

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE:			
								June 2001			
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE					
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4						0603216N Aviation Survivability					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost		13.622	7.458	7.538						Continuing	Continuing
		*									
W0584 Aircrew Protective Clothing and Devices		9.417	2.842	2.875						Continuing	Continuing
W0591 Aircraft Survivability, Vulnerabilty and Safety		1.584	1.884	1.893						Continuing	Continuing
W0592 A/C & Ordnance Safety		1.668	1.750	1.744						Continuing	Continuing
W1819 Carrier Vehicle Aircraft Fire Suppression System		0.953	0.982	1.026						Continuing	Continuing
Quantity of RDT&E Articles	Not applicable										
<p>* The FY00 budget reflects:</p> <p>\$3.000M Congressional add for Escape System Dynamic Flow executed under project W2604, which was revised by \$.062 for Congressional undistributed reductions,</p> <p>\$2.000M Congressional add for Smart Aircrew Integrated Life Support System (SAILSS) executed under project W2605, which was revised by \$.054 for Congressional undistributed reductions,</p> <p>\$1.000M Congressional add for Lightweight Environmentally Sealed Parachute Assembly (LESPA) executed under project W2727, which was revised by \$.024 for Congressional undistributed reductions , and \$1.000M Congressional add for Pilot Vehicle Interface Upgrade executed under project W2728 which was revised by \$.025 for Congressional undistributed reductions .</p> <p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Aviation Survivability addresses the issues of aircrew and platform survivability, focusing on enhancing overall opportunity for aircrew and platform protection and enhanced performance. The capabilities addressed under this program element counter emerging threats of next generation operational weapons systems and enhance combat effectiveness in future operational mission scenarios.</p> <p>(U) Aircrew Protective Clothing and Devices develops, demonstrates, and validates technology options that enhance aircrew capability to perform assigned missions. In addition, this project ensures aircrew protection against natural and induced environmental or physiological hazards encountered during routine, combat and emergency flight operations as well as during escape, survival and rescue, following loss of aircraft.</p>											

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Exhibit R-2, RDTEN Budget Item Justification
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APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4		R-1 ITEM NOMENCLATURE 0603216N Aviation Survivability
<p>(U) The three remaining projects focus on platform survivability, addressing the reductions in aircraft susceptibility to enemy and non-combat threats, as well as aircraft vulnerabilities to conventional, nuclear, chemical, biological, radiological and directed energy weapons. The Aircraft Survivability, Vulnerability and Safety project expands the survivability technology base and develops prototype hardware which is required to improve the survivability of Naval aircraft. Aircraft and Ordnance Safety transitions generic insensitive munitions technology to Navy and Marine Corps air weapons, ensuring that they are insensitive to fast cook-off, slow cook-off, and fragment impact and sympathetic detonation. Carrier Aircraft Fire Suppression Systems develops improved fire fighting systems and fire protective measures for aircraft carriers.</p> <p>(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under DEMONSTRATION and VALIDATION because it develops and integrates hardware for experimental tests related to specific ship or aircraft applications.</p>		

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EXHIBIT R-2a, RDT&E Project Justification								DATE:				
								June 2001				
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME						
RDT&E, N / BA-4		0603216N Aviation Survivability				W0584 Aircrew Protective Clothing and Devices						
COST (\$ in Millions)		Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			*									
RDT&E Articles Qty												
* The FY00 budget reflects : \$3.000M Congressional add for Escape System Dynamic Flow executed under project W2604, which was revised by \$.062 for Congressional undistributed reductions, \$2.000M Congressional add for Smart Aircrew Integrated Life Support System (SAILSS) executed under project W2605, which was revised by \$.054 for Congressional undistributed reductions, \$1.000M Congressional add for Lightweight Environmentally Sealed Parachute Assembly (LESPA) executed under project W2727, which was revised by \$.024 for Congressional undistributed reductions , and \$1.000M Congressional add for Pilot Vehicle Interface Upgrade executed under project W2728 which was revised by \$.025 for Congressional undistributed reductions .												
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Project W0584 develops, demonstrates, and validates technology options for integrated aircrew emergency and life support systems designed to enhance mission effectiveness, in-flight protection and survivability. The project covers fixed and rotary wing life support equipment, advanced helmet vision systems, escape systems technology, crew centered cockpit design, and cockpit integration programs. It responds to a number of operational requirements documents, including OR# 210-05-88 for Chemical and Biological (CB) Protection, OR#099-05-087 for Laser Eye Protection, and the joint Air Force/Navy (CAF 208-93) for an Aerospace Control Helmet Mounted Cueing System. In 1996, the various sub-projects were restructured into a combined Advanced Technology Crew Station (ATCS) and Advanced Integrated Life Support System (AILSS) program. This project is validated by two Non-Acquisition Development Documents (NAPDDS)-- one for an Advanced Technology Crew Station (ATCS), and the other for AILSS.												
(U) PROGRAM ACCOMPLISHMENTS AND PLANS:												
1. FY 2000 ACCOMPLISHMENTS:												
- (U) (\$.894) Continued Advance Technology Escape System (ATES) using controllable propulsion (Fourth Generation Escape System). Began component integration.												
- (U) (\$.300) Advanced Helmet Vision System (AHVS) completed head/neck weight moments of inertia studies.												
- (U) (\$.300) Continued enhanced resolution development for Crusader day/night all weather helmet mounted display system.												
- (U) (\$.500) Continued SAILSS.												
- (U) (\$.500) Continued development of non-linear materials for frequency agile laser eye protection.												
-(U) (\$.088) Extended Visualization Architecture Technology (VAT) to single user virtual image display.												
-(U) (\$2.938) Continued the development of the laminar flow ejection tower test facility.												

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Exhibit R-2a, RDTEN Project Justification
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		June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDTE&, N / BA-4	0603216N Aviation Survivability	W0584 Aircrew Protective Clothing and Devices
<p>1. FY 2000 ACCOMPLISHMENTS (continued)</p> <ul style="list-style-type: none">- (U) (\$1.946) Continued SAILSS with emphasis on miniaturization of sensors and electronics.. (U) (\$.976) Began the development of the lightweight environmentally sealed parachute.. (U) (\$.975) Began the development of the pilot vehicle interface upgrade. <p>2. FY 2001 PLANS:</p> <ul style="list-style-type: none">-(U) (\$.842) Continue ATES using controllable propulsion (Fourth Generation Escape System). Continue component integration.-(U) (\$.931) Complete enhanced resolution Crusader day/night all weather helmet mounted display system.-(U) (\$.477) Continue SAILSS.-(U) (\$.500) Complete technology demonstration for non-linear materials phase of frequency agile laser eye protection development.-(U) (\$.080) Complete VAT, validate single user displays.-(U) (\$.012) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68. <p>3. FY 2002 PLANS:</p> <ul style="list-style-type: none">-(U) (\$.600) Exercise option to begin development of frequency Agile flight worthy unity magnification goggles (laser eye protection).-(U) (\$.284) Begin system integration and flight testing of Advanced Helmet Vision System enhanced resolution Crusader. Conduct I2/Thermal mode control studies.-(U) (\$.470) Integrate SAILSS with on-board oxygen and personal air conditioning systems.-(U) (\$.380) Integrate Pilot Vehicle Interface on-board/off-board data correlation on test aircraft and begin flight testing.		

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Exhibit R-2a, RDTE&E Project Justification
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EXHIBIT R-2a, RDT&E Project Justification		DATE:
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDTE, N / BA-4	0603216N Aviation Survivability	W0584 Aircrew Protective Clothing and Devices
<p>2. FY 2002 PLANS (continued)</p> <ul style="list-style-type: none">-(U) (\$.563) Integrate ATES ejection seat trajectory and crashworthy seat stroking models with biodynamic models. Incorporate computational fluid dynamics and parachute models.-(U) (\$.300) Conduct preliminary ergonomic seating design, validate BioRID performance, and mature final version.-(U) (\$.278) Begin crewstation technology laboratory demonstration of Active Network Guidance Emergency Logic (ANGEL).		

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Exhibit R-2a, RDTE Project Justification
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EXHIBIT R-2a, RDT&E Project Justification			DATE: June 2001																
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME W0584 Aircrew Protective Clothing and Devices																	
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="margin-left: auto; margin-right: auto; border: none;"> <thead> <tr> <th></th> <th style="text-align: right;">FY2000</th> <th style="text-align: right;">FY2001</th> <th style="text-align: right;">FY2002</th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: right;">9.641</td> <td style="text-align: right;">2.872</td> <td style="text-align: right;">2.932</td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td style="text-align: right;">-0.224</td> <td style="text-align: right;">-0.030</td> <td style="text-align: right;">-0.057</td> </tr> <tr> <td>(U) FY 2002/2003 OSD/OMB Budget Submit:</td> <td style="text-align: right;">9.417</td> <td style="text-align: right;">2.842</td> <td style="text-align: right;">2.875</td> </tr> </tbody> </table> <p style="margin-top: 20px;">CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding: The FY 2000 net decrease of \$.224 million consists of a \$.124 million decrease for the Small Business Innovative Research assessment; a \$.062 million decrease for reprioritization of requirements within the Navy; and a \$.038 million decrease for a Congressional Recission. The FY 2001 net decrease of \$.030 million consists of a \$.004 million decrease for reprioritization of requirements within the Navy, a \$.020 million decrease for a Congressional reduction, and a \$.006 million decrease for a Congressional recission. The FY 2002 net decrease of \$.057 million consists of a \$.013 million decrease for reprioritization of requirements within the Navy, and \$.044 million decrease for economic assumptions</p> <p style="margin-left: 40px;">(U) Schedule: Not applicable. (U) Technical: Not applicable.</p> <p style="margin-top: 20px;">(U) C. OTHER PROGRAM FUNDING SUMMARY:</p> <p>Related RDT&E</p> <ul style="list-style-type: none"> (U) PE 0602201F (Aerospace Flight Dynamics) (U) PE 0602233N (Mission Support Equipment) (U) PE 0604264N (Aircrew Systems Development) (U) PE 0604706F (Life Support Systems) (U) PE 06023231F (Crew Systems and Personal Protection Technology) 					FY2000	FY2001	FY2002	(U) FY 2001 President's Budget:	9.641	2.872	2.932	(U) Adjustments from the President's Budget:	-0.224	-0.030	-0.057	(U) FY 2002/2003 OSD/OMB Budget Submit:	9.417	2.842	2.875
	FY2000	FY2001	FY2002																
(U) FY 2001 President's Budget:	9.641	2.872	2.932																
(U) Adjustments from the President's Budget:	-0.224	-0.030	-0.057																
(U) FY 2002/2003 OSD/OMB Budget Submit:	9.417	2.842	2.875																

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Exhibit R-2a, RDTE Project Justification
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EXHIBIT R-2a, RDT&E Project Justification			DATE:	
			June 2001	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AND NAME	
RDT&E, NBA-4	0603216N Aviation Survivability		W0584 Aircrew Protective Clothing and Devices	
(U) D. ACQUISITION STRATEGY: Not applicable				
(U) E. SCHEDULE PROFILE:				
	FY 2000	FY 2001	FY 2002	TO COMPLETE
(U) Program Milestones				
4th Generation Escape (ATES) & controllable propulsion	Begin component integration (1Q 00)	Begin component integration	Complete integration 1Q 02	
Crusader Day/Night	Continue	Complete 4Q 01		
All Weather Display System				
Crusader High Resolution Upgrade			Initiate 1Q 02	Continue
VAT Networking		Complete 4Q01		
VAT (Single User)	Initiate 1Q 00	Complete 4Q01		
Frequency Agile Laser Eye Protection (non-linear materials)	Continue	Complete Tech Demo (4Q 01)	Begin prototype develop. (1Q 02)	Continue
SAILSS	Continue	Continue	Continue	Continue
(U) Engineering Milestones				
Laminar Flow Facility	Initiate HIVAS upgrades 3Q 00	Complete 2Q 01		
LESPA	Initiate thin pack modifications	Complete 2Q 01		
(U) T&E Milestones				
Crusader day/night system DT-1	Complete			
Crusader day/night			Initiate 1Q 02	Continue
high resolution system DT-1				
LESPA	Initiate 3Q 00	Complete 2Q 01		
ANGEL			Initiate Demonstrations 1Q 02	Continue
(U) Contract Milestones	Not applicable			

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Exhibit R-3 Cost Analysis (page 1)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603216N Aviation Survivability			W0584 Aircrew Protective Clothing and Devices						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Miscellaneous	WX	NAWC AD Pax River	16.641	1.376	Various	1.368	Various			Continuing	Continuing	
Miscellaneous	Various	Various	10.765								10.765	10.765
McDonnell Douglas		McDonnell Douglas, St. Louis	1.325								1.325	1.325
Boeing		Boeing, Seattle, Wa	1.660								1.660	1.660
Subtotal Product Development			30.391	1.376		1.368				Continuing	Continuing	
Remarks:												
Miscellaneous	Various	Various	1.019	0.467	Various	0.500	Various			Continuing	Continuing	
SBIR Assessment				0.012							0.012	
Subtotal Support			1.019	0.479		0.500				Continuing	Continuing	
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 NUMBER AND NAME					
RDT&E, N / BA-4			0603216N Aviation Survivability				W0584 Aircrew Protective Clothing and Devices					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	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	Various	13.873	0.977	Various	0.996	Various			Continuing	Continuing	
Subtotal T&E			13.873	0.977		0.996				Continuing	Continuing	
Remarks:												
Travel	WX	NAWC AD Patuxent River	0.085	0.010	10/00	0.011	10/01			Continuing	Continuing	
Subtotal Management			0.085	0.010		0.011				Continuing	Continuing	
Remarks:												
Total Cost			45.368	2.842		2.875				Continuing	Continuing	
Remarks:												

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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 NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME W0591 Aircraft Survivability and Vulnerability					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		1.584	1.884	1.893						Continuing	Continuing
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
Aircraft Survivability, Vulnerability and Safety. This project develops prototype hardware to improve the survivability of Navy and Marine Corps aircraft. This project addresses the likelihood of an aircraft being hit (susceptibility) and the probability of a kill if the aircraft is hit (vulnerability). Types of programs funded under this project include signature reduction efforts, subsystem and component hardening and development of fire and explosion suppression techniques for fuel systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$1.349) Continued the development of a rotary wing IR survivability signature suppression program (initiate flight test).
- (U) (\$.100) Initiated uninhabited aerial vehicle (UAV) survivability program; focus on trade study/cost analysis.
- (U) (\$.020) Completed annual update of Aircraft Survivability Database.
- (U) (\$.115) Continued development of Survivability Analysis Methodology (based on FY99 roadmap).

2. FY 2001 PLANS:

- (U) (\$1.424) Complete the development of a rotary wing IR survivability signature suppression system.
- (U) (\$.020) Prepare biannual update of RDT&E master plan.
- (U) (\$.020) Prepare annual update of Aircraft Survivability Database.
- (U) (\$.165) Continue development of Survivability Analysis Methodology (based on FY99 roadmap).

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		June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDTE&E, N / BA-4	0603216 Aviation Survivability	W0591 Aircraft Survivability, Vulnerability, and Safety
<p>2. FY 2001 PLANS (continued)</p> <ul style="list-style-type: none">-(U) (\$.227) Continue UAV survivability trade study (define hardware technology candidate).-(U) (\$.028) Portion of extramural program reserved for Small Business Innovation Research Assessment in accordance with 15 USC 68. <p>3. FY 2002 PLANS:</p> <ul style="list-style-type: none">- (U) (\$1.393) Continue UAV Survivability Enhancement (design and fabrication of selected technology candidates).- (U) (\$.200) Initiate Transport/Reconnaissance Survivability program; focus on trade study/cost analysis.- (U) (\$.200) Initiate Aircraft Advanced Fire Protection Technology trade study.- (U) (\$.100) Initiate Advanced Threats study (Start radio frequency (RF) weapons).		

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Exhibit R-2a, RDTE&E Project Justification
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		June 2001	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDTE, N / BA-4	0603216 Aviation Survivability	W0591 Aircraft Survivability, Vulnerability, and Safety	
(U) B. PROGRAM CHANGE SUMMARY:			
	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	1.868	1.904	1.912
(U) Adjustments from the President's Budget:	-0.284	-0.020	-0.019
(U) FY 2002 President's Budget Submit:	1.584	1.884	1.893
CHANGE SUMMARY EXPLANATION:			
(U) Funding: The FY 2000 net decrease of \$.284 million consists of a \$.035 million decrease for Small Business Innovative Research assessment, a \$.242 million decrease for reprioritization of requirements within the Navy, and a \$.007 million decrease for a Congressional rescission. The FY 2001 net decrease of \$.020 million consists of a \$.003 million decrease for reprioritization of requirements within the Navy, a \$.013 million decrease for a Congressional reduction, and a \$.004 million decrease for a Congressional rescission. The FY 2002 net decrease of \$.019 million consists of a \$.007 million decrease for reprioritization of requirements within the Navy, and a \$.012 million decrease for economic assumptions.			
(U) Schedule: IR suppressor flight test changed from 2Q01 to 4Q01 because test asset will not be available until after 2Q01. Rescheduling of test will also allow for summer test conditions (high temperature/high humidity).			
(U) Technical: Not Applicable			
(U) C. OTHER PROGRAM FUNDING SUMMARY:			
Related RDT&E:			
(U) PE 0605132D (Joint Technical Coordinating Group on Aircraft Survivability)			
(U) PE 0603384D (Chemical/Biological Defense (Advanced Development))			

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			June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N BA-4	06031216N Aviation Survivability	W0591 Aviation Survabilty, Vulnerability and Safety	
(U) D. ACQUISITION STRATEGY: Not applicable			
(U) E. SCHEDULE PROFILE:			
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
			<u>TO COMPLETE</u>
(U) Program Milestones			
UAV survivability trade study	Initiate 1Q00	Complete 3Q01	
Bi-annual Master Plan updates		Complete 4Q01	Continue
Transport/Reconnaissance Survivability Trade Study			Continue
Advanced Threats Trade Study (RF weapons)		Initiate 2Q02	Continue
Advanced A/C Fire Protection Trade Study		Initaite 1Q02	
(U) Engineering Milestones		Initaite 2Q02/Comp 4Q02	
Not applicable			
(U) T&E Milestones			
IR Suppressor flight test	Initiate 4Q00	Complete 4Q01	
UAV flight test			Continue
Advanced Aircraft Fire Protection Demonstration		Initiate 4Q02	Continue
(U) Contract Milestones			
Not applicable			

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Exhibit R-2a, RD TEN Project Justification
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Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603216N Aviation Survivability			W0591 Aircraft Survivability, Vulnerability, and Safety						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	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	SS/CPFF	Sikorsky, Connecticut	2.454	0.659	10/00						3.113	3.113
Primary Hardware Development	TBD	Contractor TBD				0.885	03/02			0.717	1.602	1.602
Primary Hardware Development	WX	Various- Govt activities				0.050	10/01			0.150	0.200	
Systems Engineering	WX	Various	5.754	0.524	10/00	0.913	11/01			Continuing	Continuing	
Primary Hardware Development	SS/CFFF	Bell Helicopter	1.307								1.307	1.307
Subtotal Product Development			9.515	1.183		1.848				Continuing	Continuing	
Remarks:												
Technical Data	WX	Various	0.143	0.111						Continuing	Continuing	
Subtotal Support			0.143	0.111		0.000				Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis
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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603216N Aviation Survivability			PROJECT NUMBER AND NAME W0591 Aircraft Survivability, Vulnerability and Safety						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	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	WX	Various	1.018	0.055	10/00					Continuing	Continuing	
SBIR Assessment				0.028							0.028	
Subtotal T&E			1.018	0.083		0.000				Continuing	Continuing	
Remarks:												
Program Management Support	WX	Various				0.035	10/01			Continuing	Continuing	
Travel	WX	Various	0.185	0.010	10/00	0.010	10/01			Continuing	Continuing	
Subtotal Management			0.185	0.010		0.045				Continuing	Continuing	
Remarks:												
Total Cost			10.861	1.387		1.893				Continuing	Continuing	
Remarks:												

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								June 2001			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME					
RDT&E, N / BA-4	0603216N Aviation Survivability					W0592 A/C & Ordnance Safety					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		1.668	1.750	1.744						Continuing	Continuing
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project transitions Insensitive Munitions (IM) technology from IM Advanced Development (generic technology) to Air Weapon Systems to comply with Chief of Naval Operations direction that all munitions carried aboard Navy ships be insensitive to fast cook-off (FCO), slow cook-off (SCO), bullet and fragment impact (BI and FI), and sympathetic detonation (SD).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$338) Demonstrated manufacturability of 2.75-inch rocket motor. Evaluated reactive material warheads for IM compliance.
- (U) (\$417) Continued evaluation of IM technology to pumice as a sympathetic detonation barrier and validated tandem warhead containment models.
- (U) (\$913) Fabricated Sidewinder composite rocket motor cases. Performed ground and flight testing of Sidewinder composite rocket motor.

2. FY 2001 PLANS:

- (U) (\$849) Continue evaluating reactive material warheads for IM compliance.
- (U) (\$401) Demonstrate pumice as a sympathetic detonation barrier for weapon shipping containers.
- (U) (\$500) Complete flight testing and document flight certification process for Sidewinder composite case.

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Exhibit R-2a, RDTEN Project Justification
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME W0592 A/C & Ordnance Safety
<p>3. FY 2002 PLANS:</p> <ul style="list-style-type: none">- (U) (\$.479) Continue evaluating reactive material warheads for IM compliance. Conduct IM and performance testing on sub-scale manufactured 2.75-inch motors.- (U) (\$.565) Demonstrate pumice as a sympathetic detonation barrier for weapon shipping containers. Refine pumice design capability for SD mitigation.- (U) (\$.700) Continue ground and flight testing Sidewinder composite rocket motor. Conduct air to air missile IM warhead testing.		

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Exhibit R-2a, RDTE&E Project Justification
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME W0592 A/C & Ordnance Safety																
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="margin-left: auto; margin-right: auto; border: none;"> <thead> <tr> <th></th> <th style="text-align: right;">FY2000</th> <th style="text-align: right;">FY2001</th> <th style="text-align: right;">FY2002</th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: right;">1.715</td> <td style="text-align: right;">1.768</td> <td style="text-align: right;">1.784</td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td style="text-align: right;">-0.047</td> <td style="text-align: right;">-0.018</td> <td style="text-align: right;">-0.040</td> </tr> <tr> <td>(U) FY 2002/2003 OSD/OMB Budget Submit:</td> <td style="text-align: right;">1.668</td> <td style="text-align: right;">1.750</td> <td style="text-align: right;">1.744</td> </tr> </tbody> </table> <p style="margin-top: 20px;">CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding: The FY 2000 net decrease of \$.047 million consists of a \$.040 million decrease for reprioritization of requirements within the Navy and a \$.007 million decrease for a Congressional rescission. The FY 2001 net decrease of \$.018 million consists of a \$.002 million decrease for reprioritization of requirements within the Navy, a \$.012 million decrease for a Congressional reduction, and a \$.004 million decrease for Congressional rescission. The FY 2002 net decrease of \$.040 million consists of a \$.008 million decrease for reprioritization of requirements within the Navy and a \$.032 million decrease for economic assumptions.</p> <p style="margin-top: 20px;">(U) Schedule: Not applicable</p> <p style="margin-top: 20px;">(U) Technical: Not applicable</p> <p style="margin-top: 20px;">(U) C. OTHER PROGRAM FUNDING SUMMARY: Not applicable</p> <p style="margin-top: 20px;">Related RDT&E:</p> <p style="margin-left: 40px;">PE 0604802A</p> <p style="margin-left: 40px;">PE 0603609N</p> <p style="margin-top: 20px;">(U) D. ACQUISITION STRATEGY: This is a non-ACAT program with no specific acquisition strategies.</p> <p style="margin-top: 20px;">(U) E. SCHEDULE PROFILE: Not applicable</p>				FY2000	FY2001	FY2002	(U) FY 2001 President's Budget:	1.715	1.768	1.784	(U) Adjustments from the President's Budget:	-0.047	-0.018	-0.040	(U) FY 2002/2003 OSD/OMB Budget Submit:	1.668	1.750	1.744
	FY2000	FY2001	FY2002															
(U) FY 2001 President's Budget:	1.715	1.768	1.784															
(U) Adjustments from the President's Budget:	-0.047	-0.018	-0.040															
(U) FY 2002/2003 OSD/OMB Budget Submit:	1.668	1.750	1.744															

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Exhibit R-2a, RDTEEN Project Justification
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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603216N Aviation Survivability			W0592 A/C & Ordnance Safety						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	WX	NAWCWD China Lake	12.585	1.720	10/00	1.714	10/01			Continuing	Continuing	
Subtotal Product Development			12.585	1.720		1.714				Continuing	Continuing	
Remarks:												
Subtotal Support			0.000	0.000		0.000				0.000	0.000	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4				PROGRAM ELEMENT 0603216N Aviation Survivability			PROJECT NUMBER AND NAME W0592 A/C & Ordnance Safety					
Cost Categories	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
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Travel	WX	NAWCAD Pax River	0.060	0.030	10/00	0.030	10/01			Continuing	Continuing	
Subtotal Management			0.060	0.030		0.030		0.000		Continuing	Continuing	
Remarks:												
Total Cost			12.645	1.750		1.744		0.000		Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 20 of 25)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability					PROJECT NUMBER AND NAME W1819 Carrier Vehicle Aircraft Fire Suppression System					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		0.953	0.982	1.026						Continuing	Continuing
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project develops improved fire fighting systems and fire protective measures for aircraft related fires on aircraft carriers, including assessment of fire properties, definition of fire threats, improvements to fire fighting agents and delivery systems, fire detection and suppression system performance evaluations, and fire fighter training improvements.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$.518) Conducted testing of fire test standards for wheel/brake, electrical, and spill fires. Identified critical test parameters and provided adequate instrumentation for testing. Manufactured details for fire threat simulators with adequate test repeatability provisions. Conducted full scale, fleet representative fire testing to evaluate relative performance of available and developmental extinguishing systems.

- (U) (\$.155) Enhanced the Mobile Aircraft Fire Fighting Training Device by evaluating options to propane fuel. Conducted live fire training demonstrations. Incorporated system upgrades based on fleet responses. Established zoning criteria to maximize fleet personnel training opportunities.

- (U) (\$.280) Continued carrier reduced manning studies. Evaluated potential negative safety impact of reduced manning of Navy ships relative to current level of onboard fire fighting provisions. Ensured adequate fire fighting provisions are maintained through evaluation of systems hardware enhancements, development of novel fire fighting approaches, and optimized personnel emergency procedures. Assessed opportunities for overall improvement in shipboard handling of fire emergencies.

2. FY 2001 PLANS

- (U) (\$.440) Complete testing and finalize fire test standards for wheel/brake, electrical, and spill fires. Complete identification of critical test parameters and provision of adequate instrumentation for testing. Compile pros and cons of each system for review.

- (U) (\$.225) Continue carrier reduced manning studies. Evaluate potential negative safety impact of reduced manning of Navy ships relative to current levels of onboard fire fighting provisions. Ensure adequate fire fighting provisions are maintained through evaluation of systems hardware enhancements, development of novel fire fighting approaches, and optimized personnel emergency procedures. Assess opportunities for overall improvement in shipboard handling of fire emergencies.

- (U) (\$.134) Initiate studies of fire threat from alternate fuel. Evaluate the different characteristics of JP-8 versus JP-5 fires. Identify deficiencies and promote opportunities for improvement.

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Exhibit R-2a, RDTE Project Justification
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EXHIBIT R-2a, RDT&E Project Justification		DATE:
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDTE, N / BA-4	0603216N Aviation Survivability	W1819 Carrier Vehicle Aircraft Fire Suppression System
<p>2. FY 2001 PLANS (continued)</p> <p>(U) (\$.174) Evaluate next generation fire threats aboard carriers. Assess enhanced fire threats associated with more reliance on high powered electrical and electromagnetic components aboard ship. Evaluate remote fire detection and fire suppression methodologies and test prototypical hardware for performance.</p> <p>(U) (\$.009) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.</p> <p>3. FY 2002 PLANS</p> <p>(U) (\$.207) Evaluate alternatives to Aqueous Film Forming Foam (AFFF) for compliance with environmental, safety, and health regulations. Assess agent compatibility with next generation fire threats. Continue development of acceptable fire fighting agents.</p> <p>(U) (\$.508) Evaluate systems tailored to composite fire threats. Develop enhancements to Personnel Protection Equipment. Continue development of acceptable fire fighting systems.</p> <p>(U) (\$.311) Continue reduced manning evaluations. Develop techniques to minimize threat from involved ordnance. Optimize training apparatus and provide opportunities for training during agent/system testing. Continue development of acceptable fire fighting tactics.</p>		

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Exhibit R-2a, RDTEN Project Justification
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:	
		June 2001	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDTE&E, N / BA-4	0603216N Aviation Survivability	W1819 Carrier Vehicle Aircraft Fire Suppression System	
(U) B. PROGRAM CHANGE SUMMARY:			
	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	0.977	0.992	1.037
(U) Adjustments from the President's Budget:	-0.024	-0.010	-0.011
(U) FY 2002 President's Budget Submit:	0.953	0.982	1.026
CHANGE SUMMARY EXPLANATION:			
<p>(U) Funding: The FY 2000 net decrease of \$.024 million consists of a \$.020 million decrease for reprioritization of requirements within the Navy, and a \$.004 decrease for a Congressional rescission. The FY 2001 net decrease of \$.010 million consists of a \$.001 million decrease for reprioritization of requirements within the Navy, a \$.007 million decrease for a Congressional reduction, and a \$.002 million decrease for a Congressional Recission. The FY 2002 net decrease of \$.011 million consists of a \$.003 million decrease for a reprioritization of requirements within the Navy, and a \$.008 million decrease for economic assumptions.</p>			
(U) Schedule: Not Applicable			
(U) Technical: Not Applicable			
(U) C. OTHER PROGRAM FUNDING SUMMARY: Not applicable			
Related RDT&E: Not applicable			
(U) D. ACQUISITION STRATEGY: Not applicable			
(U) E. SCHEDULE PROFILE: Not applicable			

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Exhibit R-2a, RDTEEN Project Justification
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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603216N Aviation Survivability			W1819 Carrier Vehicle Aircraft Fire Suppression System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	WX	MISC	5.414	0.184	Various	0.440	Various			Continuing	Continuing	
Subtotal Product Development			5.414	0.184		0.440				Continuing	Continuing	
Remarks:												
Configuration Management	WX	MISC	1.360	0.357	Various	0.100	Various			Continuing	Continuing	
SBIR Assessment				0.009							0.009	
Subtotal Support			1.360	0.366		0.100				Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 24 of 25)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603216N Aviation Survivability			W1819 Carrier Vehicle Aircraft Fire Suppression System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	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	WX	MISC	2.933	0.422	Various	0.475	Various			Continuing	Continuing	
Subtotal T&E			2.933	0.422		0.475				Continuing	Continuing	
Remarks:												
Travel	WX	MISC	0.045	0.010	10/00	0.011	10/00			Continuing	Continuing	
Subtotal Management			0.045	0.010		0.011				Continuing	Continuing	
Remarks:												
Total Cost			9.752	0.982		1.026				Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis
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