

CLASSIFICATION:

**UNCLASSIFIED**

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: <b>February 2000</b>			
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE					
<b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY/BA-5</b>					Submarine Tactical Warfare System / 0604562N					
COST (\$ in Million)		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost		27.116	13.286	20.492	29.210	39.308	26.224	44.439	CONT.	CONT.
SSN CCS (IMP) (ENG)		27.116	13.286	20.492	29.210	39.308	26.224	44.439	CONT.	CONT.
Quantity of RDT&E Articles										
<p>A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program develops software upgrades to integrate improved weapons capabilities within submarine Combat Control System (CCS) MK1, MK2, and AN/BSY-1 (Combat Control) and, as a part of Obsolete Equipment Replacement (OER), the program develops improvements to hardware which has become increasingly difficult and not economical to maintain. The thrust of the CCS Improvement program is the fleet introduction of CCS MK2 Program D0 and the development of CCS MK2 Program D0 Blocks 1 and 2. CCS MK2 converged multiple submarine combat system developments into a single effort to minimize submarine life cycle costs, across SSN 688, SSN 688I and SSBN 726 Classes. CCS MK2 Program D0 provides a modular software architecture, introduces Tomahawk Block 3 and Harpoon Block 1C capabilities, introduces Advanced Capability (ADCAP) on TRIDENT, and replaces additional obsolete equipment. CCS MK2 Program D0 Block 1 integrates CCS MK2 into AN/BSY-1 systems, replaces additional obsolete equipment, incorporates a direct interface to the Global Positioning System, incorporates Joint Maritime Command Information System (JMCIS) into CCS MK2, and implements Advanced Tomahawk Weapon Control System (ATWCS), ADCAP torpedo improvements and several other miscellaneous enhancements. CCS MK2 Program D0 Block 2 incorporates into submarine CCS anticipated upgrades to ADCAP, Tomahawk and Harpoon, and implements additional OER. Improved Submarine Launched Mobile Mine (ISLMM) requires development of a stand-alone mine launching capability. AN/BSG-1 (formerly known as Tomahawk Land Attack Missile – Nuclear (TLAM-N) Portable Launching System (PLS) provides SSN submarines with a stand-alone TLAM-N missile launching capability.</p> <p>(U) PROGRAM ACCOMPLISHMENTS AND PLANS:</p> <p>1. (U) FY 1999 ACCOMPLISHMENTS:</p> <p>(U) (\$18.878) Completed SDCT for CCS MK2 Program D0 Block 1C.</p> <p>(U) (\$ 7.743) Continued development of AN/BSG-1.</p> <p>(U) (\$ 0.495) Portion of extramural program is reserved for Small Business Innovation Research (SBIR) assessment in accordance with 15 USC 638.</p>										

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<p>2. (U) FY 2000 PLAN:</p> <ul style="list-style-type: none"><li>(U) (\$3.660) Conduct Operational Test (OT) for CCS MK2 Program D0 Block 1C.</li><li>(U) (\$3.200) Commence development of ISLMM launcher capability.</li><li>(U) (\$0.200) Develop engineering change to CCS MK 2 Program D0 Block 1C to incorporate ADCAP torpedo CBASS capability.</li><li>(U) (\$6.226) Continue development of AN/BSG-1.</li></ul> <p>3. (U) FY 2001 PLAN:</p> <ul style="list-style-type: none"><li>(U) (\$13.761) Develop engineering change to CCS MK2 Program D0 Block 1C to incorporate ADCAP torpedo CBASS and Tactical Tomahawk capabilities.</li><li>(U) (\$5.800) Continue development of ISLMM launcher capability.</li><li>(U) (\$0.931) Continue development of AN/BSG-1.</li></ul>		

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<b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY/BA-5</b>					Submarine Tactical Warfare System / 0604562N						
B. (U) PROGRAM CHANGE SUMMARY:											
					FY 1999	FY 2000	FY 2001				
	FY 2000 President's Budget:				28.573	13.353	11.412				
	Appropriated Value:				28.573	13.353					
	Adjustment to FY 1999/2000 Appropriated Value/				-1.457	-0.067	9.080				
	FY 2000 President's Budget:										
	FY 2001 PRES Budget Submit:				27.116	13.286	20.492				
(U) CHANGE SUMMARY EXPLANATION:											
(U) Funding: FY99 decrease is due to SBIR transfer (-\$0.495), Inflation Savings (-\$0.129), Congressional Undistributed Reductions (-\$0.757), and miscellaneous reductions (-\$0.076). FY00 increase is due to Strategic Outsourcing Redistribution (\$0.007), and Across-the-Board Reduction decrease (-\$0.074). \$.204M portion of the extramural program is reserved for SBIR assessment IAW 15 USC 638. FY01 increases are due to funding ADCAP torpedo CBASS capability into CCS MK 2 Program D0 Block 1C (\$9.0M), Strategic Outsourcing Redistribution (\$.018), NWCF rates (\$.124), decreases due to NUWC Adjustments (-\$0.039), Nonpay Purchase Inflation (-\$0.140), Active Navy Ops (-\$0.054), increases for Mil/Civ pay rates (\$0.006), and ICC 0612 (NUWC) (\$0.165).											
(U) Schedule: CCS MK2 Block 1C has been modified to include the VIRGINIA class submarine commonality initiatives and Submarine Tomahawk Action Board (STAB) recommended improvements. COMOPTEVFOR has agreed to a combined Developmental and Operational Testing approach in Integrated Product Team meeting and in a MOA. Because of these changes, the program has been restructured for internal milestones within the original Milestone III threshold dates. SDCT and DT events have been extended to achieve additional software maturity prior to operational test. Changes to the AN/BSG-1 Weapon Launching System (WLS) baseline established in the Acquisition Program Baseline Agreement (APBA) are a result of negotiated contract schedule dates, program delays due to TLAM-N requirement review and negotiated contract costs. The program experienced a delay in FY98 attributed to OPNAV review of TLAM-N requirements which slowed down and reduced efforts at the contractor and Navy field Activity facilities pending the outcome of the review. Revised dates reflect a delay in development and product testing associated with the work slowdown in FY98.											
(U) Technical: Not applicable.											
C. (U) OTHER PROGRAM FUNDING SUMMARY:											
									To	Total	
		FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Complete	Cost
OPN/BA-4 54200		18.917	18.685	35.060	20.896	40.311	37.905	50.002	77.335	CONT.	CONT.

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APPROPRIATION/BUDGET ACTIVITY <b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY/BA-5</b>	R-1 ITEM NOMENCLATURE Submarine Tactical Warfare System / 0604562N	
<p>(U) Related RDT&amp;E:</p> <ul style="list-style-type: none"><li>(U) PE 0204229N (Tomahawk &amp; Tomahawk Missile Planning Center)</li><li>(U) PE 0205632N (MK 48 ADCAP)</li><li>(U) PE 0603504N (Advanced Submarine Combat Systems Dev.)</li><li>(U) PE 0604503N (Submarine System Equipment Dev.)</li><li>(U) PE 0604707N (Submarine Electronic Warfare Architecture/Eng. Support)</li></ul> <p>D. (U) ACQUISITION STRATEGY:</p> <ul style="list-style-type: none"><li>- CCS MK2 Block 1C utilizes an open architecture in support of new and upgraded Government and Commercial Off-The-Shelf products and insertion of new weapons capabilities.</li><li>- Acquisition Decision Memorandum approved 21 June 1996 granted approval to enter Engineering Manufacturing Development.</li><li>- Sole Source Cost Plus Incentive Fee Contract awarded to Raytheon.</li><li>- Program Review with Milestone Decision Authority conducted 20 March 1998 demonstrated hardware design maturity. Approval was received to exercise CCS MK2 Block 1C Hardware Production Option for FY98/99/00.</li></ul>		

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EXHIBIT R-2, RDT&E Budget Item Justification

DATE:

**February 2000**

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

**RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-5**

Submarine Tactical Warfare System / 0604562N

E. Schedule Profile:

## Combat Control Development Schedule

		FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05
		O N D J F M A M J J J A S	O N D J F M A M J J J A S	O N D J F M A M J J J A S	O N D J F M A M J J J A S	O N D J F M A M J J J A S	O N D J F M A M J J J A S	O N D J F M A M J J J A S	O N D J F M A M J J J A S
CCS MK2 PROGRAM D0 BLOCK 1C	MOD 2	▲ <sup>3</sup> Program Review ▲ <sup>1</sup> CDR	▲ <sup>9</sup> SDCT	▲ <sup>2</sup>					
	MOD 0/1	▲ <sup>1</sup> CDR	▲ <sup>11</sup> DT/OT	▲ <sup>2</sup> DT ▲ <sup>3</sup> OT	▲ <sup>10</sup> MS III				
	MOD 3	▲ <sup>1</sup> CDR	▲ <sup>10</sup> SDCT	▲ <sup>2</sup> DT/OT ▲ <sup>3</sup> DT/OT	▲ <sup>10</sup> MS III				
	TACTICAL TOMAHAWK					▲ <sup>10 11</sup> FOT&E			
	ISLMM			▲ <sup>4</sup> AWARD		▲ <sup>12</sup> SDCT ▲ <sup>6</sup> DT/OT ▲ <sup>8</sup> DT/OT		▲ <sup>11</sup> DT/OT ▲ <sup>1</sup> DT/OT ▲ <sup>8</sup> RTF	
AN/BSG-1		▲ <sup>8</sup> CDR			▲ <sup>11</sup> AWARD	▲ <sup>5</sup> SDCT	▲ <sup>6</sup> DT/OT ▲ <sup>9</sup> DT/OT		
CBASS ECP					▲ <sup>11</sup> AWARD	▲ <sup>5</sup> SDCT	▲ <sup>6</sup> DT/OT ▲ <sup>9</sup> DT/OT		
					▲ <sup>12</sup> SDCT	▲ <sup>10</sup> MS III			

LEGEND: ▲ SCHEDULED COMPLETION    ▲ COMPLETED    PE: 0604562N Proj: F0236

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t R-3 Cost Analysis (page 1)										DATE: <b>February 2000</b>		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
<b>RDT&amp;E, N/BA-5</b>			<b>Submarine Tactical Warfare Sys/0604562N</b>			<b>SSN Combat Control System Improv (ENG) / F0236</b>						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 99 Cost	FY 99 Award Date	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Hardware Dev Block 1C/CBASS ECP	CPIF	Raytheon Portsmouth, RI	28.600	3.400		2.000		10.331		CONT.	CONT.	
Ancillary Hardware Dev (AN/BSG-1)	PD	PEO-CMU Patuxent River, MD	3.400	2.795		0.000		0.000		0.000	6.195	
AN/BSG-1	CPIF	Raytheon Portsmouth, RI	7.400	5.443		6.226		0.931		0.000	20.000	
ISLMM	SBIR	TBD	0.000	0.000		1.600	04/00	4.200		CONT.	CONT.	
Government Engineering	WR	NUWC Newport, RI	26.500	4.978	10/98	0.860	10/99	1.830		CONT.	CONT.	
Systems Engineering											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			65.900	16.616		10.686		17.292		CONT.	CONT.	
Remarks:												
	<u>Contract</u>	<u>Award/Oblig</u>										
	Block 1C	Jun 96										
	AN/BSG-1	Jun 97										
	ISLMM	Apr 00										
Development Support Equipment											0.000	
Software Development	Various	Various	23.300	1.500		2.100		2.100		CONT.	CONT.	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Subtotal Support			23.300	1.500		2.100		2.100		CONT.	CONT.	
Remarks:												

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**Exhibit R-3, Project Cost Analysis**  
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Exhibit R-3 Cost Analysis (page 2)										DATE: <b>February 2000</b>		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
<b>RDT&amp;E, N/BA-5</b>			<b>Submarine Tactical Warfare Sys/0604562N</b>			<b>SSN Combat Control System Improv (ENG) / F0236</b>						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 99 Cost	FY 99 Award Date	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various	3.100	1.600		0.000		0.000		CONT.	CONT.	
Operational Test & Evaluation	Various	Various	0.000	5.069		0.200		0.000		CONT.	CONT.	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			3.100	6.669		0.200		0.000		CONT.	CONT.	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	CPFF	EG&G Arlington, VA	6.200	2.281		0.200		1.000		CONT.	CONT.	
Travel	PD	NAVSEA Arlington, VA	0.100	0.050		0.100		0.100		CONT.	CONT.	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			6.300	2.331		0.300		1.100		CONT.	CONT.	
Remarks: Contract EG&G Award/Oblig Sep 94												
Total Cost			98.600	27.116		13.286		20.492		CONT.	CONT.	
Remarks:												

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