

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE:	
							February 2003	
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE			
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					0603573N/ADVANCED SURFACE MACHINERY			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	2.997	2.867	1.468	0.000	0.000	0.000	0.000	0.000
S1314/Advanced Surface Machinery Programs	2.997	2.867	1.468	0.000	0.000	0.000	0.000	0.000
Defense Emergency Response Funds (DERF) Funds: Not Applicable.								
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:								
(U) Advanced Surface Machinery Programs develop affordable advanced machinery and subsystems for surface ship propulsion, electric and auxiliary requirements. The ICR Gas Turbine Engine is a marine propulsion gas turbine. ICR will reduce life cycle fuel cost and provide an alternate prime mover candidate. A contract for ICR Advanced Development (AD) with an option for Full Scale Development was awarded to Westinghouse Electric Corporation in December 1991. The ICR is derived from the Rolls-Royce RB211 aircraft engine and through the introduction of an intercooler, recuperator, and variable area nozzles achieves approximately a 25% to 27% propulsion annual fuel savings when compared to the LM2500 on a mechanical drive ship.								
(U) ICR full scale system development testing began in July 1994 and completed at Pyestock, U.K. on 30 April 1999. An additional 457 hours of testing at NAVSSES Philadelphia which completed 16 December 1999, confirmed readiness for qualification testing. Recuperator recovery efforts continued following the failure in January 1995 of the initial recuperator. An Engineering Development Model (EDM) recuperator, which is the exhaust heat recovery unit that provides most of the fuel efficiency gains, was delivered to the test site in January 1999. Testing on this EDM has met expectations. System testing to date has completed over 2400 hours of successful testing including over 1150 hours with the second generation recuperator and 1250 hours with the EDM recuperator. The engine system failed the endurance qualification testing in FY02.								
(U) A Cooperative Agreement between the United Kingdom (U.K.) and United States governments was signed by USD(A&T) on 21 June 1994 and revised in March 1997 and again in November 2000 for in-kind and cash contributions to the ICR program. A Cooperative Agreement between the French and United States governments was signed by ASN(RD&A) on 30 August 1995 and revised in October 2000 for in-kind and cash contributions to the ICR program. Under the terms of the MoU, the U.K. is proceeding with the shock testing which is currently planned for FY04.								

R-1 SHOPPING LIST - Item No. 56

UNCLASSIFIED

Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 8)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification			DATE: February 2003																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 4	PROGRAM ELEMENT NUMBER AND NAME 0603573N/ADVANCED SURFACE MACHINERY SYS	PROJECT NUMBER AND NAME S1314/ADVANCED SURFACE MACHINERY PROGRAMS																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 02</th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">2.997</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	2.997	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	2.997	0.000	0.000	0.000															
RDT&E Articles Quantity																			
The Royal and French navies continued execution of the 3000 hour endurance qualification test. Engine sustained a failure which resulted in the requirement for a complete hot section rebuild and the termination of the endurance qualification test. U.S. Navy responsibilities included participation in the Steering Committee, technical review, monitoring tests and accepting test results for compliance to U.S. Navy requirements. Continued ICR technology application studies. The Royal and French navies initiated the shock test with a planned completion in FY04.																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 02</th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">2.867</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	0.000	2.867	0.000	0.000	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	0.000	2.867	0.000	0.000															
RDT&E Articles Quantity																			
The Royal and French navies will complete the design modifications required to correct the deficiencies identified in the testing program, perform acceptance tests to verify the efficacy of the design changes and proceed with the preparation for the shock test.																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 02</th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">1.468</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.468	0.000	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.468	0.000															
RDT&E Articles Quantity																			
The Royal and French navies will complete the shock test and post qualification test inspections.																			

R-1 SHOPPING LIST - Item No. 56

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification				DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AND NAME	
RDT&E, N / BA-4		0603573N/ADVANCED SURFACE MACHINERY SYSTEMS		S1314/ADVANCED SURFACE MACHINERY PROGRAMS	
C. PROGRAM CHANGE SUMMARY:					
Funding:		FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 03 Pres Controls):		3.886	2.931	1.533	0.000
Current BES/President's Budget: (FY04 President Controls)		2.997	2.867	1.468	0.000
Total Adjustments		-0.889	-0.064	-0.065	0.000
Summary of Adjustments					
Congressional Adjustments		0.000	-0.033	0.000	0.000
Inflation Adjustments		0.000	-0.031	-0.034	0.000
Reprogrammings		-0.700	0.000	0.000	0.000
Minor adjustments		-0.189	0.000	-0.031	0.000
Subtotal		-0.889	-0.064	-0.065	0.000
Schedule:					
Not Applicable					
Technical:					
Not Applicable					

R-1 SHOPPING LIST - Item No. 56

UNCLASSIFIED

Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 3 of 8)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification							DATE: February 2003			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603573N/ADVANCED SURFACE MACHINERY SYS			PROJECT NUMBER AND NAME S1314/ADVANCED SURFACE MACHINERY PROGRAMS					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>To Complete</u>	<u>Total Cost</u>
None										
E. ACQUISITION STRATEGY:										
Shock testing will occur in FY 2004. Program ends in FY 2004.										
F. MAJOR PERFORMERS:										
Northrop Grumman Marine Systems, Sunnyvale California, Prime contractor award date December 1991 David Taylor Research and Development Center/Carderock Division/ Philadelphia Detachment. Testing Support, annual										

R-1 SHOPPING LIST - Item No. 56

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603573N/ADVANCED SURFACE MACHINERY SYS			PROJECT NUMBER AND NAME S1314/ADVANCED SURFACE MACHINERY PROGRAMS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPAF	NG, Sunnyvale, Ca	339.561	0.600	10/02						340.161	
Ancillary Hardware Development											0.000	
Component Development											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	C/CPAF	NG, Sunnyvale, Ca	1.548	0.981	various	0.682	various				3.211	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
Cost Improvements			7.000								7.000	
Award Fees	C/CPAF	NG, Sunnyvale, Ca	8.823								8.823	
Subtotal Product Development			356.932	1.581		0.682		0.000		0.000	359.195	
Remarks:												
Development Support											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	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

R-1 SHOPPING LIST - Item No. 56

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 5 of 8)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)									DATE: February 2003			
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4			PROGRAM ELEMENT 0603573N/ADVANCED SURFACE MACHINERY SYS			PROJECT NUMBER AND NAME S1314/ADVANCED SURFACE MACHINERY PROGRAMS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Philadelphia PA	16.169	1.236	10/02	0.736	10/03				18.141	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			16.169	1.236		0.736		0.000		0.000	18.141	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel			0.050	0.050	various	0.050	various				0.150	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.050	0.050		0.050		0.000		0.000	0.150	
Remarks:												
Total Cost			373.151	2.867		1.468		0.000		0.000	377.486	
Remarks:												

R-1 SHOPPING LIST - Item No. 56

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 6 of 8)

R-1 SHOPPING LIST - Item No. 56

* Not required for Budget Activities 1, 2, 3, and 6

R-1 SHOPPING LIST - Item No. 56

Exhibit R-4, Schedule Profile
(Exhibit R-4, page 7 of 8)

UNCLASSIFIED

CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No. 56

UNCLASSIFIED

Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 8 of 8)