

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2002				
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE						
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4				Submarine Tactical Warfare Systems/0603562N						
COST (\$ in Millions)		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost		4,172	9.323	11.601	6.763	6.818	6.918	7.033	CONT.	CONT.
Advanced Sub. Spt. Equipment/F0770		2.390	3.299	4.350	4.490	4.517	4.574	4.645	CONT.	CONT.
Multi-Line Towed Array/S9040		0.000	3.965	0.000	0.000	0.000	0.000	0.000	CONT.	CONT.
Sub. Arctic Warfare Development/S1739		1,782	2.059	7.251	2.273	2.301	2.344	2.388	CONT.	CONT.
Quantity of RDT&E Articles		1	4	2	3	3	0	0	CONT.	CONT.

A. (U) Mission Description and Budget Item Justification: The Submarine Tactical Warfare Systems program element is comprised of the Advanced Submarine Support Equipment Program (ASSEP) and the Submarine Special Operations Support Development Program. The objective is to improve submarine operational effectiveness through the development and implementation of advanced Research and Development (R&D) for Electronic Warfare Support (ES) and Imaging technologies. The goal of ASSEP is to increase submarine operational effectiveness through advanced R&D to increase submarine capabilities in the areas of Threat Warning/Self Protection; Situational Awareness; and Intelligence, Surveillance, and Reconnaissance. A continuing need exists to improve submarine capabilities in the increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. The Submarine Arctic Warfare Development program responds to the increased threat of Naval activity in the Littorals and the continuing threat of submarine and surface ship activity in regions of the world through the development of advanced submarine R&D technology to provide improved operational capability in shallow water regions. Particular emphasis is placed in the areas of sonar operability and maintainability, Littoral operations, mine warfare, tactical surveillance, weapon utility and other submarine support missions. Efforts include assessment of combat system effectiveness, development of Arctic shallow water specific improvements for existing sonars and weapons, development of class specific Arctic operational guidelines and the testing of ice-capable submarine support structures. This program also provides the framework for various R&D programs to conduct Test and Evaluation in shallow water and Arctic regions.

B. (U) Program Change Summary: (show total funding, schedule, and technical changes for the program element that have occurred since the last submission).

	FY 2001	FY 2002	FY 2003
(U) FY 2002 President's Budget:	4.317	5.405	5.690
(U) Appropriated Value:	4.356	9.405	
(U) Adjustments to FY 2001/2002 Appropriated Value/FY2002 Presidents Budget:	-0.184	3.918	5.911
(U) FY 2003 Pres Budget Submit:	4.172	9.323	11.601

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February 2002

APPROPRIATION/BUDGET ACTIVITY

RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4

R-1 ITEM NOMENCLATURE

Submarine Tactical Warfare Systems/0603562N

(U) Change Summary Explanation:

(U) Funding: FY2001: Decrease of (\$0.184K) is a result of .7% Pro-Rata (\$-0.30K), Government Wide Rescission (\$-0.9K), SBIR assessments (\$0.49K) , (\$0.48K) for June 2001 BTRs, and minor adjustments (\$-0.048K).

FY2002: Net increase of (\$3.918K) is due to congressional increase for Multi-Line Towed Array (\$4.000K) and minor adjustments (\$-0.82K).

FY2003: Net increase of (\$5,911K) is due to N77 issue for F0770 to develop improved Communications Acquisition and Direction Finding sensors and processing capability (+\$1.000K), BSO realignment issues for project S1739 (+\$5,073K) and minor adjustments (\$-0.162K). S1739 increase of (+\$3.580) is due to Sponsor redistribution of funds from WPN/PE0204284N to support conduct of MK48 ADCAP Mod 6 developmental testing in cold water, littoral environments.

(U) Schedule: Addition of Ice Camp in FY03

(U) Technical: Not applicable.

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-4		PROGRAM ELEMENT NAME AND NUMBER Submarine Tactical Warfare Sys/0603562N			PROJECT NAME AND NUMBER Advanced Submarine Support Equipment Program (ASSEP)/F0770					
COST (\$ in Millions)		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost		2.390	3.299	4.350	4.490	4.517	4.574	4.645	CONT.	CONT.
RDT&E Articles Qty		0	2	1	1	2	0	0	CONT.	CONT.

A. (U) Mission Description and Budget Item Justification: This program develops submarine ES equipment and image processing technology. A continuing need exists to improve submarine capabilities in these areas to improve operational effectiveness in the increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Improvements are necessary for submarine ES and imaging to be effective in conducting the following mission areas: Joint Littoral Warfare, Joint Surveillance, Space and Electronic Warfare, Intelligence Collection, Maritime Protection and Joint Strike. The program is divided into three project categories. Threat Warning/Self Protection; Situational Awareness; and Intelligence, Surveillance and Reconnaissance. The Threat Warning/Self Protection project evaluates the vulnerability of submarine masts, periscopes and sensors to visual, radar, and infrared detection and evaluates the state of the art technology to implement periscope/mast engineering improvements to reduce the counter detection threat. The Situation Awareness and Intelligence, Surveillance, and Reconnaissance projects develop submarine unique improvements to mast, periscope, and ES electromagnetic and electro-optic sensors based on emerging technologies that are available from DOD Exploratory Development Programs, industry Independent Research and Development, and other sources. Feasibility demonstration models (FDMs) are performed to develop realistic methods for evaluating the improvements, including deployment on submarines for testing. Threat Warning/Self Protection sub-projects include: Mast Signature Reduction (MSR), Low Probability of Intercept (LPI) Receiver, Low Band Of Coverage (Single Mast Operations), and ES Frequency Extension. Situational Awareness sub-projects include: Periscope Heads Up Display, Realtime Rangefinder, Digital Periscope, ES Vulnerability Server (EVS), Multi-Sensor Data Fusion, and Communications Acquisition Direction Finding (CADF) Lite for the AN/BLQ-10. Intelligence, Surveillance and Reconnaissance sub-projects include: Passive Surveillance Radar (PSR), Imaging Enhancements, Submarine Offboard Sensors (UAV/UUV Pay Load) and Modular Imaging System. All programs funded in this project are non-acquisition category programs described by Non-Acquisition Program Definition Document (NAPDD) # 556-872-872E1 which is currently under revision. The test articles identified consist of critical components of FDM's that will be fully developed during engineering development into Engineering Development Models (EDM's).

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-4	PROGRAM ELEMENT NAME AND NUMBER Submarine Tactical Warfare Sys/0603562N	PROJECT NAME AND NUMBER Advanced Submarine Support Equipment Program (ASSEP)/F0770

(U) Program Accomplishments and Plans:

1. (U) FY 2001 Accomplishments:

- (U) (\$ 0.287) Continued Mast Signature Reduction techniques and material investigation.
- (U) (\$ 1.769) Continued ES Vulnerability Server Passive Surveillance Radar, Photonics Imaging Enhancement software, and Low Band DF Coverage development.
- (U) (\$ 0.334) Completed CCS Interface for SSN 688, Integrated ES Workstation, and Counter Detection/Range Assessment development.

2. (U) FY 2002 Plans:

- (U) (\$ 0.528) Continue MSR techniques and material investigation.
- (U) (\$ 1.880) Continue Low Band DF Coverage, Passive Surveillance Radar, ES Vulnerability server, and Imaging Enhancement software development.
- (U) (\$ 0.891) Initiate LPI Receiver, Frequency Extension, Periscope Heads Up Display, Realtime Range Finder, and Offboard Sensors development.

3. (U) FY 2003 Plans:

- (U) (\$ 0.804) Continue MSR techniques and material investigation.
- (U) (\$ 2.359) Continue Low Band DF Coverage, LPI Receiver, Frequency Extension, Periscope Heads Up Display, Realtime Range Finder, Imaging Enhancement software and Offboard Sensors.
- (U) (\$ 0.187) Complete ES Vulnerability Server and Passive Surveillance Radar development.
- (U) (\$ 1.000) Initiate development of CADF Lite for AN/BLQ-10.

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-4	PROGRAM ELEMENT NAME AND NUMBER Submarine Tactical Warfare Sys/0603562N	PROJECT NAME AND NUMBER Advanced Submarine Support Equipment Program (ASSEP)/F0770

B. (U) Other Program Funding Summary: Not applicable.

(U)Related RDT&E:

(U) PE 0604503N(Submarine System Equipment Program)

(U) PE 0604558N(New Design SSN Development)

(U) PE 0604777N(Navigation /ID Systems)

C. (U) Acquisition Strategy: This project optimizes technology insertion using a build-test-build approach to support ES and imaging operational needs. Operational needs have been based on the Submarine Tactical Requirements Group (STRG) requirements, the 2000 COMSUBLANT/COMSUBPAC Command Capability Issues (CCIs), Virginia Class SSN Operational Requirements Document objectives, a review, assessment and prioritization of Sensor and Processor efforts and SSN force level projections for SSN688/688I and SSN21 classes through FY2015. Project efforts develop submarine unique improvements to mast, periscope, and ES electromagnetic and electro-optic sensors based on emerging technologies that are available from DOD Exploratory Development Programs, industry Independent Research and Development, and other sources. Feasibility Demonstration Models (FDMs) will be developed to provide a realistic method of evaluating the improvements, including deployment on submarines for testing.

D. (U) Schedule Profile. See attached schedule.

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DATE:

October 200

EBRUARY 2002

APPROPRIATION/BUDGET ACTIVITY

RDT&E, N/BA-4

PROGRAM ELEMENT NAME AND NUMBER

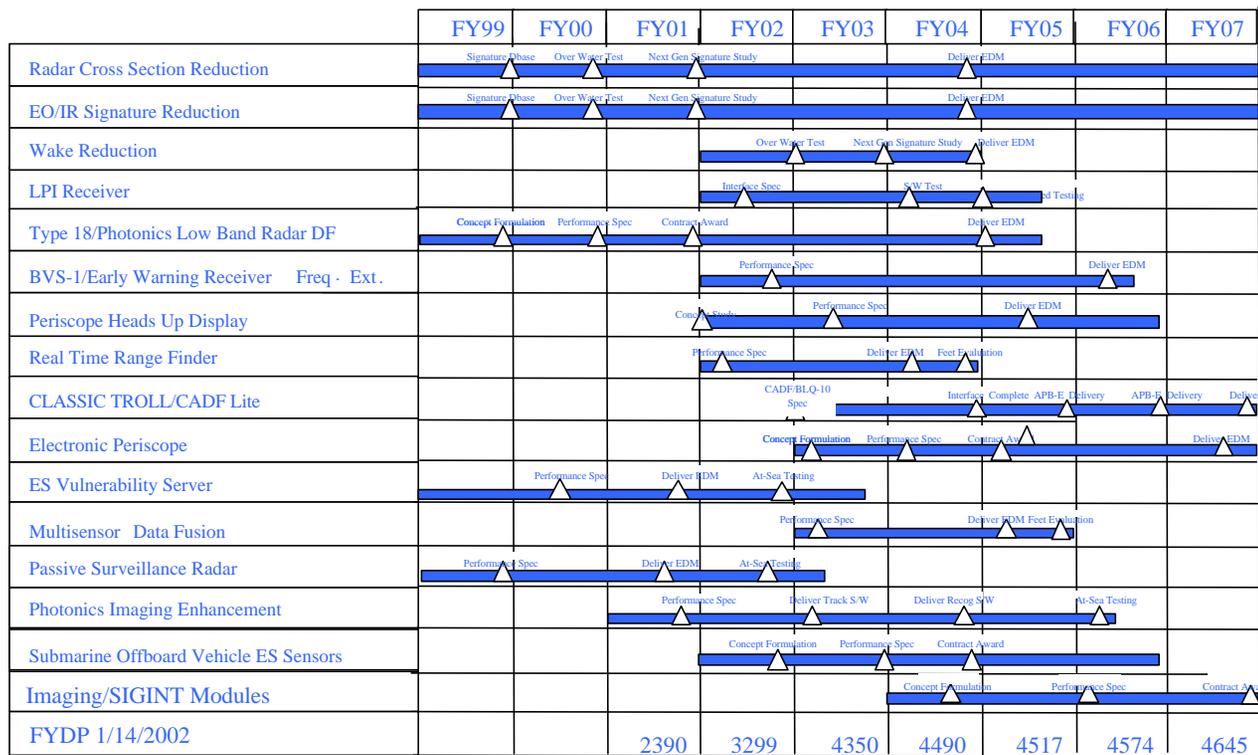
Submarine Tactical Warfare Sys/0603562N

PROJECT NAME AND NUMBER

Advanced Submarine Support Equipment Program (ASSEP)/F0770

ASSEP Schedules

(Revised 10/15/2001)



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Exhibit R-3 Cost Analysis (page 1)							DATE: February 2002					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E, N/BA-4			Sub Tactical Warfare Systems/0603562N			Advanced Submarine Support Equipment Program (ASSEP)/F0770						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPIF	BAE/Argon	0.000	0.000		0.000		1.000	12/02	TBD	TBD	TBD
Ancillary Hardware Development											0.000	
Systems Engineering	WR	NUWC Newport, RI	9.283	0.483	10/00	0.797	10/01	1.186	10/02	CONT.	CONT.	N/A
	WR/RC	NAWC China Lake	1.312	1.149	10/00	1.455	10/01	0.975	10/02	CONT.	CONT.	N/A
Licenses											0.000	
Tooling											0.000	
GFE	N/A	N/A									0.000	
Miscellaneous	Various	Various	9.373	0.555	Various	0.827	Various	1.012	Various	CONT.	CONT.	N/A
Award Fees											0.000	
Subtotal Product Development			19.968	2.187		3.079		4.173		CONT.	CONT.	
Remarks:												
Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Engineering Technical Services	C/CPFF	GRCI, Mclean, Va.	0.989	0.030	10/00	0.050	10/01	0.050	11/02	CONT.	CONT.	N/A
Technical Data											0.000	
GFE											0.000	
Subtotal Support			0.989	0.030		0.050		0.050		CONT.	CONT.	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)										DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E, N/BA-4			Sub Tactical Warfare Systems/0603562N			Advanced Submarine Support Equipment Program (ASSEP)/F0770						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Management Support Services	C/CPFF	Various	1.314	0.150	10/00	0.170	11/01	0.127	11/02	CONT.	CONT.	N/A
Studies Analysis & Evaluations											0.000	
Travel	TO's	Various	0.166	0.023	10/00	0.000		0.000		0.000	0.189	N/A
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			1.480	0.173		0.170		0.127		CONT.	CONT.	
Remarks:												
Total Cost			22.437	2.390		3.299		4.350		CONT.	CONT.	
Remarks:												

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EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY				PROJECT NAME AND NUMBER					
RDT&E, N				Submarine Special Operations Support Development S1739					
COST (\$ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	1.782	2.059	7.251	2.273	2.301	2.344	2.388	CONT	CONT
RDT&E Articles Qty	Arctic ex 1	Arctic ex 2	Arctic ex 1	Arctic ex 2	Arctic ex 1			CONT	CONT
<p>A. (U) Misison Description a Budget Item Justification: This program responds to the increased threat of Naval activity in the Littoral and continuing threat of submarine and surface ship activity in all regions of the world throught the development of advanced submarine concepts. It places particular emphasis on submarine operability and mission support in unique environments. Efforts include assessment of combat system effectiveness, weapons testing, use of high frequency sonars in Arctic regions, testing of ice-capable submarine structures, and development of class specific Arctic shallow water operational guidelines. This program also provides the framework for various Research and Development (R&D) programs to conduct Test and Evaluation in the shallow water and Arctic regions.</p> <p>B. (U) Project S9040 is authorized by Congress to develop Fiber Optics Multi-Line Towed Array.</p> <p>(U) Program Accomplishments and Plans:</p> <p>1. (U) FY 2001 Accomplishments:</p> <ul style="list-style-type: none"> - (U) (\$1.782) Conduct/Support Ice Exercise 1-01. <p>2. (U) FY 2002 Plans</p> <ul style="list-style-type: none"> - (U) (\$1.959) Conduct/Support ICEX and ICEOPS operations. Prep for FY03 Ice Camp - (U) (\$0.100) Develop database of Arctic operations surfacing data. Initiate Structural Analysis of VA Class Sail. <p>3. (U) FY 2003 Plans</p> <ul style="list-style-type: none"> - (U) (\$7.051) Provide planning, logistics and construction support for Ice Camp Operations. - (U) (\$0.200) Continue Structural Analysis of VA Class Sail. 									

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APPROPRIATION/BUDGET ACTIVITY		February 2002										
RDT&E, N	PROGRAM ELEMENT NAME AND NUMBER Submarine Tactical Warfare Sys/0603562N	PROJECT NAME AND NUMBER Submarine Special Operations Support Development S1739										
Program Element: 0603562N Project Number: S1739 Title: Submarine Special Operations Support Development												
Arctic Ice Exercise - Define test/exercise objectives and experiments - Preparations, hull assignment - Exercise Operations - Quicklook/Final Report ICE OPS - Define test/exercise objectives and experiments - Preparations, hull assignment - Exercise Operations - Quicklook/Final Report Other - Hull Structure Analysis 688 - Hull Structure Analysis 688 Complete - Hull Structure Analysis VA - Hull Structure Analysis VA Complete - Hull Structural Analysis for VA Advanced Sail - Advanced Sail Complete												

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Exhibit R-3 Cost Analysis (page 1)										DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E, N			Submarine Tactical Warfare Sys/0603562N			Submarine Special Operations Support Development S1739						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Systems Engineering	WR	NSWC Carderock	0.100			0.100	10/01	0.200	11/02	CONT	0.400	
Systems Engineering		EB Corp	0.010									
Systems Engineering	WR	NSWC INDIAN HEAD	0.051									
Systems Engineering	WR	SPAWAR		0.020	01/01	0.050	01/01	0.050	11/01	CONT		
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.161	0.020		0.150		0.250		0.000	0.581	
Remarks:												
Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

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APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E, N			Submarine Tactical Warfare Sys/0603562N			Submarine Special Operations Support Development S1739						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	SUBDEVRON Five	1.887	1.591	11/00	1.759	11/01	3.770	11/02	Cont.	9.007	Cont.
Developmental Test & Evaluation	WR			0.015	05/01							
Developmental Test & Evaluation	WR	CMDR,3rd NAVCON BRIGATE	0.050			0.050	10/01			Cont.	Cont.	Cont.
Developmental Test & Evaluation	WR	CMDR,2nd NAVCON BRIGATE		0.050	01/01			0.150	11/02			
Developmental Test & Evaluation	SS/CPFF	APL/University of Washington						3.000	10/01		3.000	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			1.937	1.656		1.809		6.920		0.000	12.322	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support			0.128	0.096	11/00	0.090	11/00	0.071	11/02	Cont.	0.385	Cont.
Travel			0.010	0.010		0.010		0.010	11/02	Cont.	0.040	Cont.
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.138	0.106		0.100		0.081		0.000	0.425	
Remarks:												
Total Cost			2.236	1.782		2.059		7.251				
Remarks:												

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