Joint Service EOD Common Control Platform integration, testing and production readiness. Development of Software Mobile application for EOD digital handheld devices for Joint Service Decision Support System (DSS) tools. ***FY 2018 OCO Plans:*** N/A					
Title: EOD ROBOTICS	5.092	10.437	9.956	0.000	9.956
Articles:	-	-	-	-	-
FY 2016 Accomplishments: Conducted development and test of Advanced EOD Robotics System Increments prototypes. Continue development of Advanced EOD Robotics System Increments 1 and 2. ***FY 2017 Plans:*** Conduct testing on Advanced EOD Robotics System (AEODRS) Increment One - dismounted operations, provided by Prime Systems Integrator (PSI) development contractor. Begin development of AEODRS Increment Two - tactical operations, with PSI development contractor." ***FY 2018 Base Plans:*** Deliver and test AEODRS Increment 2 Prime System Integrator Production Representative/First Articles Systems and prepare for production and manufacturing. Prepare for AEODRS Increment 3 (Base and Infrastructure) Program Initiation (Milestone B). ***FY 2018 OCO Plans:*** N/A					
Title: TCM AN/PLT-XXX SYSTEMS	0.000	1.364	1.320	0.000	1.320
Articles:	-	-	-	-	-
FY 2016 Accomplishments: N/A ***FY 2017 Plans:***					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 0377 / *JT Service Expl Ord Disp System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Development loadset upgrades for fielded EOD TCM systems to remain current with continually changing threats and develop loadsets beyond current theater, both CONUS/OCONUS to remain current with continual changing threats. ***FY 2018 Base Plans:*** Develop and upgrade threat loadset to remain current with continually changing threats. ***FY 2018 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	5.966	14.039	13.572	0.000	13.572

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• OPN/5509(a): *EOD Equipment (VN075)*	4.000	5.955	0.000	-	0.000	9.069	9.377	5.687	5.886	0.000	57.857

Remarks

D. Acquisition Strategy

Joint Service acquisition strategies utilize an evolutionary open architecture and modular strategy for rapid acquisition of mature technology for the user. The evolutionary approach delivers baseline capability and subsequent increments, recognizing up front the need for future capability improvements. Each increment is a militarily useful and supportable operational capability that can be developed, produced, deployed, and sustained. The evolutionary open architecture and modular strategy allows for rapid block upgrades, pre-planned product improvements, new accessories that expand range of military operations that provide a significant increase in operational capability and improvements at the modular level and encourages competition and second sources to lower life cycle costs. Once deployed, the upgrades can be developed, tested and deployed at the modular level and new capabilities can be delivered without having to return the entire tool (e.g. robot) to a depot for system level conversion. System Test bed and modeling and simulation can verify module system level compliance in a laboratory, greatly reducing the cost to conduct expensive range testing. Analysis of Alternatives (AOA) studies are conducted prior to the initiation of new subprojects. The AOA addresses and emphasizes acquisition strategies of the most cost-effective solution over the subprojects' life-cycle. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included.

E. Performance Metrics

Processed 52 Joint Service EOD Decision Support System (DSS) change requests resulting in the release of 1,170 Mobile Field Kit and Publication Suite Software copies per quarter to the Joint Services including USN. Completed TCM, AN/PLT-5 loadset upgrade for EOD use in-theater based upon new IED/UXO threats seen during operations.

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603654N / *JT Service Explosive Ordn Dev*	Project (Number/Name) 0377 / *JT Service Expl Ord Disp System*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NSWCIHEODTD : Indian Head, MD	185.043	0.201	Nov 2015	4.746	Oct 2016	2.947	Nov 2017	-		2.947	Continuing	Continuing	Continuing
Primary Hardware Development	C/FFP	Northrop Grumman : Herdon, VA	3.500	5.544	Nov 2015	3.500	Dec 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Primary Hardware Development	C/FFP	TBD : TBD	0.000	0.000		3.500	Jun 2017	8.500	Nov 2017	-		8.500	0.000	12.000	-
ILS	WR	EODTD : Indiah Head, MD	48.590	0.000	Oct 2015	0.600	Oct 2016	0.400	Nov 2017	-		0.400	Continuing	Continuing	Continuing
		Subtotal	237.133	5.745		12.346		11.847		-		11.847	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	HARRIS : Herndon, VA	7.933	0.075	Oct 2015	0.350	Nov 2016	0.375	Nov 2017	-		0.375	Continuing	Continuing	Continuing
		Subtotal	7.933	0.075		0.350		0.375		-		0.375	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	EODTD : Indian Head, MD	76.394	0.075	Oct 2015	0.858	Nov 2016	0.900	Nov 2017	-		0.900	Continuing	Continuing	Continuing
Operation Test & Evaluation	WR	EODTD : Indian Head, MD	11.483	0.000	Oct 2015	0.085	Nov 2016	0.025	Nov 2017	-		0.025	Continuing	Continuing	Continuing
		Subtotal	87.877	0.075		0.943		0.925		-		0.925	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 0377 / *JT Service Expl Ord Disp System*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Manangement Support	WR	EODTD : Indian Head, MD	10.138	0.071	Oct 2015	0.400	Oct 2016	0.425	Nov 2017	-		0.425	Continuing	Continuing	Continuing
Miscellaneous	WR	EODTD : Indian Head, MD	16.452	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	26.590	0.071		0.400		0.425		-		0.425	-	-	-

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	359.533	5.966		14.039		13.572		-		13.572	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 0377 / *JT Service Expl Ord Disp System*

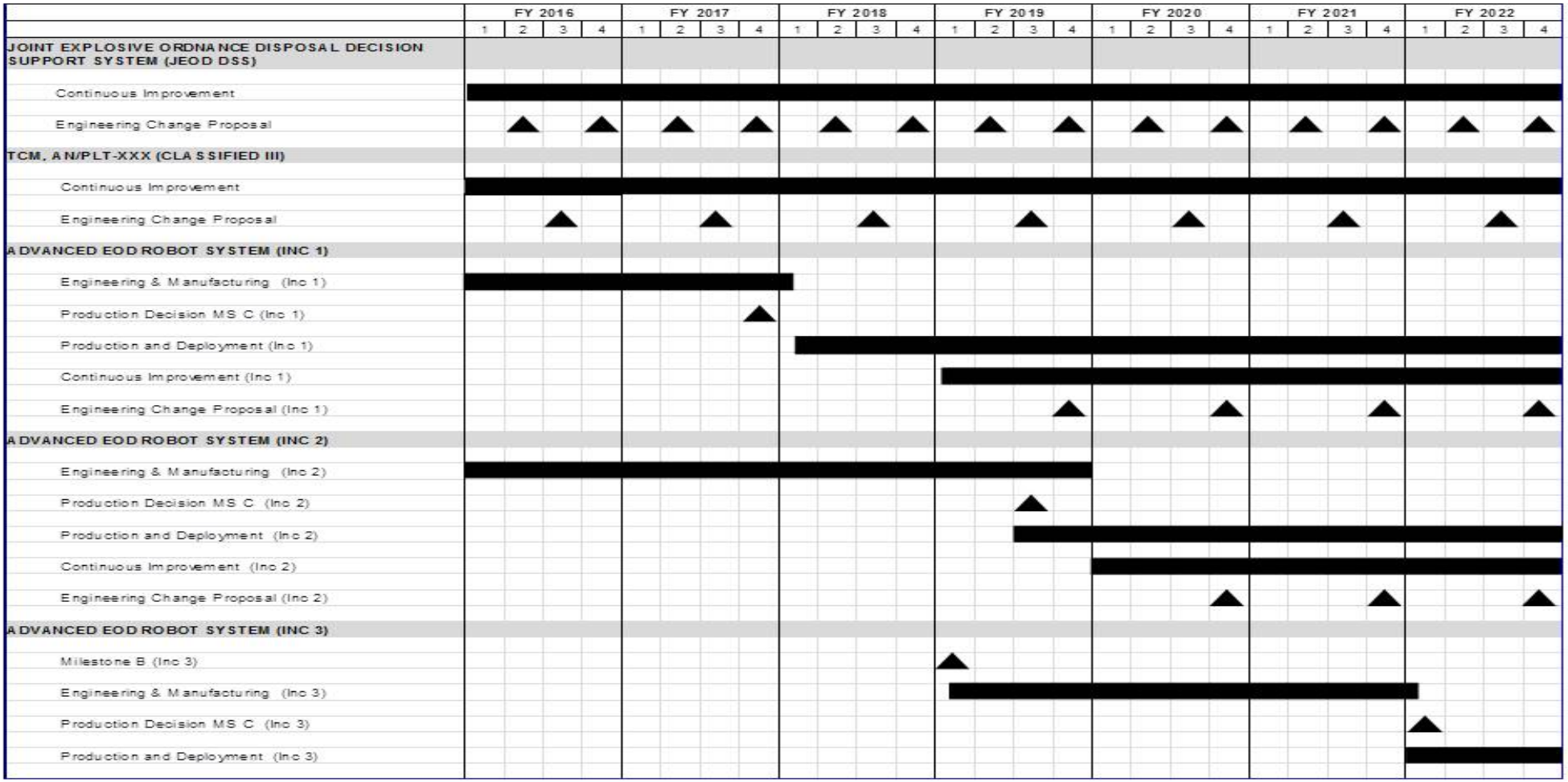

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 0377 / *JT Service Expl Ord Disp System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0377				
JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS): Continuous Improvement	1	2016	4	2022
JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS): Engineering Change Proposal 1	2	2016	2	2016
JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS): Engineering Change Proposal 2	4	2016	4	2016
JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS): Engineering Change Proposal 3	2	2017	2	2017
JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS): Engineering Change Proposal 4	4	2017	4	2017
JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS): Engineering Change Proposal 5	2	2018	2	2018
JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS): Engineering Change Proposal 6	4	2018	4	2018
JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS): Engineering Change Proposal 7	2	2019	2	2019
JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS): Engineering Change Proposal 8	4	2019	4	2019
JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS): Engineering Change Proposal 9	2	2020	2	2020
JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS): Engineering Change Proposal 10	4	2020	4	2020
JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS): Engineering Change Proposal 11	2	2021	2	2021

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 0377 / *JT Service Expl Ord Disp System*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS): Engineering Change Proposal 12	4	2021	4	2021
JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS): Engineering Change Proposal 13	2	2022	2	2022
JOINT EXPLOSIVE ORDNANCE DISPOSAL DECISION SUPPORT SYSTEM (JEOD DSS): Engineering Change Proposal 14	4	2022	4	2022
TCM, AN/PLT-XXX (CLASSIFIED III): Continuous Improvement	1	2016	4	2022
TCM, AN/PLT-XXX (CLASSIFIED III): Engineering Change Proposal 1	3	2016	3	2016
TCM, AN/PLT-XXX (CLASSIFIED III): Engineering Change Proposal 2	3	2017	3	2017
TCM, AN/PLT-XXX (CLASSIFIED III): Engineering Change Proposal 3	3	2018	3	2018
TCM, AN/PLT-XXX (CLASSIFIED III): Engineering Change Proposal 4	3	2019	3	2019
TCM, AN/PLT-XXX (CLASSIFIED III): Engineering Change Proposal 5	3	2020	3	2020
TCM, AN/PLT-XXX (CLASSIFIED III): Engineering Change Proposal 6	3	2021	3	2021
TCM, AN/PLT-XXX (CLASSIFIED III): Engineering Change Proposal 7	3	2022	3	2022
ADVANCED EOD ROBOT SYSTEM (INC 1): Engineering & Manufacturing (Inc 1)	1	2016	1	2018
ADVANCED EOD ROBOT SYSTEM (INC 1): Production Decision MS C (Inc 1)	4	2017	4	2017
ADVANCED EOD ROBOT SYSTEM (INC 1): Production and Deployment (Inc 1)	1	2018	4	2022
ADVANCED EOD ROBOT SYSTEM (INC 1): Continuous Improvement (Inc 1)	1	2019	4	2022
ADVANCED EOD ROBOT SYSTEM (INC 1): Engineering Change Proposal (Inc 1) 1	4	2019	4	2019
ADVANCED EOD ROBOT SYSTEM (INC 1): Engineering Change Proposal (Inc 1) 2	4	2020	4	2020
ADVANCED EOD ROBOT SYSTEM (INC 1): Engineering Change Proposal (Inc 1) 3	4	2021	4	2021
ADVANCED EOD ROBOT SYSTEM (INC 1): Engineering Change Proposal (Inc 1) 4	4	2022	4	2022
ADVANCED EOD ROBOT SYSTEM (INC 2): Engineering & Manufacturing (Inc 2)	1	2016	4	2019
ADVANCED EOD ROBOT SYSTEM (INC 2): Production Decision MS C (Inc 2)	3	2019	3	2019
ADVANCED EOD ROBOT SYSTEM (INC 2): Production and Deployment (Inc 2)	3	2019	4	2022
ADVANCED EOD ROBOT SYSTEM (INC 2): Continuous Improvement (Inc 2)	1	2020	4	2022

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 0377 / *JT Service Expl Ord Disp System*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ADVANCED EOD ROBOT SYSTEM (INC 2): Engineering Change Proposal (Inc 2) 1	4	2020	4	2020
ADVANCED EOD ROBOT SYSTEM (INC 2): Engineering Change Proposal (Inc 2) 2	4	2021	4	2021
ADVANCED EOD ROBOT SYSTEM (INC 2): Engineering Change Proposal (Inc 2) 3	4	2022	4	2022
ADVANCED EOD ROBOT SYSTEM (INC 3): Milestone B (Inc 3)	1	2019	1	2019
ADVANCED EOD ROBOT SYSTEM (INC 3): Engineering & Manufacturing (Inc 3)	1	2019	1	2022
ADVANCED EOD ROBOT SYSTEM (INC 3): Production Decision MS C (Inc 3)	1	2022	1	2022
ADVANCED EOD ROBOT SYSTEM (INC 3): Production and Deployment (Inc 3)	1	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603654N / *JT Service Explosive Ordn Dev*	Project (Number/Name) 1317 / *EOD Diving System*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
1317: *EOD Diving System*	105.501	1.947	5.467	5.113	-	5.113	4.499	4.606	4.707	4.801	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

These resources support the development of equipment for the Navy's only comprehensive expeditionary detect to engage MCM capability, i.e. Ex MCM Company. Specifically, it provides for development of Diver Safety/Life Support Equipment, Advanced Diver Integrated Sensors and Advanced Firing Systems to support Navy Explosive Ordnance Disposal (EOD) underwater operations and Expeditionary MCM Company establishment by US Fleet Forces Command. The equipment must have inherently low acoustic and magnetic signatures in order to allow the EOD divers to safely approach, render-safe, recover, exploit, and dispose of underwater explosive threats to include sea mines, limpet mines, underwater improvised explosive devices, and unexploded ordnance. Note: The schedules have been re-formatted to allow for better communication of program execution.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: DIVER SAFETY & LIFE SUPPORT SYSTEMS	1.697	3.328	2.993	0.000	2.993
Articles:	-	-	-	-	-
Description: Diver Safety & Life Support Systems: Develop diver safety tools to include more capable life support systems for EOD, and Mobile Diving & Salvage Units (MDSU) operations. Specific tools include but are not limited to Underwater Breathing Apparatus (UBA), specialized dive masks, heads-up displays, emergency life support systems and the ability to train divers and to evaluate Mine Countermeasures (MCM)/Explosive Ordnance Disposal (EOD) tools, tactics and procedures with regard to influence cleanliness against sea mines both at home and in controlled threat areas prior to commencing EOD operations.					
FY 2016 Accomplishments: Completed the AoA for the Multi-mission Underwater Breathing Apparatus. Continued development, testing and evaluation of METRES product improvements.					
FY 2017 Plans: Based on the Alternative of Analysis (AoA) for the Multi-mission Underwater Breathing Apparatus (MM UBA), during FY 2017 an acquisition strategy will be developed and acquisition efforts will be performed to prepare for an acquisition designation and Milestone B in FY 2018. Continue development, testing and evaluation of METRES (i.e. diver training aide for influence ordnance) product improvements.					
FY 2018 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 1317 / *EOD Diving System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
The MMUBA will receive an acquisition designation and achieve MS B in FY 2018. Development contract will be awarded to deliver EDMs for test and evaluation. ***FY 2018 OCO Plans:*** N/A					
Title: ADVANCED DIVER INTEGRATED SENSORS	0.200	1.949	1.920	0.000	1.920
Articles:	-	-	-	-	-
Description: Develop Advanced Diver Integrated Sensors equipment to enhance EOD and MDSU ability to detect, access, neutralize and gather intelligence on underwater targets of interest. Requirements include MK 1 Mod 0 Diver Hull Inspection Navigation System (DHINS) and improvements to the MK 15 Underwater Imaging System (UIS). ***FY 2016 Accomplishments:*** Initiated acquisition program for the next generation Advanced Integrated Sensor System (STRIDENT) for Expeditionary MCM forces. Specific actions included initiation of an AoA and development of contract and acquisition strategies. Completed the enhancements to the MK 1 Mod 0 diver-based hull search capability through fleet-based product improvements. ***FY 2017 Plans:*** The STRIDENT (i.e. diver held sonar) AoA will conclude and the ACAT designation and Milestone B will be realized in FY 2017. This will enter the STRIDENT program into the engineering and manufacturing development phase in progressing towards a production decision. Continue to enhance the MK 15 Mod 0 diver-based search capability through fleet-based product improvements. ***FY 2018 Base Plans:*** The STRIDENT Engineering Development Model (EDM) contract will be awarded and the EDM will be developed and tested by the manufacturer in the remainder of FY 2018. Continue to enhance the MK 15 Mod 0 diver-based search capability through fleet-based product improvements. ***FY 2018 OCO Plans:*** N/A					
Title: ADVANCED FIRING SYSTEM	0.050	0.190	0.200	0.000	0.200
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 1317 / *EOD Diving System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Description: Develops product improvements to existing systems for below and above water neutralization of underwater threats to support EOD and MDSU operations. ***FY 2016 Accomplishments:*** Completed testing, evaluation and imitated fielding of AFCTs, and begin development and testing of product improvement to AFD receiver subsystems. ***FY 2017 Plans:*** Complete fielding of AFCTs, and continue development and testing of product improvement to AFD receiver subsystems. ***FY 2018 Base Plans:*** Continue development and testing of product improvements to AFD receiver subsystems. ***FY 2018 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	1.947	5.467	5.113	0.000	5.113

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• OPN/0977a: *Underwater EOD Program (Cost Code UQ034)*	1.000	1.730	1.100	-	1.100	1.125	1.350	2.095	6.622	0.000	40.767
• OPN/0977b: *UW EOD (UQ036)*	0.338	0.411	0.475	-	0.475	0.660	0.660	0.660	4.050	0.000	10.454

Remarks

D. Acquisition Strategy

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new sub-projects. The AOA addresses and emphasizes acquisition strategies of the most cost-effective solution over the sub-projects life-cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modification), non-developmental item (including modification), and lastly, developmental programs. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 1317 / *EOD Diving System*

E. Performance Metrics

Research and Develop technologies for the design of Diver Safety Systems, Advanced Diver Integrated Sensors and Advanced Underwater Firing Systems used to render safe, recover, exploit, and dispose of sea limpet mines and unexploded ordnance.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603654N / *JT Service Explosive Ordn Dev*	Project (Number/Name) 3177 / *Joint Counter Radio-Controlled IED Elec Warfare*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
3177: *Joint Counter Radio-Controlled IED Elec Warfare*	0.000	0.000	13.345	15.564	-	15.564	13.501	10.644	10.949	11.165	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Provides for the research and development of Electronic Warfare (EW) systems, equipment, procedures, and tactical aids for all military services against the threat posed by Radio-Controlled Improvised Explosive Devices (RCIEDs) and to prevent initiation of RCIEDs across the spectrum of Joint military operations. Utilize Joint requirements to provide a system of systems approach for a suite of equipment for mounted, dismounted, and fixed site operations; provide a Joint Counter RCIED EW (JCREW) development of equipment, procedures, and tactical aids to make rapid improvements to performance, supportability and affordability, while maintaining pace with evolving global threat.

Also provides for the rapid development and testing of JCREW Counter-Unmanned Aerial System (C-UAS) for Joint Urgent Operational Need Statement (JUONS). This includes the modification of JCREW software, threat loads, and advanced techniques to provide an Increment I C-UAS capability, integration into JCREW dismounted systems delivered off the LRIP contract, lab verification, and open air testing. Due to rapidly evolving threats team will develop and support additional software drops throughout year.

The JCREW system, Increment 1 Block 1 (I1B1) is the next generation of counter RCIED systems. This family of systems includes fixed site, mounted and dismounted units, which provide countermeasures against the global RCIED threat. Key system design features include significant performance increases over current legacy systems, a modular open architecture system to address current and future advanced threats, robust information assurance and security, and is net-capable for improved Communications and Control (C2). JCREW I1B1 supports global deployment and sustainment for all combatant commands providing increased protection to Warfighter against the evolving worldwide RCIED threats.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Joint Counter Radio-Controlled IED Elec Warfare	0.000	13.345	15.564	0.000	15.564
Articles:	-	-	-	-	-
Description: Supports the design, integration and test of Tech Insertion hardware, software, and advanced techniques into JCREW systems. Tech Insertion candidates include ONR sponsored technologies ready for transition to JCREW, and techniques, hardware and software performance improvements developed by Navy laboratories, FFRDCs, UARCs, and the JCREW Prime contractor. Analysis of Alternatives will be conducted to evaluate and select Tech Insertion candidates based on technical maturity, cost, and performance. Hardware and software updates will be designed, tested, and implemented into JCREW through Engineering Change					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 3177 / *Joint Counter Radio-Controlled IED Elec Warfare*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Proposals. Also provides for the rapid development and testing of JCREW Counter-Unmanned Aerial System (C-UAS) for Joint Urgent Operational Need Statement (JUONS). ***FY 2016 Accomplishments:*** N/A ***FY 2017 Plans:*** Develop and test advanced techniques to maintain JCREW performance against evolving global RCIEDs. Execute Engineering Change Proposal to design, and fabricate hardware and software changes for Tech Insertion 1. Development and testing of threat loads and software and hardware Engineering Change Proposals (ECPs) in support of Counter-Unmanned Aerial Systems (C-UAS) Joint Urgent Operational Needs Statement (JUONS). ***FY 2018 Base Plans:*** Complete Analysis of Alternatives for Tech Insertion 2. Begin product development of Tech Insertion 2. Continue development and testing of threat loads and software and hardware Engineering Change Proposals (ECPs) in support of Counter-Unmanned Aerial Systems (C-UAS) Joint Urgent Operational Needs Statement (JUONS). ***FY 2018 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.000	13.345	15.564	0.000	15.564

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• OPN/5509(b): *Explosive Ordnance Disposal Equip*	2.929	105.603	9.062	24.400	33.462	0.927	0.930	0.946	0.965	0.000	145.762

Remarks

PE 0604653N/JT Cntr Radio Controlled IED Elec War (JCREW) consolidated into PE 0603654N/JT Service Explosive Ordn Dev FY17 and out.

D. Acquisition Strategy

FRP Production Line Start Up and Ramp Up and FRP Organic Depot Line Startup and Ramp Up in FY 2017. Spares support and OEM Depot will be utilized during LRIP phase. Establishment of Organic Depot capability during LRIP phase in support of FRP Decision Review with Weapons System Support Center Mechanicsburg as

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 3177 / *Joint Counter Radio-Controlled IED Elec Warfare*

Primary Inventory Control Activity (PICA). Full Rate Production contract will be full and open competition using LRIP final Tech Data Package (TDP) with unlimited data rights. Tech Insertion will help to maintain JCREW performance against evolving global RCIED threats.

E. Performance Metrics

LRIP contract awarded September 2015. Deliveries will support IOC. Analysis of Alternatives for Tech Insertion 1 in September 2015. Full Rate Production contract award planned for August 2017. Tech Insertion 2 development commences in FY18 based on outcome of Analysis of Alternatives.

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603654N / *JT Service Explosive Ordn Dev*	Project (Number/Name) 3177 / *Joint Counter Radio-Controlled IED Elec Warfare*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Various	TBD : TBD	0.000	0.000		1.929	Nov 2016	3.615	Jan 2018	-		3.615	Continuing	Continuing	Continuing
Systems Engineering	Various	TBD : TBD	0.000	0.000		3.464	Nov 2016	1.452	Jan 2018	-		1.452	Continuing	Continuing	Continuing
Software Development	Various	TBD : TBD	0.000	0.000		0.964	Nov 2016	1.995	Jan 2018	-		1.995	Continuing	Continuing	Continuing
System Integration	Various	TBD : TBD	0.000	0.000		0.964	Nov 2016	1.452	Jan 2018	-		1.452	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		7.321		8.514		-		8.514	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Loadset Development	FFRDC	JHU/APL, MITRE: : Laurel, MD	0.000	0.000		0.592	Nov 2016	1.004	Dec 2017	-		1.004	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC: : Various	0.000	0.000		2.036	Nov 2016	2.679	Nov 2017	-		2.679	Continuing	Continuing	Continuing
Program Management Support	WR	IHEODTD: : Indian Head, MD	0.000	0.000		0.331	Nov 2016	0.341	Nov 2017	-		0.341	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		2.959		4.024		-		4.024	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	WR	NSWC : Various	0.000	0.000		1.208	Nov 2016	0.958	Nov 2017	-		0.958	Continuing	Continuing	Continuing
Test & Evaluation	MIPR	YPG : Yuma, Arizona	0.000	0.000		0.850	Nov 2016	1.398	Nov 2017	-		1.398	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		2.058		2.356		-		2.356	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 3177 / *Joint Counter Radio-Controlled IED Elec Warfare*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	Cydecor : Various	0.000	0.000		0.575	Dec 2016	0.290	Dec 2017	-		0.290	Continuing	Continuing	Continuing
Miscellaneous	WR	NSWC : Various	0.000	0.000		0.432	Dec 2016	0.380	Dec 2017	-		0.380	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		1.007		0.670		-		0.670	-	-	-

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		13.345		15.564		-		15.564	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 3177 / *Joint Counter Radio-Controlled IED Elec Warfare*

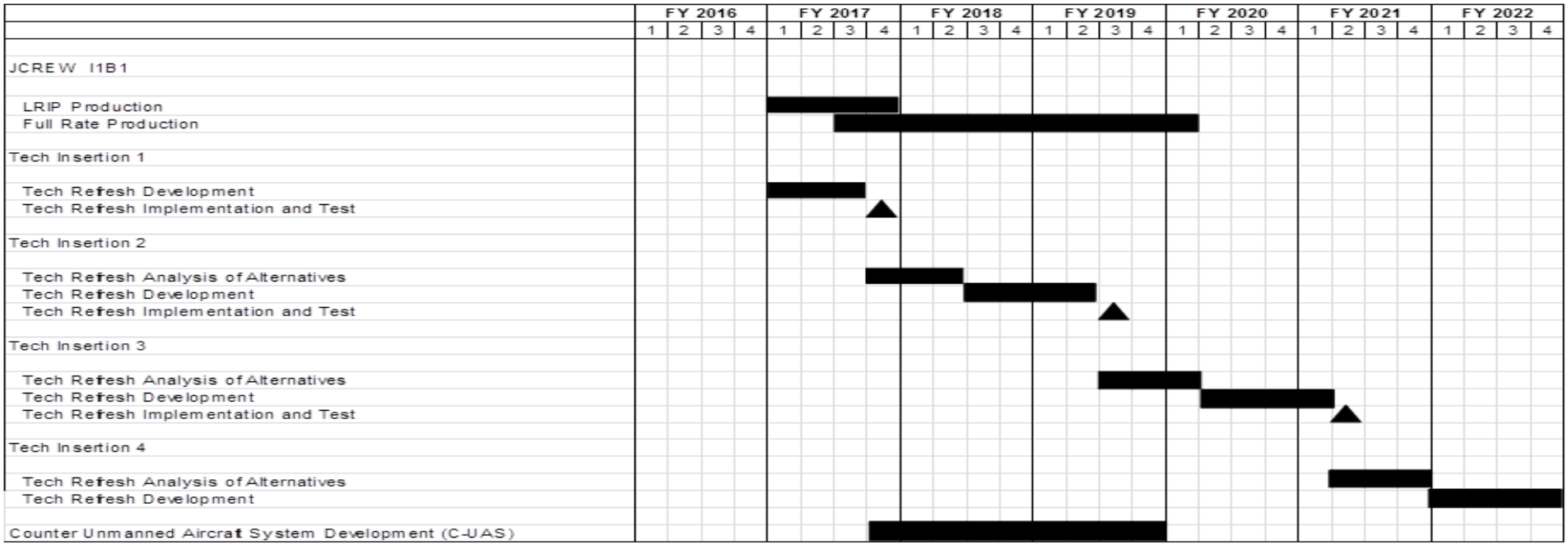

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 3177 / *Joint Counter Radio-Controlled IED Elec Warfare*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3177				
LRIP Production	1	2017	4	2017
Full Rate Production	3	2017	3	2019
TECH INSERTION 1	1	2017	4	2017
Tech Refresh Development (1)	1	2017	3	2017
Tech Refresh Implementation and Test (1)	4	2017	4	2017
TECH INSERTION 2	4	2017	3	2019
Tech Refresh Analysis of Alternatives (2)	4	2017	2	2018
Tech Refresh Development (2)	3	2018	2	2019
Tech Refresh Implementation and Test (2)	3	2019	3	2019
TECH INSERTION 3	3	2019	2	2021
Tech Refresh Analysis of Alternatives (3)	3	2019	1	2020
Tech Refresh Development (3)	2	2020	1	2021
Tech Refresh Implementation and Test (3)	2	2021	2	2021
TECH INSERTION 4	2	2021	4	2022
Tech Refresh Analysis of Alternatives (4)	2	2021	4	2021
Tech Refresh Development (4)	1	2022	4	2022
Counter Unmanned Aerial System Development	3	2017	4	2019

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603654N / *JT Service Explosive Ordn Dev*	Project (Number/Name) 4023 / *VSW MCM/Force Protection UUV*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
4023: *VSW MCM/Force Protection UUV*	102.773	7.044	17.560	19.118	-	19.118	17.472	17.900	16.294	18.664	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding support the development of unmanned systems for the Navy's only fielded expeditionary unmanned underwater EOD and MCM capability. Specifically, it provides for development of affordable expeditionary, unmanned underwater systems to support Navy Expeditionary forces including Explosive Ordnance (EOD). Mobile Diving and Salvage Units, and Shallow Water (SW), Very Shallow Water (VSW) and Underwater Mine Countermeasures (UMCM) mission operations. The equipment must be highly portable in order to support the Navy EOD technician to safely approach, render safe, recover, exploit and dispose of underwater explosive threats to include sea mines, limpet mines and unexploded ordnance. Provides support for the Navy's high priority missions of Maritime Homeland Defense, MCM, including clandestine reconnaissance and mine clearance in support of amphibious operations. Development of Expeditionary UUV systems to support localization render-safe and detailed intelligence gathering of UXO including Underwater Improvised Explosive Devices. This project supports CNO N957 MCM UUV Roadmap. Note: The schedules have been re-formatted to allow for better communication of program execution.

The significant increase in RDT&E resources from FY 2016 to FY 2017 provides the RDT&E resources needed to execute two formal MK 18 Family of Systems acquisition programs as well as three major engineering change proposals. Additionally, the MK 19 Family of Systems will be enhanced to provide an underwater threat interdiction capability. These efforts require prototype development and significant DT&E during FY 2017. FY 2017 program execution tempo reflects over a 100% increase in activity to support capability fielding timelines from FY 2016.

FY 2017 will focus on developing, testing and ultimately fielding advanced sensors (SSAM and ATLAS) that will allow warfighters to detect, classify and localize high priority threats in meeting mine warfare missions. Also, resources will be used to expand deployability of the MK 18 Family of Systems abroad a higher number of shipboard platforms and also to deploy the family of systems from additional small boats other than the 11m RHIB. The Increment 1 MK 18 Mod 2 upgrade will allow implementation of Automated Target Recognition (ATR), advanced autonomy architecture and enhanced electro-optic sensor performance. Increment II will focus on improving MCM performance and reducing the tactical timeline through fielding a Reaquire, Identify and Mark capability for the MK 18 Mod 2 system. Concurrently with these efforts, the MK 18 Mod 1 is undergoing a configuration change that will provide a higher area coverage rate, inclusion of vehicle autonomy, and Automated Target Recognition.

These efforts will significantly improve the capabilities of the projected inventory of 36 MK 18 Mod 2 vehicles and 63 MK 18 Mod 1 vehicles for fleet expeditionary forces. Currently, the MK 18 Family of Systems are being employed in multiple theater of operations (5th and 7th Fleet) and have been continuously employed in multiple CONUS based port survey and maritime homeland defense as well.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 4023 / *VSW MCM/Force Protection UUV*

These resources also support the FY 2017 enhancement of the MK 19 Family of Systems, (i.e. a ROV based ship's hull search capability) as well as a MK 19 variant (i.e. a ROV based target interdiction capability) based on the previously conducted EUNS AoA. In FY 2017, the next generation (i.e. modified-off-the-shelf (MOTS) ROV) is being developed to decrease risk when reacquiring/investigating a potential threat (i.e. sea mine or underwater Improvised Explosive Device).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: VSW MCM/Force Protection UUV	7.044	17.560	19.118	0.000	19.118
Articles:	-	-	-	-	-

Description: This program supports development, testing and Fleet approval for evolving generations of affordable, expeditionary Unmanned Underwater Vehicles (UUV), support equipment, and Common Operator Interface Navy (COIN) systems to address validated requirements in support of Expeditionary SW and VSW UMCM mission areas. Mission areas include: open and confined areas, hulls, piers and pilings to search, classify, map, re-acquire, identify, and neutralize sea and limpet mines and underwater improvised explosive devices.

FY 2016 Accomplishments:
Continued testing evaluation, fielding and installation of MK 18 MOD 1 and MOD 2 UUV Systems to meet US Fleet Forces Command inventory objectives in support of the Expeditionary MCM Company capability establishment. Continued testing and evaluation of MK 18 UUV family of systems (FoS) capability increments and MK 19 ECP product improvements. Initiated acquisition of Expeditionary UUV Neutralization System (EUNS) program (i.e. MK 19 Family of Systems) to develop standoff explosives threat object investigation, assessment, neutralization and battle damage assessment capabilities.

FY 2017 Plans:
Continue testing evaluation, fielding and installation of MK 18 MOD 1 and MOD 2 UUV Systems to meet US Fleet Forces Command inventory objectives in support of the Expeditionary MCM Company capability establishment. Continue testing and evaluation of MK 18 UUV family of systems (FoS) capability increments; specifically these capability improvements will focus on reducing the MCM timeline as well as improving MCM performance. The MK 19 Family of Systems ECP product improvements will leverage the successes of the MK 19 HULS program and commercial systems to field a threat interdiction capability. This will be an ECP to the existing MK 19 system. The ECP process will be initiated in FY 2017 is based on the results of the previously conducted EUNS AoA.

FY 2018 Base Plans:
Continue testing evaluation, fielding and installation of MK 18 MOD 1 and MOD 2 UUV Systems to meet US Fleet Forces Command inventory objectives in support of the Expeditionary MCM Company capability

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 4023 / *VSW MCM/Force Protection UUV*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
establishment. The MK 18 Family of Systems will achieve Milestone C for the MK 18 Mod 2 Increment 1 project; realize a production decision for the advanced sensors (i.e. ATLAS and SSAM); and enter the Engineering Development and Manufacturing phase for the MK 18 Mod 2 Increment 2 project. Also, the MK 19 Engineering Change Proposal process will field a MOTS ROV prototype for DT&E, which will start in FY 2018. ***FY 2018 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	7.044	17.560	19.118	0.000	19.118

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• OPN/0977(a): *Underwater EOD Program (Cost Code UQ034)*	33.706	11.810	30.742	3.382	34.124	27.923	22.036	22.003	14.230	0.000	251.814
• OPN/0977(b): *Expeditionary Mine Countermeasures (ExMCM) (Cost Code UQ038)*	0.000	0.000	11.396	4.016	15.412	34.371	1.165	0.599	0.611	0.000	52.158
• OPN/0977 (C): *Naval Special Warfare (NSW) (Cost Code UQ039)*	0.000	0.000	0.000	4.950	4.950	3.413	1.714	1.714	1.714	0.000	13.505

Remarks

D. Acquisition Strategy

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new sub-projects. The AOA addresses and emphasizes acquisitions strategies of the most cost effective solution over the sub-projects' life -cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modifications), non-developmental item (including modifications), and lastly, developmental programs. Contracting for RDT&E, if required is always competitive and when feasible, production options are included. This ongoing program capitalizes on a User Operational Evaluation System (UOES) effort involving Fleet operators engaged in tactical experimentation with prototype UUVs prior to fielding baseline systems and capability improvement package increments. These UUV operators also participate in detailed requirements analyses and definition. Operational capabilities with UUV have been realized at designated operational units, with a competitive acquisition strategy. The addition of enhanced capabilities through an evolutionary acquisition approach to the UUV toolbox is programmed for delivery in accordance with approved CNO requirements and ONR TTAs. Further improvements to the toolbox to add basic mine and underwater explosive threats neutralization capabilities will be pursued.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 4023 / *VSW MCM/Force Protection UUV*

E. Performance Metrics

Research and Develop technologies for the design of Unmanned Underwater Systems to provide enhanced fleet capabilities to locate, classify, identify, assess, neutralize and conduct post-neutralization battle damage assessment/verification of mines and unexploded ordnance.

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603654N / *JT Service Explosive Ordn Dev*	Project (Number/Name) 4023 / *VSW MCM/Force Protection UUV*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	Multiple Activites : Not Specified	18.182	1.464	Oct 2015	3.382	Oct 2016	4.240	Oct 2017	-		4.240	0.000	27.268	-
Systems Engineering	WR	NSWC, Activities : Not Specified	12.012	1.386	Oct 2015	3.159	Oct 2016	3.478	Oct 2017	-		3.478	0.000	20.035	-
Primary Hardware Development	WR	EODTECHDIV : IH, MD	16.238	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	EODTECHDIV : IH, MD	20.176	1.483	Oct 2015	3.458	Oct 2016	3.152	Oct 2017	-		3.152	Continuing	Continuing	Continuing
		Subtotal	66.608	4.333		9.999		10.870		-		10.870	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Support	C/CPFF	HARRIS : Herndon, VA	5.383	0.293	Oct 2015	0.586	Oct 2016	0.572	Nov 2017	-		0.572	Continuing	Continuing	Continuing
		Subtotal	5.383	0.293		0.586		0.572		-		0.572	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	Multiple Activities : Not Specified	12.043	1.409	Oct 2015	3.519	Oct 2016	3.844	Oct 2017	-		3.844	0.000	20.815	-
Operational Test & Evaluation	WR	NSWC, Activities : Not Specified	2.492	0.465	Oct 2015	1.642	Oct 2016	1.785	Oct 2017	-		1.785	0.000	6.384	-
Developmental Test & Evaluation	WR	EODTECHDIV : IH, MD	8.619	0.375	Oct 2015	1.151	Oct 2016	1.284	Oct 2017	-		1.284	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	EODTECHDIV : IH, MD	1.424	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	24.578	2.249		6.312		6.913		-		6.913	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 4023 / *VSW MCM/Force Protection UUV*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	EODTECHDIV : IH, MD	3.883	0.169	Nov 2015	0.443	Oct 2016	0.511	Nov 2017	-		0.511	Continuing	Continuing	Continuing
Miscellaneous	WR	NSWC, Activities : Not Specified	2.303	0.000	Nov 2015	0.220	Oct 2016	0.252	Nov 2017	-		0.252	Continuing	Continuing	Continuing
DAWDF	Various	Not Specified : Not Specified	0.018	0.000		0.000		0.000		-		0.000	0.000	0.018	-
		Subtotal	6.204	0.169		0.663		0.763		-		0.763	-	-	-

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	102.773	7.044		17.560		19.118		-		19.118	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 4023 / *VSW MCM/Force Protection UUV*

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 4023 / *VSW MCM/Force Protection UUV*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4023				
TITLE: MK 18 MOD 2 UUV	1	2016	4	2022
---Engineering & Manufacturing (Inc 1)	1	2016	4	2017
---Testing (Inc 1)	1	2016	4	2017
---Production Decision MS C (Inc 1)	1	2018	1	2018
---Production and Deployment (Inc 1)	1	2018	3	2020
---Testing (Advance Sensors)	1	2016	2	2018
---Engineering Change Proposal (Advanced Sensors)	3	2018	3	2018
---Production and Deployment (Advanced Sensors)	3	2018	1	2021
---MS B (Inc 2)	2	2018	2	2018
---Engineering & Manufacturing (Inc 2)	3	2018	2	2021
---Testing (Inc 2)	3	2018	1	2021
---Production Decision MS C (Inc 2)	2	2021	2	2021
---Production and Deployment (Inc 2)	3	2021	4	2022
TITLE: MK 18 MOD 1 UUV	1	2016	4	2022
---Engineering Change Proposal (Block C)	1	2019	1	2019
---Testing (Block C)	1	2017	3	2018
---Production and Deployment (Block C)	1	2019	1	2021
TITLE: EOD RESPONSE (ROV) (MK 19 FAMILY OF SYSTEMS)	1	2016	4	2022
---Engineering Change Proposal Initiation	4	2017	4	2017
---Testing (Block C)-	1	2019	1	2020
---Engineering Change Proposal Decision	1	2020	1	2020

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 4023 / *VSW MCM/Force Protection UUV*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
---Production and Deployment	2	2020	4	2022