

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2011 United States Special Operations Command **DATE:** February 2010

<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 1160483BB: <i>SOF Underwater Systems/S0417</i>
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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	8.572	18.774	13.986	0.000	13.986	8.461	2.482	1.977	1.774	Continuing	Continuing
S0417: <i>SOF Underwater Systems</i>	8.572	18.774	13.986	0.000	13.986	8.461	2.482	1.977	1.774	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)**

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	8.727	3.452	0.000	0.000	0.000
Current President's Budget	8.572	18.774	13.986	0.000	13.986
Total Adjustments	-0.155	15.322	13.986	0.000	13.986
• Congressional General Reductions		-0.014			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		15.336			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.155	0.000			
• Other Adjustments	0.000	0.000	13.986	0.000	13.986

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

**Project:** S0417: *SOF Underwater Systems*

Congressional Add: *Combat Submersibles Sub-Project: Integrated Combat System*

FY 2009	FY 2010
3.118	0.000

**UNCLASSIFIED**

R-1 Line Item #269

Page 1 of 12

**UNCLASSIFIED**

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<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 1160483BB: <i>SOF Underwater Systems/S0417</i>
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<b><u>Congressional Add Details (\$ in Millions, and Includes General Reductions)</u></b>	<b>FY 2009</b>	<b>FY 2010</b>
Congressional Add: <i>Combat Submersibles Sub-Project: Technology for Shallow Water Mobility</i>	2.395	2.880
Congressional Add: <i>Combat Submersibles Sub-Project: Alternative SOF Submersible Concept Design Study</i>	0.000	1.000
Congressional Add: <i>Combat Submersibles Sub-Project: Transformer Technology for Combat Submersibles</i>	0.000	3.600
Congressional Add: <i>Underwater Support Systems and Equipment Sub-Project: Future Dry Deck Shelter</i>	0.000	4.336
Congressional Add: <i>Underwater Support Systems and Equipment Sub-Project: Undersea Special Warfare Engineering Support Office</i>	0.000	2.000
Congressional Add: <i>Underwater Support Systems and Equipment Sub-Project: Non-Gasoline Burning Outboard Engine</i>	0.000	1.520
Congressional Add Subtotals for Project: S0417	5.513	15.336
Congressional Add Totals for all Projects	5.513	15.336

**Change Summary Explanation**

Funding:

FY09: Decrease of -\$0.155 million is due to transfer to Small Business Innovative Research.

FY10: Net increase of \$15.322 million due to decrease of (-\$.014 million) due to Section 8097 general congressional reduction and an increase of \$15.336 for six congressional adds:

- Technology for Shallow Water Mobility (\$2.880 million)
- Alternative SOF Submersible Concept Design Study (\$1.000 million)
- Transformer Technology for Combat Submersibles (\$3.600 million)
- Future Dry Deck Shelter (\$4.336 million)
- Undersea Special Warfare Engineering Support Office (\$2.000 million)
- Non-Gasoline Burning Outboard Engine (\$1.520 million)

FY11: Increase of \$13.986 million is due to the DoD not estimating FY 2011 cost when the FY 2010 President's Budget was prepared.

Schedule: None.

**UNCLASSIFIED**

R-1 Line Item #269

Page 2 of 12

**UNCLASSIFIED**

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<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 1160483BB: <i>SOF Underwater Systems/S0417</i>
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Technical: None.

**UNCLASSIFIED**

R-1 Line Item #269

Page 3 of 12

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2011 United States Special Operations Command **DATE:** February 2010

<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 1160483BB: <i>SOF Underwater Systems/S0417</i>	<b>PROJECT</b> S0417: <i>SOF Underwater Systems</i>
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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
S0417: <i>SOF Underwater Systems</i>	8.572	18.774	13.986	0.000	13.986	8.461	2.482	1.977	1.774	Continuing	Continuing
Quantity of RDT&E Articles											

**A. Mission Description and Budget Item Justification**

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:

- **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 uses 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 Program (\$ in Millions)**

**UNCLASSIFIED**

R-1 Line Item #269

Page 4 of 12

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 United States Special Operations Command			<b>DATE:</b> February 2010			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 1160483BB: <i>SOF Underwater Systems/S0417</i>	<b>PROJECT</b> S0417: <i>SOF Underwater Systems</i>				
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>						
		<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>
Combat Submersibles Sub-Project: SEAL Delivery Vehicle <i>FY 2009 Accomplishments:</i> Continued concept and technology development for follow-on platform.		3.059	0.000	0.000	0.000	0.000
Combat Submersibles Sub-Project: Shallow Water Combat Submersible <i>FY 2010 Plans:</i> Continue concept and technology development for a new Shallow Water Combat Submersible and conduct source selection activities.  <i>FY 2011 Base Plans:</i> Continues design and development for a new Shallow Water Combat Submersible capability.		0.000	3.438	13.986	0.000	13.986
Accomplishments/Planned Programs Subtotals		3.059	3.438	13.986	0.000	13.986
		<b>FY 2009</b>	<b>FY 2010</b>			
Congressional Add: Combat Submersibles Sub-Project: Integrated Combat System <i>FY 2009 Accomplishments:</i> Integrated electronics suite backbone for combat submersibles.		3.118	0.000			
Congressional Add: Combat Submersibles Sub-Project: Technology for Shallow Water Mobility <i>FY 2009 Accomplishments:</i> Developed advanced hull technologies for combat submersibles.		2.395	2.880			

**UNCLASSIFIED**

R-1 Line Item #269

Page 5 of 12

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 United States Special Operations Command		<b>DATE:</b> February 2010
<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 1160483BB: <i>SOF Underwater Systems/S0417</i>	<b>PROJECT</b> S0417: <i>SOF Underwater Systems</i>
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>		
	<b>FY 2009</b>	<b>FY 2010</b>
<i>FY 2010 Plans:</i> Continue to develop advanced hull technologies for combat submersibles.		
Congressional Add: Combat Submersibles Sub-Project: Alternative SOF Submersible Concept Design Study <i>FY 2010 Plans:</i> Study alternative concepts for combat submersibles and surface ship support systems.	0.000	1.000
Congressional Add: Combat Submersibles Sub-Project: Transformer Technology for Combat Submersibles <i>FY 2010 Plans:</i> Develop advanced hull technologies for combat submersibles.	0.000	3.600
Congressional Add: Underwater Support Systems and Equipment Sub-Project: Future Dry Deck Shelter <i>FY 2010 Plans:</i> Perform studies and analysis of potential designs for next generation dry deck shelter capability.	0.000	4.336
Congressional Add: Underwater Support Systems and Equipment Sub-Project: Undersea Special Warfare Engineering Support Office <i>FY 2010 Plans:</i> Provide engineering support for combat submersibles, support systems and equipment.	0.000	2.000
Congressional Add: Underwater Support Systems and Equipment Sub-Project: Non-Gasoline Burning Outboard Engine	0.000	1.520

**UNCLASSIFIED**

R-1 Line Item #269

Page 6 of 12

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2011 United States Special Operations Command **DATE:** February 2010

<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 1160483BB: <i>SOF Underwater Systems/S0417</i>	<b>PROJECT</b> S0417: <i>SOF Underwater Systems</i>
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**B. Accomplishments/Planned Program (\$ in Millions)**

	FY 2009	FY 2010
<i>FY 2010 Plans:</i> Develop and test incremental capabilities of the Non-Gasoline Burning Outboard Engines.		
Congressional Adds Subtotals	5.513	15.336

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

<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PROC1: <i>SOF Maritime Equip</i>	13.410	2.768	0.804		0.804	1.060	1.057	1.075	1.093	Continuing	Continuing
• PROC2: <i>MK8 MOD1 Seal Delivery Vehicle</i>	7.040	1.458	0.823		0.823					Continuing	Continuing
• PROC3: <i>Combat Submersibles</i>						1.492	27.094	25.228	25.568	Continuing	Continuing

**D. Acquisition Strategy**

- **Combat Submersibles:** The acquisition program 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 contractor logistics 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

**UNCLASSIFIED**

R-1 Line Item #269

Page 7 of 12

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 United States Special Operations Command** **DATE:** February 2010

<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 1160483BB: <i>SOF Underwater Systems/S0417</i>	<b>PROJECT</b> S0417: <i>SOF Underwater Systems</i>
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**Product Development (\$ in Millions)**

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SEAL Delivery Vehicle MK 8	WR	NSWC Panama City, FL	3.059	0.000		0.000		0.000		0.000	0	3.059	Continuing
Shallow Water Combat Submersible	Various/Various	TBD TBD	0.000	2.342	Aug 2010	9.867	Jun 2011	0.000		9.867	Continuing	Continuing	Continuing
Submersibles Eng & Analysis	TBD/TBD	TBD TBD	0.000	0.000		2.000	Nov 2010	0.000		2.000	Continuing	Continuing	Continuing
<b>Subtotal</b>			3.059	2.342		11.867		0.000		11.867	0.000	3.059	

**Remarks**

**Support (\$ in Millions)**

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Technology for Shallow Water Mobility	TBD/TBD	TBD TBD	2.395	2.880	Nov 2010	0.000		0.000		0.000	0	5.275	Continuing
Integrated Combat System	TBD/FFP	TBD TBD	3.118	0.000		0.000		0.000		0.000	0	3.118	Continuing
Cong Adds: Various	TBD/TBD	TBD TBD	0.000	12.456		0.000		0.000		0.000	0	12.456	Continuing
<b>Subtotal</b>			5.513	15.336		0.000		0.000		0.000	0.000	20.849	

**Remarks**

**UNCLASSIFIED**

R-1 Line Item #269

Page 8 of 12

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 United States Special Operations Command** **DATE:** February 2010

<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 1160483BB: <i>SOF Underwater Systems/S0417</i>	<b>PROJECT</b> S0417: <i>SOF Underwater Systems</i>
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**Test and Evaluation (\$ in Millions)**

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Shallow Water Combat Submersible	SS/TBD	Various Comunbia, MD; Panama City, FL; Washington, DC	0.000	0.491	Mar 2010	1.502	Jan 2011	0.000		1.502	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.000	0.491		1.502		0.000		1.502			

**Remarks**

**Management Services (\$ in Millions)**

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Shallow Water Combat Submersible	Various/ Various	Various Washington, DC; Panama City, FL	0.000	0.605	Mar 2010	0.617	Jan 2011	0.000		0.617	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.000	0.605		0.617		0.000		0.617			

**Remarks**

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>		8.572	18.774	13.986	0.000	13.986	0.000	23.908

**UNCLASSIFIED**

R-1 Line Item #269





**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2011 United States Special Operations Command **DATE:** February 2010

<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 1160483BB: <i>SOF Underwater Systems/S0417</i>	<b>PROJECT</b> S0417: <i>SOF Underwater Systems</i>
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
SEAL Delivery Vehicle: Develop and Test Improved Electronics	1	2009	4	2009
Shallow Water Combat Submersible Milestone A (FY08): Technology Development	1	2009	2	2010
Shallow Water Combat Submersible Milestone B: Engineering & Manufacturing Development (Block I)	4	2010	4	2013
Shallow Water Combat Submersible Milestone B: Developmental Test	2	2012	4	2013
Shallow Water Combat Submersible Milestone B: Tech Eval	2	2013	4	2013
Shallow Water Combat Submersible Milestone B: Operational Test	4	2013	2	2014
Shallow Water Combat Submersible Milestone B: First Article Test	3	2015	3	2015
Congressional Add: Technology for Shallow Water Mobility	4	2010	2	2012
Congressional Add: Integrated Combat Systems	4	2009	4	2010
Congressional Add: Alternative SOF Submersible Concept Design Study	3	2010	3	2011
Congressional Add: Transformer Technology for Combat Submersibles	4	2010	4	2011
Congressional Add: Future Dry Deck Shelter	4	2010	4	2011
Congressional Add: Undersea Special Warfare Eng Spt Office	4	2010	4	2011
Congressional Add: Non-Gasoline Burning Engine	4	2010	3	2011

**UNCLASSIFIED**

R-1 Line Item #269

Page 12 of 12