

CLASSIFICATION:

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE: June 2001																											
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4					R-1 ITEM NOMENCLATURE Ocean Engineering Development 0603713N																													
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost																								
Total PE Cost	15.058	15.230	16.077						CONT.	CONT.																								
Deep Submergence Biomedical Development/S0099	3.547	3.634	3.723						CONT.	CONT.																								
Shallow Depth Diving Equipment/S0394	11.511	11.596	12.354						CONT.	CONT.																								
Quantity of RDT&E Articles									CONT.	CONT.																								
<p>A. Mission Description and Budget Item Justification: Developments in this program will enable the U.S. Navy to overcome deficiencies that constrain underwater operations in the areas of search, location, rescue, recovery, salvage, construction, and protection of offshore assets. This program develops medical technology, diver life support equipment, and the vehicles, systems, and tools to permit manned underwater operations.</p> <p>B. Program Change Summary:</p> <table style="width: 100%; margin-top: 10px;"> <tr> <td></td> <td style="text-align: right;">FY 2000</td> <td style="text-align: right;">FY 2001</td> <td style="text-align: right;">FY 2002</td> </tr> <tr> <td>FY 2001 President's Budget:</td> <td style="text-align: right;">16.813</td> <td style="text-align: right;">15.371</td> <td style="text-align: right;">16.052</td> </tr> <tr> <td>Appropriated Value:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Adjustment to: FY 2000/2001 Appropriated Value/</td> <td style="text-align: right;">-1.755</td> <td style="text-align: right;">-0.141</td> <td style="text-align: right;">0.025</td> </tr> <tr> <td>FY 2001 President's Budget:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 2002 PRES Budget Submit:</td> <td style="text-align: right;">15.058</td> <td style="text-align: right;">15.230</td> <td style="text-align: right;">16.077</td> </tr> </table> <p>Funding: The FY 00 decrease of \$-1.755M results from various adjustments. The FY 01 decrease of \$0.141M results from .7% Pro-Rata Reduction decrease (\$108K) and Government-Wide Rescission decrease (\$33K). The FY 02 increase of \$0.025M results from various adjustments.</p>												FY 2000	FY 2001	FY 2002	FY 2001 President's Budget:	16.813	15.371	16.052	Appropriated Value:				Adjustment to: FY 2000/2001 Appropriated Value/	-1.755	-0.141	0.025	FY 2001 President's Budget:				FY 2002 PRES Budget Submit:	15.058	15.230	16.077
	FY 2000	FY 2001	FY 2002																															
FY 2001 President's Budget:	16.813	15.371	16.052																															
Appropriated Value:																																		
Adjustment to: FY 2000/2001 Appropriated Value/	-1.755	-0.141	0.025																															
FY 2001 President's Budget:																																		
FY 2002 PRES Budget Submit:	15.058	15.230	16.077																															

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Exhibit R-2, RDT&E Budget Item Justification
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EXHIBIT R-2a, RDT&E Project Justification								DATE:		June 2001	
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA-4		PROGRAM ELEMENT NAME AND NUMBER Ocean Engineering Development 0603713N				PROJECT NAME AND NUMBER Deep Submergence Biomedical Development/S0099					
COST (\$ in Millions)		FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost		3.547	3.634	3.723						CONT.	CONT.
RDT&E Articles Qty											
<p>A. Mission Description and Budget Item Justification: Develops advanced biomedical/bioengineering technology for enhancing medical and life support for submarine escape and rescue; and for diver safety and effectiveness; supports deeper, longer, safer, more flexible dives. Deliverables include: a) exposure guidance for DISSUB atmospheric contaminants, underwater continuous and impulsive noise, underwater blast, oxygen breathing, and diving depth/time profiles; b) medical procedures for life support on DISSUB, submarine escape and rescue (including new Submarine Rescue Diving and Recompression System, SRDRS), prevention and treatment of decompression illness, c) technologies to assess underwater noise and DISSUB life support parameters; enable non-chemical CO2 scrubbing; predict decompression risk in diving; provide DISSUB senior survivor with expert decision system, and enhance underwater swimming efficiency.</p> <p>Program Accomplishments and Plans:</p> <p>FY 2000 Accomplishments:</p> <ul style="list-style-type: none"> - (\$1.780) Diver Health and Safety Research: Develop new underwater thermal protection garments. Develop guidance for acceptable underwater breathing apparatus respiratory loads present in combination. Produce diving at altitude decompression tables. Deliver validated scaling procedures from animals to humans for decompression. Conduct manned test of one-atmosphere treatments for decompression sickness with divers. Determine damage risk thresholds for underwater blast/impulse noise. Develop protective materials and procedures against underwater sound threats to divers. - (\$1.767) Submarine Rescue: Deliver SEAREX and Guard Book package for SSBN 726 class. Issue DISSUB atmosphere contaminant exposure guidance. Deliver new markers for re-entry into fire-contaminated spaces. Publish revised Pressurized Submarine Rescue Manual. Develop guidance for decompression in SRDRS. Provide alternative to electrically-powered or passive CO2 scrubbing. 											

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Exhibit R-2a, RDT&E Project Justification
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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-4	PROGRAM ELEMENT NAME AND NUMBER Ocean Engineering Development 0603713N	PROJECT NAME AND NUMBER Deep Submergence Biomedical Development/S0099
<p>FY 2001 Plan:</p> <ul style="list-style-type: none">- (\$ 1.833) Diver Health and Safety Research: Final integration of USN decompression tables across gases, pressures, mixes, and repetitions. Updated performance standards for non-UBA diving gear. Assess efficacy of prototype underwater swimmer protection strategies. Deliver guidance for acceptable UBA respiratory loads in combination. Continue development of new diver thermal protective garments with industry, and begin prototype evaluations. Issue recommendations to manufacturers for procedures to reduce drag underwater.- (\$1.801) Submarine Rescue: Determine allowable surface intervals for escapers and rescuees from pressurized DISSUB. Determine actual escape times from SSN 688 and SSBN 726 classes. Provide SEAREX package for SEAWOLF class. Develop SEAREX decision aid for New Attack Submarine (NSSN). Develop SRDRS biomedical acceptance criteria. <p>FY 2002 Plan:</p> <ul style="list-style-type: none">- (\$2.123) Diver Health and Safety Research: Pulmonary oxygen toxicity risk algorithm. Procedures for assessing and mitigating risk for diving in contaminated water. Procedure to determine remaining CO2 scrubber duration. Methods to reduce respiratory impedance in underwater breathing apparatus. Interim guidance for blast exposure for divers. Development of advanced insulation garments for diver thermal protection. Agents to prevent CNS oxygen toxicity.- (\$1.600) Submarine Rescue: Decompression procedures for pressurized SRDRS operators. Emergency procedure for monitoring atmospheric contaminants in submarines. Novel methods to accelerate decompression in submarine rescue. Adjunctive therapies for treating DISSUB survivors at one ATA. Improved guidance for survival of submarine crews awaiting rescue. Optimized decompression schedules for submarine rescue.		

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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-4	PROGRAM ELEMENT NAME AND NUMBER Ocean Engineering Development 0603713N	PROJECT NAME AND NUMBER Deep Submergence Biomedical Development/S0099
<p>B. Other Program Funding Summary: Not applicable.</p> <p>Related RDT&E: Not Applicable.</p> <p>C. Acquisition Strategy: Integrated thrust area teams (e.g. decompression research) are established with university, commercial and in-house Navy lab to jointly execute biomedical R&D; peer review of research proposals accomplished by independent Technical Advisory Board; annual review of progress by Executive Review Board (CNO/NAVSEA/ONR/BUMED); program management by 0-6 Medical Dept Officer; contracting by competitive process using BAA and leveraging ONR capabilities.</p> <p>D. Schedule Profile: Not applicable</p> <p>..</p>		

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Exhibit R-2a, RDT&E Project Justification
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Exhibit R-3 Cost Analysis (page 1)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NAME AND NUMBER					
RDT&E, N/BA-4			Ocean Engineering Development 0603713N				Deep Submergence Biomedical Developmental/S0099					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks: Not Applicable.												
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: Not Applicable.												

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Exhibit R-3, Project Cost Analysis
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Exhibit R-3 Cost Analysis (page 2)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E, N/BA - 4			Ocean Engineering Development 0603713N			Deep Submergence Biomedical Development/S0099						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NEDU	7.717	3.547		3.634		3.723		CONT.	CONT.	
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E			7.717	3.547		3.634		3.723		CONT.	CONT.	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Travel												
Labor (Research Personnel)												
Overhead												
Subtotal Management			0.000	0.000		0.000		0.000		CONT.	CONT.	
Remarks:												
Total Cost			7.717*	3.547		3.634		3.723		CONT.	CONT.	
Remarks: * Prior to FY98, funds were in Project M0099.												

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Exhibit R-3, Project Cost Analysis
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EXHIBIT R-2a, RDT&E Project Justification							DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA-4	PROGRAM ELEMENT NAME AND NUMBER Ocean Engineering Development 0603713N				PROJECT NAME AND NUMBER Shallow Depth Diving Equipment/S0394					
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	11.511	11.596	12.354						CONT.	CONT.
RDT&E Articles Qty										
<p>A. Mission Description and Budget Item Justification: This project is to develop systems to support submarine escape and rescue missions, and conventional diver operations. Diver operations include ship husbandry, salvage/recovery, and submarine rescue operations to support national, as well as, Navy needs around the world. Modern certifiable diving systems that ensure diver safety and allow maximum work efficiency will replace currently antiquated systems. Efforts are currently focused on the Submarine Rescue Diving and Recompression System (SRDRS) to provide a new rapidly deployed emergency submarine rescue capability. SRDRS will fill the gap created by the decommissioning of USS PIGEON (ASR 21) and USS ORTOLAN (ASR 22) and provide a new capability of pressurized transportation of rescues from a stricken submarine directly to the decompression system eliminating the requirement for Deep Submergence Rescue Vehicles, Mother Submarines and Submarine Rescue Chambers. SRDRS is to include an air transportable rapid assessment/underwater work system, a decompression chamber system and a pressurized rescue module. The SRDRS will provide a global rapid response capability to support submarine rescue missions with an increase in capability at a fraction of the cost of the currently available systems.</p> <p>Program Accomplishments and Plans:</p> <p>FY 2000 Accomplishments:</p> <p>- (\$11.511) Submarine Rescue Diving and Recompression System: Complete acceptance testing of the prototype Assessment/Underwater Work System. Continue fabrication and acceptance testing of the prototype Submarine Decompression System and support equipment. Complete contract award for detailed design and fabrication of prototype Pressurized Rescue Module.</p>										

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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-4	PROGRAM ELEMENT NAME AND NUMBER Ocean Engineering Development 0603713N	PROJECT NAME AND NUMBER Shallow Depth Diving Equipment/S0394
<p>FY 2001 Plan:</p> <ul style="list-style-type: none">- (\$11.295) Submarine Rescue Diving and Recompression System: Complete fabrication and acceptance testing of the prototype Submarine Decompression System and support equipment. Continue design and fabrication of prototype Pressurized Rescue Module and support equipment.- (\$.301) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638. <p>FY 2002 Plan:</p> <ul style="list-style-type: none">- (\$12.354) Submarine Rescue Diving and Recompression System: Continue design and fabrication of prototype Pressurized Rescue Module and support equipment. <p>B. Other Program Funding Summary: Not applicable.</p> <p>Related RDT&E: Not Applicable.</p> <p>C. Acquisition Strategy: The Atmospheric Diving Suit (ADS) Segment of the SRDRS is a Non-Developmental Item (NDI) which is procured via a sole source contract. The Submarine Rescue System (SRS) segment of the SRDRS is largely based on the use of Commercial-Off-the-Shelf (COTS) technology and maximum use of Non-Developmental Items (NDI). The SRS segment is being procured using performance based specifications. The SRS contracts will be awarded competitively and will be based on technical capability and cost considerations (best value). Program Management of SRDRS is accomplished through the use of SEA 00C leadership of an Integrated Product Team (IPT). The Prototype system will provide full operational capability and no additional procurement is planned. The system is designed to be Government Owned/Commercially Operated (GO/CO).</p>		

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Exhibit R-3 Cost Analysis (page 1)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E, N/BA-4			Ocean Engineering Development 0603713N			Shallow Depth Diving Equipment/S0394						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NSWC - CSS	18.219	1.870	12/99						20.089	20.089
	CPAF	Oceaneering	9.078								9.078	9.078
	RC	NAVFACCO	3.240								3.240	3.240
	CPAF	GPC	1.755	2.725	10/99	1.700	12/00				6.180	6.180
	CPIF	Hard Suits Inc.		0.688	09/00	3.322	01/01				4.010	20.244
	Various	Miscellaneous	2.067	0.071		0.296		7.004		CONT.	CONT.	
Ancillary Hardware Development											0.000	
Systems Engineering	CPAF	Oceaneering	2.892	3.093	12/99	3.638	12/00				9.623	9.623
	Various	Miscellaneous						3.000		CONT.	CONT.	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees	CPAF	Oceaneering	0.829	0.247	12/99	0.291	12/00				1.367	
	CPAF	GPC	0.067	0.120	10/99	0.051	12/00				0.238	
											0.000	
Subtotal Product Development			38.147	8.814		9.298		10.004		CONT.	CONT.	
Remarks: Award Fees are 6%.												
Development Support Equipment											0.000	
Software Development	WR	NSWC CD		0.221	11/99						0.221	0.221
Training Development											0.000	
Integrated Logistics Support	MIPR	DOI		0.809	01/00	0.905	01/01				1.714	1.714
	Various	Miscellaneous						0.850			0.850	0.850
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Subtotal Support			0.000	1.030		0.905		0.850		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: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E, N/BA - 4			Ocean Engineering Development 0603713N			Shallow Depth Diving Equipment/S0394						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Miscellaneous	0.641	0.274		0.300		0.300		CONT.	CONT.	
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E			0.641	0.274		0.300		0.300		CONT.	CONT.	
Remarks:												
Contractor Engineering Support	Various	Miscellaneous	0.717	0.276		0.250		0.250		CONT.	CONT.	
Government Engineering Support	WR	NFESC	0.267	0.049	03/00						0.316	0.316
	MIPR	DOI		0.638	01/00	0.523	01/01				1.161	1.161
	Various	Miscellaneous		0.210		0.100		0.750		CONT.	CONT.	
Program Management Support	Various	Miscellaneous		0.115		0.120		0.100		CONT.	CONT.	
Travel			0.130	0.105		0.100		0.100		CONT.	CONT.	
Labor (Research Personnel)			0.453							CONT.	CONT.	
Overhead												
Subtotal Management			1.567	1.393		1.093		1.200		CONT.	CONT.	
Remarks:												
Total Cost			40.355	11.511		11.596		12.354		CONT.	CONT.	
Remarks:												

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Exhibit R-3, Project Cost Analysis
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