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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy **Date:** February 2015

Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0604601N / Mine Development							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	206.403	4.903	14.067	15.122	-	15.122	14.478	17.590	8.000	8.881	Continuing	Continuing
0267: Mine Improvements	206.403	4.903	14.067	15.122	-	15.122	14.478	17.590	8.000	8.881	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project is the only R&D program for mine systems, and is the sole support for the capability to maintain the effectiveness of mines facing new threat targets and increasing emphasis on major regional conflicts and littoral warfare in shallow water. Project tasks are grouped into several areas: (1) Threat Modeling/Analysis, which collects, analyzes, and develops digital models of data on current priority threat target characteristics to support computer simulations; (2) Target Detection and Response, which uses target models to develop optimal mine designs, settings, and firing algorithms; (3) Developing and upgrading Tactical Decision Aids (TDAs) to assist the warfighter in planning and placing more effective minefields; (4) Test and Evaluation (T&E) to support aircraft certification; (5) Redesigning test sets for Submarine Launch Mobile Mine (SLMM) to address obsolescence; (6) Developing a conversion kit to convert SLMM warheads into Unmanned Underwater Vehicle (UUV) delivered mines. The first increment (FY15-FY16) focuses on rapid development using existing SLMM components including the Target Detection TDD Mk-57. The second increment (FY16-FY20) will improve upon the first increment by integrating the TDD Mk 71 and adding a remote command and control capability.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	5.041	19.067	3.734	-	3.734
Current President's Budget	4.903	14.067	15.122	-	15.122
Total Adjustments	-0.138	-5.000	11.388	-	11.388
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-5.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.139	-			
• Program Adjustments	-	-	11.500	-	11.500
• Rate/Misc Adjustments	0.001	-	-0.112	-	-0.112

Change Summary Explanation

Total Adjustments: FY14 -\$138K: SBIR/Misc adjustments.

Total Adjustments: FY15 -\$5,000K: Clandestine Mining Capability.

Total Adjustments: FY16 +\$11,500K: Clandestine Mining Capability and FY16 -\$112K/Misc adjustments.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604601N / <i>Mine Development</i>				Project (Number/Name) 0267 / <i>Mine Improvements</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
0267: <i>Mine Improvements</i>	206.403	4.903	14.067	15.122	-	15.122	14.478	17.590	8.000	8.881	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project is the only R&D program for mine systems, and is the sole support for the capability to maintain the effectiveness of mines facing new threat targets and increasing emphasis on major regional conflicts and littoral warfare in shallow water. Project tasks are grouped into several areas: (1) Threat Modeling/Analysis, which collects, analyzes, and develops digital models of data on current priority threat target characteristics to support computer simulations; (2) Target Detection and Response, which uses target models to develop optimal mine designs, settings, and firing algorithms;(3) Developing and upgrading Tactical Decision Aids (TDAs) to assist the warfighter in planning and placing more effective minefields; (4)Test and Evaluation (T&E) to support aircraft cetification; (5)Redesigning Submarine Launched Moble Mine (SLMM) components to address obsolescence; and (6) Developing conversion kits to enable clandestine UUV delivery of SLMM warheads.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Product Development	2.783	10.593	12.346	-	12.346
Articles:	-	-	-	-	-
FY 2014 Accomplishments: Software Development: Modified algorithms based on testing results. Continued generating OPDATA for fast patrol boat, air cushioned vehicle, and large ship algorithms. Continued to work action items assigned by Navy and Air Force fuze safety boards. Continued modification to mine data recorder design. Concluded design of mine standoff delivery (Wing Kit) capability and built prototype system for evaluation. Conducted B52 aircraft certification testing.					
FY 2015 Plans: Modify algorithms based on testing results. Continue generating OPDATA for the Fast Patrol Boat, Air cushioned Vehicle, and large ship algorithms. Develop replacement test set to address SLMM obsolence issues. Design a clandestine delivered mine using existing SLMM components and TDD MK 57, capable of delivery by UUV. Modifications to fuze components, batteries, weapon casing and vehicle interfaces will be designed, prototypes fabricated and weapons integrated with designated delivery platform.					
FY 2016 Base Plans: Modify algorithms based on testing results. Continue generating OPDATA for the Fast Patrol Boat, Air cushioned Vehicle, and large ship algorithms. Continue to work action items assigned by Navy and Air Force fuse safety boards. Develop replacement test set to address SLMM obsolence issues. Continue development					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
of a conversion kit to convert SLMM warheads into UUV delivered mines. Begin development of an upgrade to include remote command and control and integration of pogrammmable Target Detection Device Mk 71.						
FY 2016 OCO Plans: N/A						
Title: Support Articles:		0.050 -	0.050 -	0.050 -	- -	0.050 -
FY 2014 Accomplishments: Information Assurance (IA) and technical support of Mine Warfare development lab for Quickstrike Mines.						
FY 2015 Plans: Information Assurance (IA) and technical support of Mine Warfare development lab for Quickstrike Mines.						
FY 2016 Base Plans: Information Assurance (IA) and technical support of Mine Warfare development lab for Quickstrike Mines.						
FY 2016 OCO Plans: N/A						
Title: Test and Evaluation Articles:		2.020 -	3.374 -	2.676 -	- -	2.676 -
FY 2014 Accomplishments: Continued Aircraft certification (B-52). Conducted ground testing of MINES standoff (wing kit) prototype.						
FY 2015 Plans: Continue Aircraft certification (to include F/A-18). Conduct final in water testing for planned algorithms. Performed test and evaluation on the MINES standoff (Wing Kit) capabilitiy.						
FY 2016 Base Plans: Continue Aircraft certification (to include F/A-18). Begin safety qualification testing of fuze and battery components clandestine delivered mine. Conduct in-water test of clandestine delivered mine to evaluate interfaces with delivery vehicle, proper deployment and safe arming sequence.						
FY 2016 OCO Plans: N/A						
Title: Management: Articles:		0.050 -	0.050 -	0.050 -	- -	0.050 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)											
	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total						
<i>FY 2014 Accomplishments:</i> Program Management Support, contract support and Travel <i>FY 2015 Plans:</i> Program Management Support, contract support and Travel <i>FY 2016 Base Plans:</i> Program Management Support, contract support and Travel <i>FY 2016 OCO Plans:</i> N/A											
Accomplishments/Planned Programs Subtotals		4.903	14.067	15.122	-						
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• WPN 3231: <i>Quickstrike Mine</i>	7.800	6.966	13.254	-	13.254	12.773	11.102	8.504	8.680	-	93.166
Remarks											
D. Acquisition Strategy											
Procurement of Target Detecting Device (TDD) Mk 71, MK 62/63 kits, MK 65 kits and associated components.											
E. Performance Metrics											
N/A											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604601N / <i>Mine Development</i>				Project (Number/Name) 0267 / <i>Mine Improvements</i>					
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NSWC PC : WX	115.995	1.362	Nov 2013	-		-		-		-	Continuing	Continuing	Continuing
Ancillary Hardware Development	C/CPAF	Various : Various	3.358	0.254	Nov 2013	0.400	Nov 2014	0.050	Nov 2015	-		0.050	Continuing	Continuing	Continuing
Ship Suitability	WR	NSWC PC : WX	2.467	-		-		-		-		-	Continuing	Continuing	Continuing
GFE	C/CPAF	Various : Various	4.790	-		-		-		-		-	Continuing	Continuing	Continuing
Software Development	WR	NSWC, PC : WX	17.655	1.167	Nov 2013	1.193	Nov 2014	1.200	Nov 2015	-		1.200	-	21.215	-
Clandestine Mine	WR	NSWC, PC : WX	0.000	-		5.950	Nov 2014	7.133	Nov 2015	-		7.133	-	13.083	-
Clandestine Mine	WR	NSWC, IH : WX	0.000	-		3.050	Nov 2014	3.963	Nov 2015	-		3.963	-	7.013	-
Subtotal			144.265	2.783		10.593		12.346		-		12.346	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
IA/ILS/Technical	WR	NSWC PC : WX	0.722	0.050	Nov 2013	0.050	Nov 2014	0.050	Nov 2015	-		0.050	Continuing	Continuing	Continuing
Subtotal			0.722	0.050		0.050		0.050		-		0.050	-	-	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	WR	NSWC PC : WX	24.502	2.020	Nov 2013	3.374	Nov 2014	2.676	Nov 2015	-		2.676	-	32.572	-
Subtotal			24.502	2.020		3.374		2.676		-		2.676	-	32.572	-

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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	C/CPAF	Various : Various	36.102	0.050	Nov 2013	0.050	Nov 2014	0.050	Nov 2015	-		0.050	-	36.252	-
Program Management Support	C/CPAF	Various : Various	0.728	-		-		-		-		-	Continuing	Continuing	Continuing
Travel	Various	NAVSEA : PD	0.074	-		-		-		-		-	Continuing	Continuing	Continuing
DAWDF	Various	Various : Various	0.010	-		-		-		-		-	-	0.010	-
Subtotal			36.914	0.050		0.050		0.050		-		0.050	-	-	-
			Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			206.403	4.903		14.067		15.122		-		15.122	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy

Date: February 2015

Appropriation/Budget Activity

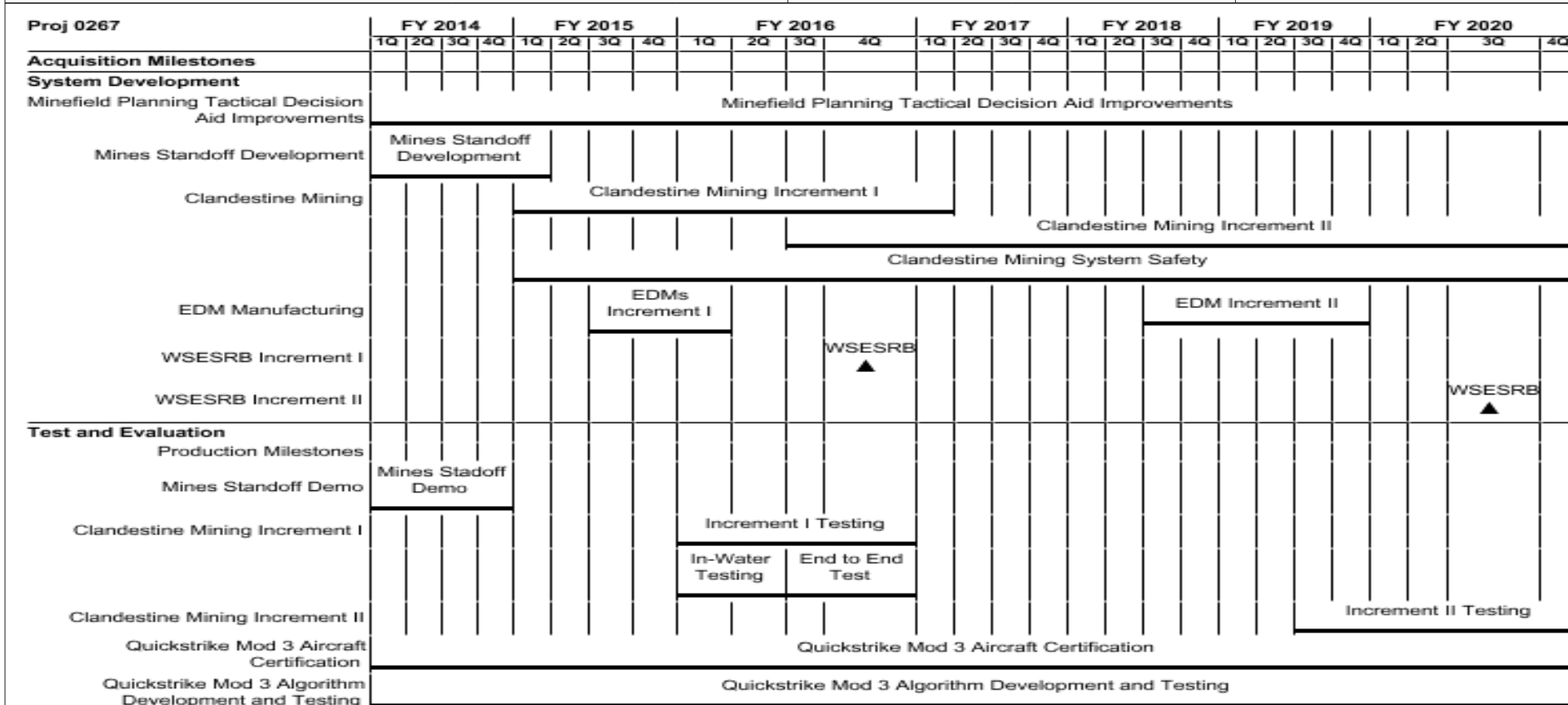
1319 / 5

R-1 Program Element (Number/Name)

PE 0604601N / *Mine Development*

Project (Number/Name)

0267 / *Mine Improvements*



2016PB - 0604601N - 0267

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604601N / <i>Mine Development</i>	Project (Number/Name) 0267 / <i>Mine Improvements</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0267				
System Development: Minefield Planning Tactical Decision Aid Improvements:	1	2014	4	2020
System Development: Mines Standoff Development:	1	2014	1	2015
System Development: Clandestine Mining: Increment I	1	2015	1	2017
System Development: Clandestine Mining: Increment II	3	2016	4	2020
System Development: Clandestine Mining: System Safety	1	2015	4	2020
System Development: EDM Manufacturing: EDM Manufacturing Increment I	3	2015	1	2016
System Development: EDM Manufacturing: EDM Manufacturing Increment II	3	2018	4	2019
System Development: WSESRB Increment I: Increment I	4	2016	4	2016
System Development: WSESRB Increment II: Increment II	3	2020	3	2020
Test and Evaluation: Mines Standoff Demo:	1	2014	4	2014
Test and Evaluation: Clandestine Mining Increment I: Testing	1	2016	4	2016
Test and Evaluation: Clandestine Mining Increment I: In-Water Testing	1	2016	2	2016
Test and Evaluation: Clandestine Mining Increment I: End to End Test	3	2016	4	2016
Test and Evaluation: Clandestine Mining Increment II: Testing	3	2019	4	2020
Test and Evaluation: Quickstrike Mod 3 Aircraft Certification:	1	2014	4	2020
Test and Evaluation: Quickstrike Mod 3 Algorithm Development and Testing:	1	2014	4	2020