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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 United States Special Operations Command **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY

0400: *Research, Development, Test & Evaluation, Defense-Wide*
BA 7: *Operational Systems Development*

R-1 ITEM NOMENCLATURE

PE 1160483BB: *SOF Underwater Systems*

COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	24.238	13.986	92.424	-	92.424	104.988	107.515	32.219	0.247	Continuing	Continuing
S0417: <i>SOF Underwater Systems</i>	24.238	13.986	92.424	-	92.424	104.988	107.515	32.219	0.247	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element provides for engineering & manufacturing development and operational systems development of small combat underwater submersibles and underwater support systems and equipment. This program element also provides for pre-acquisition activities (materiel solutions analysis, advanced component development and prototypes) to respond to emergent requirements. These submersibles, systems, and equipment are used by Special Operations Forces (SOF) in the conduct of infiltration/extraction, hydrographic/inland reconnaissance, beach obstacle clearance, underwater ship attack, and other missions. The capabilities of the submersible systems and unique equipment provides small, highly trained forces the ability to successfully engage the enemy and conduct clandestine operations associated with SOF maritime missions.

B. Program Change Summary (\$ in Millions)

	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	18.774	13.986	8.461	-	8.461
Current President's Budget	24.238	13.986	92.424	-	92.424
Total Adjustments	5.464	-	83.963	-	83.963
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	5.567	-			
• SBIR/STTR Transfer	-0.103	-			
• Other Adjustment	-	-	83.963	-	83.963

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: S0417: *SOF Underwater Systems*

Congressional Add: *Undersea Special Warfare Engineering Support Office*

Congressional Add: *Transformer Technology for Combat Submersibles*

Congressional Add: *Technology for Shallow Water Special Operations Forces Mobility*

Congressional Add: *Alternative SOF Submersible Concept Design Study*

Congressional Add: *Future Dry Deck Shelter*

FY 2010	FY 2011
1.992	-
3.585	-
2.868	-
0.996	-
4.381	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 United States Special Operations Command		DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 7: <i>Operational Systems Development</i>		R-1 ITEM NOMENCLATURE PE 1160483BB: <i>SOF Underwater Systems</i>	
<u>Congressional Add Details (\$ in Millions, and Includes General Reductions)</u>		FY 2010	FY 2011
Congressional Add: <i>Non-Gasoline Burning Outboard Engine</i>		3.034	-
Congressional Add Subtotals for Project: S0417		16.856	-
Congressional Add Totals for all Projects		16.856	-
<u>Change Summary Explanation</u>			
Funding:			
FY 2010 Net increase of \$5.464 million due to a decrease for Small Business Innovation Research Transfer (-\$.103 million), an increase of \$1.514 million for Non-Gasoline Burning Outboard Engine congressional add reprogrammed from the Navy, a reprogramming increase of \$4.058 million from the Joint Multi-Mission Submersible program and a decrease of (\$.005 million) for higher headquarters priorities.			
FY 2011 None.			
FY 2012 Net increase of \$83.963 million due to new SOF Undersea Mobility Strategy and the reallocation of resources from the Joint Multi-Mission Submersible program (\$84.131 million) and a decrease due to an economic adjustment (-\$.168 million).			
Schedule: None.			
Technical: None.			

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Exhibit R-2A, RDT&E Project Justification: PB 2012 United States Special Operations Command									DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 1160483BB: SOF Underwater Systems				PROJECT S0417: SOF Underwater Systems			
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
S0417: SOF Underwater Systems	24.238	13.986	92.424	-	92.424	104.988	107.515	32.219	0.247	Continuing	Continuing
Quantity of RDT&E Articles											
A. Mission Description and Budget Item Justification											
<p>This project provides for engineering & manufacturing development and operational systems development of small combat underwater submersibles and underwater support systems and equipment. Also provides for pre-acquisition activities (materiel solutions analysis, advanced component development and prototypes) to respond to emergent requirements. These submersibles, systems, and equipment are used by Special Operations Forces (SOF) in the conduct of infiltration/extraction, hydrographic/inland reconnaissance, beach obstacle clearance, underwater ship attack, and other missions. The capabilities of the submersible systems and unique equipment provides small, highly trained forces the ability to successfully engage the enemy and conduct clandestine operations associated with SOF maritime missions. Sub-projects include:</p> <ul style="list-style-type: none">• Combat Submersibles: Includes conducting product improvement efforts for the in-service SEAL Delivery Vehicle MK 8 and conducting technology development and engineering & manufacturing development for the follow-on combat submersibles such as the various types of shallow water combat submersibles. The shallow water combat submersibles use an evolutionary acquisition approach to develop a family of submersibles, to include a new wet submersible capable of operating from existing Dry Deck Shelters, and more capable wet or dry submersibles that will operate from future large submarine shelters/systems and/or surface ships. The combat submersible sub-project leverages existing SEAL Delivery Vehicle components, develops new state-of-the-art components where appropriate, and leases or purchases commercial-off-the-shelf components and vehicles for test and evaluation and operational assessment.• Underwater Support Systems and Equipment: Includes conducting product improvement efforts for in-service submarine support systems such as the Dry Deck Shelters, unmanned underwater vehicles such as the Semi-autonomous Hydrographic Reconnaissance Vehicle, and diver equipment such as the Hydrographic Mapping Unit, Non-gasoline Burning Outboard Engines and Diver Propulsion Devices. Also provides for technology development and engineering & manufacturing development for follow-on underwater support systems and equipment.											
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2010	FY 2011	FY 2012
Title: Shallow Water Combat Submersible									5.324	13.986	29.637
FY 2010 Accomplishments: Continued concept and technology development for a new Shallow Water Combat Submersible and conducted source selection activities.											
FY 2011 Plans: Continues design and development for a new Shallow Water Combat Submersible capability.											
FY 2012 Plans:											

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
Complete critical design review for Block I and conducts developmental test.				
Title: Dry Combat Submersible FY 2010 Accomplishments: Established program team and developed methods and procedures for certification of dry combat submersibles. Continued design and engineering assessment efforts for commercial combat submersibles prototypes. FY 2012 Plans: Procure government furnished equipment, completes prototyping efforts for advanced technology demonstrators and completes American Bureau of Shipping certification efforts. Conduct user operational evaluation of alternative submersible concepts using commercial dry submersible technology to demonstrate key system attributes. Project initiated as part of Congressional Adds: Alternate SOF Submersible Concept Design Study in Program Element 1160483BB.		1.558	-	13.455
Title: Dry Combat Submersible Light FY 2012 Plans: Design, develop, build and test dry combat submersibles using low cost component technologies. Project initiated as part of FY 2010 Congressional Add: Alternative SOF Submersible Concept Design Study in Program Element 1160483BB.		-	-	35.832
Title: Dry Deck Shelter Modifications FY 2012 Plans: Design and develop modifications required to current Dry Deck Shelter to accommodate various combat submersibles. Major modifications may include, but are not limited to, a length extension.		-	-	11.500
Title: Dry Deck Shelter FY 2010 Accomplishments: Established program team and begin development plans for dry deck shelter modifications to support SOF Undersea Mobility objectives. FY 2012 Plans: Conduct Analysis of Alternatives for next generation shelter to accommodate family of combat submersibles. Continue FY 2010 Congressional Add for Future Dry Deck Shelter in Program Element 1160483BB.		0.500	-	2.000
Accomplishments/Planned Programs Subtotals		7.382	13.986	92.424
		FY 2010	FY 2011	
Congressional Add: Undersea Special Warfare Engineering Support Office		1.992	-	

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Exhibit R-2A, RDT&E Project Justification: PB 2012 United States Special Operations Command	DATE: February 2011
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 1160483BB: <i>SOF Underwater Systems</i>	PROJECT S0417: <i>SOF Underwater Systems</i>
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	FY 2010	FY 2011
FY 2010 Accomplishments: Provided engineering support for combat submersibles, support systems and equipment.		
Congressional Add: Transformer Technology for Combat Submersibles	3.585	-
FY 2010 Accomplishments: Developed and tested advanced transformer technology.		
Congressional Add: Technology for Shallow Water Special Operations Forces Mobility	2.868	-
FY 2010 Accomplishments: Continued to develop advanced hull technologies and alternatives for combat submersibles.		
Congressional Add: Alternative SOF Submersible Concept Design Study	0.996	-
FY 2010 Accomplishments: Developed designs for low-cost dry submersible technologies, components and systems.		
Congressional Add: Future Dry Deck Shelter	4.381	-
FY 2010 Accomplishments: Performed initial studies and analysis of potential designs for next generation dry deck shelter capability.		
Congressional Add: Non-Gasoline Burning Outboard Engine	3.034	-
FY 2010 Accomplishments: Developed and tested incremental capabilities of the Non-Gasoline Burning Outboard Engines.		
Congressional Adds Subtotals	16.856	-

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• PROC1: <i>Underwater Systems</i>	0.000	0.000	6.999	0.000	6.999	40.333	98.589	114.327	164.474	Continuing	Continuing
• PROC2: <i>MK8 MOD1 SEAL Delivery Vehicle</i>	1.458	0.823	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.281

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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u> <u>Base</u>	<u>FY 2012</u> <u>OCO</u>	<u>FY 2012</u> <u>Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PROC3: <i>Maritime Equip</i>	2.768	0.804								0.000	3.572

D. Acquisition Strategy

- **Combat Submersibles:** The acquisition strategy for Block I will use full and open competition and competitive prototyping to award contracts to develop and produce test articles with options to produce production systems and provide interim contractor support. The acquisition strategy for other combat submersible systems is under development. Additionally, existing contracts are utilized where appropriate for various component development and prototypes.
- **Underwater Support Systems & Equipment:** Existing contracts are utilized where appropriate, and various new contracts are awarded as necessary.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 United States Special Operations Command **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 1160483BB: SOF Underwater Systems	PROJECT S0417: SOF Underwater Systems
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Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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
Shallow Water Combat Submersible (BLK 1)	C/Various	Teledyne Brown Engineering, Huntsville, AL and/or Columbia Group:Panama City, FL	1.887	9.867	Jun 2011	23.235	Jun 2012	-		23.235	10.424	45.413	
Dry Combat Submersibles	C/Various	TBD:TBD	-	-		8.955	May 2012	-		8.955	15.222	24.177	
Dry Combat Submersibles Light	C/Various	TBD:TBD	-	2.000	Jan 2011	24.832	Jun 2012	-		24.832	12.500	39.332	
Dry Deck Shelter Mods	C/Various	TBD:TBD	-	-		9.000	May 2012	-		9.000	0.000	9.000	
Technology for Shallow Water Mobility	C/FFP	Columbia Group:Panama City, FL	5.263	-		-		-		-	0.000	5.263	
Alt SOF Submersible Concept Design Study	SS/FFP	Submergence Group:Chester, CT	0.996	-		-		-		-	0.000	0.996	
Alt Transformer Technology for Combat Submersibles	C/FFP	STIDD Systems:Greenport, NY	3.585	-		-		-		-	0.000	3.585	
Dry Deck Shelter Future	C/Various	Electric Boat:Groton, CT	4.381	-		-		-		-	0.000	4.381	
Undersea Special Warfare Eng Spt	C/Various	TBD:TBD	1.992	-		-		-		-	0.000	1.992	
Non-Gasoline Burning Outboard Engine	C/Various	TBD:TBD	3.034	-		-		-		-	0.000	3.034	
Subtotal			21.138	11.867		66.022		-		66.022	38.146	137.173	

Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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
Shallow Water Combat Submersibles (BLK 1)	C/Various	NSWC and NAVSEA:Panama City, FL and Washington, DC	0.882	0.900	Jan 2011	0.900	Jan 2012	-		0.900	0.200	2.882	
Dry Combat Submersibles	C/Various	TBD:TBD	-	-		2.000	Nov 2011	-		2.000	2.000	4.000	
Dry Combat Submersibles Light	C/Various	Various:Various	-	-		7.000	Dec 2011	-		7.000	7.000	14.000	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 United States Special Operations Command										DATE: February 2011			
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Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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
Next Gen Submarine Shelter	C/Various	Various:Various	-	-		2.000		-		2.000	Continuing	Continuing	
Subtotal			0.882	0.900		11.900		-		11.900			
Test and Evaluation (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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
Shallow Water Combat Submersible (BLK 1)	WR	NSWC, NAVSEA:Panama City, FL.- Washington, DC	-	0.489	Jan 2011	3.802	Jan 2012	-		3.802	Continuing	Continuing	
Dry Combat Submersible	C/Various	TBD:TBD	-	-		2.500		-		2.500	4.470	6.970	
Dry Combat Submersible Light	C/Various	TBD:TBD	-	-		0.500	Mar 2012	-		0.500	1.500	2.000	
Dry Deck Shelter Mods	Allot	NAVSEA:Washington, DC	-	-		1.000	Nov 2011	-		1.000	Continuing	Continuing	
Subtotal			-	0.489		7.802		-		7.802			
Management Services (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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
Shallow Water Combat Submersible	Allot	NSWC/ NAVSEA:Panama City, FL Washington, DC	0.560	0.730	Jan 2011	1.200	Jan 2012	-		1.200	Continuing	Continuing	
Dry Combat Submersible	Allot	TBD:Macdill AFB, FL	-	-		1.500	Jan 2012	-		1.500	1.819	3.319	
Dry Combat Submersible Light	Allot	TBD:Macdill AFB, FL	-	-		2.500	Jan 2012	-		2.500	2.500	5.000	
Dry Deck Shelter Mods	Allot	NAVSEA:Washington, DC	-	-		1.500	Mar 2012	-		1.500	Continuing	Continuing	
Subtotal			0.560	0.730		6.700		-		6.700			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 United States Special Operations Command						DATE: February 2011		
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	Total Prior Years Cost	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	22.580	13.986	92.424	-	92.424			

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 United States Special Operations Command						DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 7: <i>Operational Systems Development</i>			R-1 ITEM NOMENCLATURE PE 1160483BB: <i>SOF Underwater Systems</i>			PROJECT S0417: <i>SOF Underwater Systems</i>

	FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016			
	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
<i>Shallow Water Combat Submersible</i>																												
Technology Development																												
Milestone B																												
Engineering & Manufacturing Development (Block I)																												
Developmental Test (Block I)																												
Tech Eval (Block I)																												
Operational Test (Block I)																												
Congressional Add: Technology for Shallow Water Mobility																												
Congressional Add: Transformer Technology for Combat Submersibles																												
<i>Dry Combat Submersibles</i>																												
Analysis, Component Development and Prototypes																												
Congressional Add: Alternative SOF Submersible Concept Design Study																												
<i>Dry Combat Submersible Light</i>																												
Milestone B																												
Engineering, Manufacturing & Development																												
Developmental/Operational Test																												
<i>Dry Deck Shelter</i>																												
Modifications																												
Next Generation Shelter Studies & Analysis																												
Congressional Add: Future Dry Deck Shelter																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 United States Special Operations Command										DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 7: <i>Operational Systems Development</i>					R-1 ITEM NOMENCLATURE PE 1160483BB: <i>SOF Underwater Systems</i>					PROJECT S0417: <i>SOF Underwater Systems</i>			

FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016			
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

Other Congressional Adds																												
Congressional Add: Undersea Special Warfare Eng Spt Office																												
Congressional Add: Non-Gasoline Burning Engine																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 United States Special Operations Command			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 1160483BB: <i>SOF Underwater Systems</i>	PROJECT S0417: <i>SOF Underwater Systems</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Shallow Water Combat Submersible</i>				
Technology Development	1	2010	2	2010
Milestone B	4	2010	4	2010
Engineering & Manufacturing Development (Block I)	1	2011	4	2013
Developmental Test (Block I)	2	2012	4	2013
Tech Eval (Block I)	2	2013	4	2013
Operational Test (Block I)	3	2014	1	2015
Congressional Add: Technology for Shallow Water Mobility	1	2010	2	2012
Congressional Add: Transformer Technology for Combat Submersibles	3	2010	3	2010
<i>Dry Combat Submersibles</i>				
Analysis, Component Development and Prototypes	4	2010	4	2014
Congressional Add: Alternative SOF Submersible Concept Design Study	4	2010	4	2011
<i>Dry Combat Submersible Light</i>				
Milestone B	1	2012	1	2012
Engineering, Manufacturing & Development	1	2012	4	2014
Developmental/Operational Test	2	2014	4	2014
<i>Dry Deck Shelter</i>				
Modifications	1	2011	4	2014
Next Generation Shelter Studies & Analysis	1	2012	4	2013
Congressional Add: Future Dry Deck Shelter	4	2010	4	2011
<i>Other Congressional Adds</i>				
Congressional Add: Undersea Special Warfare Eng Spt Office	4	2010	4	2011

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Congressional Add: Non-Gasoline Burning Engine	4	2010	4	2011

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