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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604601N: <i>Mine Development</i>							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	1.987	2.240	5.455	0.000	5.455	5.604	6.184	3.795	3.851	Continuing	Continuing
0267: <i>Mine Improvements</i>	1.987	2.240	5.455	0.000	5.455	5.604	6.184	3.795	3.851	Continuing	Continuing

A. Mission Description and Budget Item Justification

(U) 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; and (3) Developing and upgrading Tactical Decision Aids (TDAs) to assist the warfighter in planning and placing more effective minefields.

Data Recorders: Mine data recorders record mine target detection and mine fire data during in-water reliability testing. Current recorders are no longer supportable and cannot be used with the Quickstrike Mod 3. New recorders will work with the programmable Target Detecting Device MK 71 used in the Mod 3. They will support in-water testing of all in-service Quickstrike Mods (0, 1, and 3).

Remote Control (RECO): Provide on-way Remote Control of Quickstrike Mine MK 65. Commands will be Arm, Sterilize and Self Destruct. RECO mines can be planted before a conflict begins and armed if required. Sterilize or self destruct commands will neutralize the minefield as soon as hostilities are over. Work includes development of transmitters to communicate with the mines.

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APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE			
1319: Research, Development, Test & Evaluation, Navy		PE 0604601N: Mine Development			
BA 5: Development & Demonstration (SDD)					
B. Program Change Summary (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	1.999	2.249	0.000	0.000	0.000
Current President's Budget	1.987	2.240	5.455	0.000	5.455
Total Adjustments	-0.012	-0.009	5.455	0.000	5.455
• Congressional General Reductions		-0.009			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.012	0.000			
• Program Adjustments	0.000	0.000	5.455	0.000	5.455
Change Summary Explanation					
Technical: Not applicable.					
Schedule: Not applicable.					
FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.					

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APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604601N: <i>Mine Development</i>				PROJECT 0267: <i>Mine Improvements</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0267: <i>Mine Improvements</i>	1.987	2.240	5.455	0.000	5.455	5.604	6.184	3.795	3.851	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
A. Mission Description and Budget Item Justification <p>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; and (3) Developing and upgrading Tactical Decision Aids (TDAs) to assist the warfighter in planning and placing more effective minefields.</p> <p>Data Recorders: Mine data recorders record mine target detection and mine fire data during in-water reliability testing. Current recorders are no longer supportable and cannot be used with the Quickstrike Mod 3. New recorders will work with the programmable Target Detecting Device MK 71 used in the Mod 3. They will support in-water testing of all in-service Quickstrike Mods (0, 1, and 3).</p> <p>Remote Control (RECO): Provide one-way Remote Control of Quickstrike Mine MK 65. Commands will be Arm, Sterilize and Self Destruct. RECO mines can be planted before a conflict begins and armed if required. Sterilize or self destruct commands will neutralize the minefield as soon as hostilities are over. Work includes development of transmitters to communicate with the mines.</p>											
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
Acquisition Workforce:						0.010	0.000	0.000	0.000	0.000	
<i>FY 2009 Accomplishments:</i> Acquisition Workforce											
Development Support:						1.426	1.670	2.833	0.000	2.833	

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Software Development: Continue initial development of the High Speed Vessels/Shallow Water Twin Hull (HSV/SWATH) algorithm for the Quickstrike Mod 3 (Target Detecting Device Mk 71 Mod 1). Conduct in-water testing of the Air Cushioned Vehicle algorithm and HSV/SWATH algorithm. Complete generating operational data (OPDATA) for the Fast Patrol Boat and large ship algorithms for minefield planning, and begin generating OPDATA for the Air Cushioned Vehicle algorithm. Generate OPDATA for the Air Cushioned Vehicle algorithm for minefield planning. Continue the second phase of development for the ForceNet-compliant Tactical Decision Aid for minefield planning in MEDAL/GCCS-M, to pass minefield plans directly to ForceNet target and aircraft-mission planning software. Integrated Logistic Support (ILS).						
FY 2010 Plans: Software Development: Continue initial development of the High Speed Vessels/Shallow Water Twin Hull (HSV/SWATH) algorithm for the Quickstrike Mod 3 (Target Detecting Device Mk 71 Mod 1). Conduct in-water testing of the Air Cushioned Vehicle algorithm and HSV/SWATH algorithm. Complete generating operational data (OPDATA) for the Fast Patrol Boat and large ship algorithms for minefield planning, and begin generating OPDATA for the Air Cushioned Vehicle algorithm. Generate OPDATA for the Air Cushioned Vehicle algorithm for minefield planning. Continue the second phase of development for the ForceNet-compliant Tactical Decision Aid for minefield planning in MEDAL/GCCS-M, to pass minefield plans directly to ForceNet target and aircraft-mission planning software. Integrated Logistic Support (ILS).						
FY 2011 Base Plans: Software Development: Continue initial development of the High Speed Vessels/Shallow Water Twin Hull (HSV/SWATH) algorithm for the Quickstrike Mod 3 (Target Detecting Device Mk 71 Mod 1). Conduct in-water testing of the Air Cushioned Vehicle algorithm and HSV/SWATH algorithm. Complete generating operational data (OPDATA) for the Fast Patrol Boat and large ship algorithms for minefield planning, and begin generating OPDATA for the Air Cushioned Vehicle algorithm. Generate						

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
OPDATA for the Air Cushioned Vehicle algorithm for minefield planning. Continue the second phase of development for the ForceNet-compliant Tactical Decision Aid for minefield planning in MEDAL/GCCS-M, to pass minefield plans directly to ForceNet target and aircraft-mission planning software. Integrated Logistic Support (ILS).						
Product Development: FY 2009 Accomplishments: System Engineering: Continue to perform flight testing leading to aircraft certification for Quickstrike Mod 3. FY 2010 Plans: System Engineering: Continue to perform flight testing leading to aircraft certification for Quickstrike Mod 3. FY 2011 Base Plans: System Engineering: Continue to perform flight testing leading to aircraft certification for Quickstrike Mod 3. Begin system engineering analysis and requirements for Mine data recorder and Quickstrike Remote Control.		0.484	0.500	2.459	0.000	2.459
Management: FY 2009 Accomplishments: Program Management Support and Travel FY 2010 Plans: Program Management Support and Travel FY 2011 Base Plans: Program Management Support and Travel		0.067	0.070	0.163	0.000	0.163

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B. Accomplishments/Planned Program (\$ in Millions)											
							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals							1.987	2.240	5.455	0.000	5.455
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• WPN 3231: <i>Quickstrike Mine</i>	3.479	4.666	6.090	0.000	6.090	5.955	7.121	10.681	10.763	0.000	48.755
D. Acquisition Strategy											
The Target Detecting Device (TDD) Mk 71 Mod 1 was modified by the TDD Adapter Mk 157 - used in Quickstrike Mk 65 Mod 3 kits, the Safe and Arming Device Mk 75, TDD Adapter Mk 163, and Lithium Battery Mk 176 - used in the Quickstrike Mk 62/63 Mod 3 kits.											
E. Performance Metrics											
Successfully develop new mine data recorders to work with the programmable Target Detecting Device MK 71 used in the Mod 3. Successfully design and develop the Navy Remote Control (RECO) mine capability, which will deliver a one-way Remote Control of Quickstrike Mine MK 65. RECO will be able to Arm, Sterilize and Self Destruct.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy											DATE: February 2010			
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Product Development (\$ in Millions)														
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	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	111.113	0.500	Oct 2009	2.459	Oct 2010	0.000		2.459	Continuing	Continuing	Continuing	
Ancillary Hardware Development	C/TBD	Not Specified Not Specified	2.158	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing	
Ship Suitability	WR	NSWC PC WX	2.467	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing	
GFE	C/TBD	Not Specified Not Specified	4.790	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing	
Subtotal			120.528	0.500		2.459		0.000		2.459				
Remarks														
Support (\$ in Millions)														
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Software Development	WR	Various WX	12.785	1.649	Oct 2009	2.779	Oct 2010	0.000		2.779	Continuing	Continuing	Continuing	
Integrated Logistics Support	WR	NSWC PC WX	0.539	0.021	Oct 2009	0.054	Oct 2010	0.000		0.054	Continuing	Continuing	Continuing	
Subtotal			13.324	1.670		2.833		0.000		2.833				
Remarks														

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Test and Evaluation (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	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	17.916	0.000		0.000		0.000		0.000	0.000	17.916	Continuing
Subtotal			17.916	0.000		0.000		0.000		0.000	0.000	17.916	
Remarks													
Management Services (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	C/TBD	Not Specified Not Specified	35.599	0.000		0.000		0.000		0.000	0.000	35.599	Continuing
Program Management Support	C/Various	Various Various	1.663	0.065	Oct 2009	0.148	Oct 2010	0.000		0.148	Continuing	Continuing	Continuing
Travel	C/TBD	NAVSEA PD	0.038	0.005	Oct 2009	0.015	Oct 2010	0.000		0.015	Continuing	Continuing	Continuing
DAWDF	C/TBD	Not Specified Not Specified	0.010	0.000		0.000		0.000		0.000	0.000	0.010	Continuing
Subtotal			37.310	0.070		0.163		0.000		0.163			
Remarks													

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	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	189.078	2.240		5.455		0.000		5.455			
Remarks											

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604601N: <i>Mine Development</i>		PROJECT 0267: <i>Mine Improvements</i>	

Mine Development Program Schedule

Fiscal Year	FY09				FY10				FY11				FY12				FY13				FY14				FY15			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Minefield Planning Tactical Decision Aid Improvements																												
Quickstrike Mod 3 Aircraft Certification																												
Quickstrike Mod 3 Algorithm Development & Testing																												
Mine Data Recorder Development																												
Mine Data Recorder Production																												
Quickstrike Remote Control (RECO) Development																												
Quickstrike Remote Control (RECO) Production																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604601N: <i>Mine Development</i>	PROJECT 0267: <i>Mine Improvements</i>	

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Minefield Planning Tactical Decision Aid Improvements	1	2009	4	2015
Quickstrike Mod 3 Aircraft Certification	1	2009	4	2015
Quickstrike Mod 3 Algorithm Development and Testing	1	2009	4	2015
Mine Data Recorder Development	1	2011	4	2012
Mine Data Recorder Production	1	2013	4	2015
Quickstrike Remote Control (RECO) Development	1	2011	4	2013
Quickstrike Remote Control (RECO) Production	1	2014	4	2015

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