

CLASSIFICATION:

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE:			
							June 2001			
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE					
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA4					Conventional Munitions/0603609N					
COST (\$ in Millions	FY 2000	FY 2001	FY 2002							
Total PE Cost	37.665	33.310	22.299							
Conventional Fuze/Warhead Package/K1821	23.532	24.303	18.491							
Optical Correlators/ K2393	3.962	0.000	0.000							
Non-Nuclear Expendable Ordnance/K2299/32299	1.279	0.859	0.932							

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Exhibit R-2, RDT&E Budget Item Justification
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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: June 2001																									
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA4		R-1 ITEM NOMENCLATURE Conventional Munitions/0603609N																									
<p>Optical Correlator Technology (Project K2393): The purpose of this effort is to enhance next generation target discrimination and aimpoint selection performance.</p> <p>B. (U) Program Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: right;">FY 2000</th> <th style="text-align: right;">FY 2001</th> <th style="text-align: right;">FY 2002</th> </tr> </thead> <tbody> <tr> <td>FY 2001 President's Budget Submit:</td> <td style="text-align: right;">39.087</td> <td style="text-align: right;">28.619</td> <td style="text-align: right;">26.900</td> </tr> <tr> <td>Appropriated Value:</td> <td style="text-align: right;">39.309</td> <td style="text-align: right;">33.619</td> <td></td> </tr> <tr> <td>Adjustments to FY2000/2001 Appropriated Value</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY2001 President's Budget:</td> <td style="text-align: right;">-1.644</td> <td style="text-align: right;">-0.309</td> <td style="text-align: right;">-4.601</td> </tr> <tr> <td>FY 2002 PRES Budget Submit:</td> <td style="text-align: right;">37.665</td> <td style="text-align: right;">33.310</td> <td style="text-align: right;">22.299</td> </tr> </tbody> </table> <p>Funding: FY00 change is due to reduction for SBIR (-\$0.590), midyear review reduction for Conventional Fuze/Warhead (-\$0.563), across-the-board reduction (-\$0.217), proportionate reduction (-\$0.154) and minor pricing adjustments (-\$0.120). FY01 change is due to minor pricing adjustments (-\$0.309) FY02 change due to programmatic change for Insensitive Munitions (-\$4.400), NWCF rate adjustments (-\$0.264) and minor pricing adjustment (+\$0.063).</p> <p>Schedule: Not applicable. Technical: Not applicable.</p>					FY 2000	FY 2001	FY 2002	FY 2001 President's Budget Submit:	39.087	28.619	26.900	Appropriated Value:	39.309	33.619		Adjustments to FY2000/2001 Appropriated Value				FY2001 President's Budget:	-1.644	-0.309	-4.601	FY 2002 PRES Budget Submit:	37.665	33.310	22.299
	FY 2000	FY 2001	FY 2002																								
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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 Conventional Munitions/0603609N			PROJECT NAME AND NUMBER Conventional Fuze and Warhead Package /K1821/U1821				
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002						
Project Cost	23.532	24.303	18.491						
RDT&E Articles Qty									
<p>A. Mission Description and Budget Item Justification</p> <p>The Navy requires improved lethality of air and surface launched ordnance to defeat advanced threats. This is the only Navy 6.3B RDT&E program that addresses improvements in warhead and fuze technology to meet this requirement. This program is a significant vehicle for orderly planning, timely and effective transition of Navy 6.2 and 6.3A investments into E&MD phase missile/weapon systems. This program addresses increased lethality against current and emerging threats, is responsive to all mission areas -- anti-air, strike, defense suppression, theater defense and ship defense, and supports development of complete ordnance sections. The current, on-going projects address significant technology advancements for missile systems by developing: mature physical concepts to enhance anti-air kill probability, advanced ordnance with augmented overland cruise missile defense and theater ballistic missile defense capabilities, and advanced seeker technology. The program supports the full spectrum of missile advanced development and technology improvements, and in future years will continue to provide the vehicle to address emergent requirements by transitioning mature development efforts into weapon systems with minimal technical and financial risk.</p> <p>(U) PROGRAM ACCOMPLISHMENTS AND PLANS:</p> <p>1. (U) FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> - (U) (\$1.101) ORDNANCE COMPONENT TECHNOLOGY: Initiated efforts on delayed functioning exploding foil initiator (EFI) and conduct tests of warhead fragmentation control candidates. - (U) (\$1.269) ADVANCED AAW ORDNANCE: Conducted endgame analyses, test prototype warhead candidates. - (U) (\$1.330) MEMS S&A: Hardware evaluations, design arming control unit, reliability analysis. - (U) (\$500) FUZE CONTACT DEVICE: Fabricated and evaluate baseline design. - (U) (\$2.000) Mk 45 Mod 12/14 TDD: Began critical design and development of hardware and software. - (U) (\$17.332) OFFICE OF SPECIAL PROJECTS 									

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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 Conventional Munitions/0603609N	PROJECT NAME AND NUMBER Conventional Fuze and Warhead Packaging /K1821/U1821
<p>2. (U) FY 2001 PLAN:</p> <ul style="list-style-type: none">- (U) (\$2.000) WARHEAD DOWNSSELECT: Continue warhead effectiveness analysis, end game analysis, and multi-point initiator improvements.- (U) (\$2.100) MEMS S&A: Conduct critical tests.- (U) (\$9.538) Mk 45 Mod 12/14 TDD: Continue MK 45 MOD 12/14 TDD development.- (U) (\$1.503) FSMS STUDIES: Continue system engineering studies integrating warhead and fuze developments into advanced missile systems.- (U) (\$8.710) OFFICE OF SPECIAL PROJECTS- (U) (\$0.452) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638. <p>3. (U) FY 2002 PLAN:</p> <ul style="list-style-type: none">- (U) (\$2.000) WARHEAD DOWNSSELECT: Continue warhead effectiveness analysis, end game analysis, and multi-point initiator improvements.- (U) (\$3.500) MEMS S&A: Conduct critical tests.- (U) (\$7.791) TARGET DETECTING DEVICE: Continue MK 45 MOD 12/14 TDD development.- (U) (\$1.200) FSMS STUDIES: Continue system engineering studies integrating warhead and fuze developments into advanced missile systems.- (U) (\$4.000) OFFICE OF SPECIAL PROJECTS <p>B. Other Program Funding Summary: Not applicable. C. Acquisition Strategy: Not applicable. D. Program Schedule: Not Applicable.</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			Conventional Munitions/0603609N			Conventional Fuze and Warhead Package/K1821/U1821						
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
Design and Analysis	WR	NSWC/DD	29.948	0.528	11/99	0.570	11/00	0.800	11/01	Continuing	Continuing	
	WR	NAWC/China Lake	57.564	1.152	11/99	1.230	11/00	0.470	11/01	Continuing	Continuing	
	CPAF	Raytheon	6.074	0.000		0.000		0.000		0.000	6.074	6.074
	PR	JHU/APL	0.000	0.000		1.503	11/00	1.200	11/01	Continuing	Continuing	
	RC	ONR	0.052	0.000		0.000		0.000		Continuing	Continuing	
	PD	Office of Special Projects	7.751	0.000		0.000		0.000		0.000	7.751	N/A
Hardware Fabrication & Procurement	WR	NSWC/DD	5.700	0.312	11/99	0.415	11/00	0.780	11/01	Continuing	Continuing	
	WR	NAWC/China Lake	7.300	0.988	11/99	0.625	11/00	1.545	11/01	Continuing	Continuing	
	CPAF	Raytheon	0.500	0.000		6.990	11/00	5.591	11/01	0.000	13.081	13.081
Other	PD	Office of Special Projects	15.182	17.332	12/99	8.710	12/00	3.925	12/01	Continuing	Continuing	
Subtotal Product Development			130.071	20.312		20.043		14.311		Continuing	Continuing	
Remarks:												
Development Support Equipment												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
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			Conventional Munitions/0603609N			Conventional Fuze and Warhead Package/K1821/U1821						
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
Demonstration Test & Evaluation	WR	NSWC/DD	11.447	1.000	11/99	0.940	11/00	1.840	11/01	Continuing	Continuing	
	WR	NAWC/China Lake	11.482	2.000	11/99	3.100	11/00	2.120	11/01	Continuing	Continuing	
Subtotal T&E			22.929	3.000		4.040		3.960		Continuing	Continuing	
Remarks:												
Program Management Support	WR	NSWC/DD	1.949	0.075	11/99	0.075	11/00	0.075	11/01	Continuing	Continuing	
	WR	NAWC/China Lake	3.235	0.075	11/99	0.075	11/00	0.075	11/01	Continuing	Continuing	
	C/FPI	TMAI	0.010	0.020	11/99	0.020	11/00	0.020	11/01	Continuing	Continuing	
Travel	PD	NAVSEA Travel	0.250	0.050	Various	0.050	Various	0.050	Various	Continuing	Continuing	
Subtotal Management			5.444	0.220		0.220		0.220		Continuing	Continuing	
Remarks:												
Total Cost			158.444	23.532		24.303		18.491		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 NAME AND NUMBER Conventional Munitions/0603609N			PROJECT NAME AND NUMBER Non-Nuclear Expendable Ordnance (NNEO)/32299					
COST (\$ in Millions)		FY 2000	FY 2001	FY 2002						
Project Cost		1.279	0.859	0.932						
RDT&E Articles Qty										
<p>A. Mission Description and Budget Item Justification: This budget item addresses improvements to Navy surface launched (2T) non-nuclear expendable ordnance (NNEO) outside existing operational requirements. The commodities comprising 2T NNEO are: Major and medium caliber gun ammunition, small arms ammunition, other ship gun ammunition, pyrotechnics, and demolition items. There are no other RDT&E budget items supporting the 2T NNEO program. This project supports the Multi-function Fuze (MFF), Mk 2 Grenade Proximity Fuze, Cargo Competent Fuzes and Extended Range Propelling Charges. These fuzes will be used with 5"/54 gun ammunition.</p> <p>(U) PROGRAM ACCOMPLISHMENTS AND PLANS:</p> <p>1. (U) FY 00 PLANS: - (U) (\$.679) Multi-Function Fuze (MFF): Begin work on antenna improvements which will reduce MFF costs. - (U) (\$.600) Multi-Function Fuze (MFF): Extended Range Propelling Charge Qualification</p> <p>2. (U) FY 01 PLANS: - (U) (\$.200) Multi-Function Fuze (MFF): OPEVAL Expense -(U) (\$.655) Multi-Function Fuze (MFF): Complete antenna improvements started in FY 00. - (U) (\$.004) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.</p> <p>3. (U) FY 02 PLANS: - (U) (\$.932) Multi-Function Fuze (MFF): P3I items include: evaluation of Micro-Electro-Mechanical System (MEMS) Technology and begin Preliminary Design integration.</p>										

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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 Conventional Munitions/0603609N			PROJECT NAME AND NUMBER Non-Nuclear Expendable Ordnance (NNEO)/32299																																											
<p>B. Other Program Funding Summary</p> <p>1. (U) Related RDT&E: PE 0603795 (Naval Surface Fire Support)</p> <p>2. (U) The 5"/54 Improved Conventional Munition projectile will be qualified with the MFF. Approval decision for proceeding with Low Rate Initial Production in 3rd quarter FY99. Milestone III scheduled for 1st quarter FY02</p> <p>Procurement of Ammunition, Navy and Marine Corps (PANMC) 5"/54 Ammunition, BLIN 025000, Cost Code AC893 (Reno)</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">FY 2000</th> <th style="width: 10%;">FY 2001</th> <th style="width: 10%;">FY 2002</th> <th style="width: 10%;">FY 2003</th> <th style="width: 10%;">FY 2004</th> <th style="width: 10%;">FY 2005</th> <th style="width: 10%;">FY 2006</th> <th style="width: 10%;">FY 2007</th> <th style="width: 10%;">To Complete</th> <th style="width: 10%;">Total Cost</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.9</td> <td style="text-align: center;">3.8</td> <td style="text-align: center;">3.7</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">TBD</td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table> <p>C. Acquisition Strategy: Award 5-Year (Multi-Year) Contract for MFF. As P3I are completed, they will be incorporated into the next production lot.</p> <p>D. Schedule Profile</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;"></th> <th style="width: 20%;">FY 2000</th> <th style="width: 20%;">FY 2001</th> <th style="width: 20%;">FY 2002</th> </tr> </thead> <tbody> <tr> <td>Program Milestones</td> <td></td> <td></td> <td>1Q MSIII 2Q IOC</td> </tr> <tr> <td>Engineering Milestones</td> <td>3Q Production Baseline Finalized</td> <td></td> <td></td> </tr> <tr> <td>T&E Milestones</td> <td></td> <td>3Q OPEVAL</td> <td>2Q P3I Tech Eval</td> </tr> <tr> <td>Contract Milestones</td> <td>3Q P31</td> <td></td> <td>2Q Follow on Production</td> </tr> </tbody> </table>										FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost	1.9	3.8	3.7						TBD	TBD		FY 2000	FY 2001	FY 2002	Program Milestones			1Q MSIII 2Q IOC	Engineering Milestones	3Q Production Baseline Finalized			T&E Milestones		3Q OPEVAL	2Q P3I Tech Eval	Contract Milestones	3Q P31		2Q Follow on Production
FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost																																								
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Contract Milestones	3Q P31		2Q Follow on Production																																														

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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 Conventional Munitions/0603609N			PROJECT NAME AND NUMBER Non-Nuclear Expendable Ordnance (NNEO)/32299			
C. Other Program Funding Summary									
1. (U) The 5"/62 Extended Range Cargo Propelling Charge will be used with all HI-Frag Shaped Projectiles									
Procurement of Ammunition, Navy and Marine Corps (PANMC) Reimbursable, Cost Code R6700									
FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
0	2.2	0	0	0	0	0	0	TBD	TBD
C. Acquisition Strategy: Procure LRIP in 3Q FY 01									
D. Schedule Profile									
	FY 2000		FY 2001			FY 2002			
Program Milestones	4Q Qual Prog								
Engineering Milestones									
T&E Milestones	2Q OA								
Contract Milestones	3Q LRIP								

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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			Conventional Munitions/0603609N			Non-Nuclear Expendable Ord (NNEO)/32299						
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 Dahlgren	0.718	0.084	VAR	0.459	VAR	0.250	VAR	CONT.	CONT	N/A
	C/CPFF	ALLIANT	0.536	0.094	VAR	0.200	VAR	0.682	VAR	CONT.	CONT	N/A
	SS/CPFF	MOTOROLA	0.200	0.136	VAR	0.000		0		CONT.	CONT	N/A
	WR	NSWC Indian Head		0.600								
Subtotal Product Development			1.454	0.914		0.659		0.932				N/A
Remarks:												
Development Support Equipment												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

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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			Conventional Munitions/0603609N			Non-Nuclear Expendable Ord (NNEO)/32299						
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	NSWC DAHLGREN	0.298	0.225	VAR	0.000		0.000		CONT	CONT.	N/A
	WR	NAWC CHINA LAKE	0.200	0.000	VAR	0.000		0.000		CONT	CONT.	N/A
Operational Test & Evaluation	WR	COMOPTEVFOR	0.000	0.000		0.200		0.000				N/A
Subtotal T&E			0.498	0.225		0.200		0.000				
Remarks:												
Contractor Engineering Support		EDO		0.032								
Government Engineering Support	WR	NSWC DAHLGREN	0.198	0.075	11/99	0.000		0.000		CONT	CONT.	N/A
Program Management Support	WR	NSWC DAHLGREN	0.080	0.013	11/99	0.000		0.000		CONT	CONT.	N/A
Travel	WR	NSWC DAHLGREN	0.010	0.010								
Labor (Research Personnel)												
Overhead	WR	NSWC DAHLGREN	0.010	0.010								
Subtotal Management			0.298	0.140		0.000		0.000		CONT	CONT.	N/A
Remarks:												
Total Cost			2.250	1.279		0.859		0.932		CONT.	CONT.	N/A
Remarks:												

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EXHIBIT R-2a, RDT&E Project Justification					DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER				PROJECT NAME AND NUMBER				
RDT&E, N BA4	Conventional Munitions/0603609N				INSENSITIVE MUNITIONS ADVANCED DEVELOPMENT / S0363				
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002						
Project Cost	8.892	6.166	2.876						
RDT&E Articles Qty									

A. (U) Mission Description and Budget Item Justification:

Most Navy munitions react violently when exposed to unplanned stimuli such as fire, shock and bullet impact, thus presenting a great hazard to ships, aircraft and personnel. This program will provide, validate and transition technology to all new weapon developments and priority weapon systems and enable production of munitions insensitive to these stimuli with no reduction in combat performance. The Insensitive Munitions (IM) Advanced Development Program is the Navy's focused effort on propellants, propulsion units, explosives, warheads, fuzes and pyrotechnics to reduce the severity of cook-off and bullet/fragment impact reactions, minimizing the probability for sympathetic detonation, both in normal storage and in use, increasing ship survivability and satisfying performance and readiness requirements. Each technology area is divided into subtasks addressing specific munition/munition class IM deficiencies. Energetic materials producibility is demonstrated to assure national capability to produce and load munitions systems. The program is being closely coordinated with other Military Departments, NATO and allied countries to eliminate redundant efforts and maximize efficiency. A joint service IM requirement has been developed. Insensitive munitions are identified as a DoD critical technology requirement and considered as part of a weapon design per DoD 5000.2R.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) (\$1.797) Validated and assessed weapon systems POA&Ms for IM compliance. Compiled and analyzed weapon system, energetic material and generic technology IM test data.
- (U) (\$2.280) Demonstrated high explosives that show improved IM characteristics while maintaining or improving operational performance. Demonstrated high performance cast explosive. Continued qualification and evaluation of internal blast explosive and pressed metal accelerating explosives. Continued evaluation of improved performance deformable explosive. Began qualification of high performance, low cost replacement for projectile explosives.
- (U) (\$0.715) Evaluated IM ordnance concepts. Conducted system demonstrations of new high explosives combined with improved warhead and booster designed to support technology transitions. Continued modeling applications that reduce and enhance IM warhead design and test efforts. Completed evaluation of improved warhead concepts for shoulder launched weapons. Continued demonstration and evaluation of improved air-to-air warheads, and

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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N BA4	PROGRAM ELEMENT NAME AND NUMBER Conventional Munitions/0603609N	PROJECT NAME AND NUMBER INSENSITIVE MUNITIONS ADVANCED DEVELOPMENT / S0363
<p>1. (U) FY 2000 ACCOMPLISHMENTS: (Continued) penetrator warheads. Continued demonstration and evaluation of improved submunition case concepts.</p> <ul style="list-style-type: none">- (U) (\$3.100) Evaluated and demonstrated IM propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IM characteristics. Combined candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements. Demonstrated an insensitive, multi-mission, high performance rocket motor. Demonstrated high-pressure propellants in high-pressure composite motor cases. Continued demonstration of dual-pulse boost rocket motor for surface systems.- (U) (\$1.000) Continued the evaluation and demonstration of solventless processing of explosive molding powder. Demonstrated the recycle, recovery and reuse of hydrolyzable rocket propellant formulations. Evaluated and predicted the environmental impact and associated life cycle costs for energetic materials and processes. This was included in the FY 00 Project S0363 control but executed out of the FY 00 Project S2611 <p>2. (U) FY 2001 PLAN:</p> <ul style="list-style-type: none">- (U) (\$1.618) Continue validation and assessment of weapon systems POA&Ms for IM compliance. Continue compilation and analysis of weapon system, energetic material and generic technology IM test data.- (U) (\$2.379) Demonstrate high explosives that show improved IM characteristics while maintaining or improving operational performance. Continue qualification of internal blast explosive. Continue evaluation of pressed metal accelerating explosives, including new high performance applications. Evaluate improved underwater explosives. Complete evaluation and qualification of booster explosives formulations- (U) (\$0.315) Evaluate ordnance and container concepts. Conduct system demonstrations of new high explosives combined with improved warhead and booster designed to support technology transitions. Continue modeling applications that reduce and enhance IM warhead design.- (U) (\$1.830) Evaluate and demonstrate IM propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IM characteristics. Combine candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements. Continue evaluation of high-pressure propellants in high-pressure composite motor cases.- (U) (\$0.024) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.		

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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N BA4	PROGRAM ELEMENT NAME AND NUMBER Conventional Munitions/0603609N	PROJECT NAME AND NUMBER INSENSITIVE MUNITIONS ADVANCED DEVELOPMENT / S0363
<p>3. (U) FY 2002 PLAN: (Continued)</p> <ul style="list-style-type: none">- (U) (\$1.104) Continue validation and assessment of weapon systems POA&Ms for IM compliance. Continue compilation and analysis of weapon system, energetic material and generic technology IM test data.- (U) (\$0.660) Demonstrate high explosives that show improved IM characteristics while maintaining or improving operational performance. Continue qualification of internal blast explosive. Continue evaluation of pressed metal accelerating explosives. Begin qualification high performance booster explosive to weapons systems.- (U) (\$0.050) Evaluate ordnance and container concepts. Continue modeling applications that reduce and enhance IM warhead design.- (U) (\$1.062) Evaluate and demonstrate IM propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IM characteristics. Combine candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements. Continue demonstration of an insensitive, multi-mission, high performance rocket motor. <p>B. (U) OTHER PROGRAM FUNDING SUMMARY: NOT APPLICABLE</p> <p>(U) RELATED RDT&E:</p> <ul style="list-style-type: none">(U) PE 0601153N (Defense Research Sciences)(U) PE 0602111N (Surface/Aerospace Surveillance and Weapons Technology)(U) PE 0602314N (Undersea Surveillance and Weapons Technology)(U) PE 0602315N (MCM, Mining and Special Warfare Technology)(U) PE 0603216N (Aviation Survivability) Project W0592 Aircraft and Ordnance Safety(U) PE 0604603N (Unguided Conventional Air-launched Weapons)(U) Cooperative technology transfer efforts with all weapons project offices are in progress. <p>C. (U) ACQUISITION STRATEGY: NOT APPLICABLE</p> <p>D. (U) SCHEDULE PROFILE: NOT APPLICABLE</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 BA4			Conventional Munitions/0603609N			INSENSITIVE MUNITIONS ADVANCED DEVELOPMENT / S0363						
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
Propulsion Dev. and Eval.	WR	NAWC WPN DIV/China Lake	79.254	2.350	11/99	1.830	11/00	1.062	11/01	Continuing	Continuing	NA
	RCP	NAWC WPN DIV/China Lake	9.500	0.750	11/99	0.000	NA	0.000	11/01	Continuing	Continuing	NA
Explosives Dev. and Eval.	WR	NSWC/Indian Head Div	62.744	3.200	11/99	2.369	11/00	0.650	11/01	Continuing	Continuing	NA
Ordnance Dev. and Eval.	WR	NSWC/Dahlgren Div	18.375	0.725	11/99	0.315	11/00	0.050	11/01	Continuing	Continuing	NA
Pyrotechnics Dev. and Eval.	WR	NSWC/Crane Div	6.520	0.020	11/99	0.010	11/00	0.010	11/01	Continuing	Continuing	NA
Subtotal Product Development			176.393	7.045		4.524		1.772		Continuing	Continuing	NA
Remarks: This cost category includes technology development and subsequent test and evaluation of Insensitive Munitions concepts for propulsion, explosives, ordnance and pyrotechnics. Environmentally Safe Energetics Development was a Congressional add for FY 99 (in S2611) and FY 00 (in S0363). The efforts transitioned to S0363 in FY 00.												
Development Support Equipment												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks: Support categories not applicable to this Non-ACAT program.												

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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			Conventional Munitions/0603609N			INSENSITIVE MUNITIONS ADVANCED DEVELOPMENT / SO363						
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												
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
<p>Remarks: This project, S0363, Inensitive Munitions Advanced Development (IMAD), is a Non-ACAT program. As such no formal, separate developmental or operational test and evaluation plans or efforts are included. Formal DT and OT is conducted once the concepts developed by IMAD are transitioned to weapon development and product improvement programs.</p>												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support		NSWC IH DIV	25.743	1.762	11/99	1.622	11/99	1.084	11/00	Continuing	Continuing	NA
Travel		NAVSEASYSCOM	0.206	0.085	10/99	0.020	10/99	0.020	10/00	Continuing	Continuing	NA
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			25.949	1.847		1.642		1.104		Continuing	Continuing	NA
<p>Remarks:</p>												
Total Cost			202.342	8.892		6.166		2.876		Continuing	Continuing	NA
<p>Remarks: Performing activities include: NSWC/DAHLGREN, NSWC/INDIAN HEAD, NAWC WP DIV/CHINA LAKE AND NSWC/CRANE</p>												

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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 / BA4		PROGRAM ELEMENT NAME AND NUMBER Conventional Munitions/0603609N			PROJECT NAME AND NUMBER ENVIRONMENTALLY SAFE ENERGETIC MATERIALS / S2611					
COST (\$ in Millions)		FY 2000	FY 2001	FY 2002						
Project Cost		0.000	1.982	0.000						
RDT&E Articles Qty										

A. (U) Mission Description and Budget Item Justification:

The development, manufacture and demilitarization of energetic materials generate significant quantities of waste. The generation and subsequent disposal of this waste has come under increased scrutiny and regulation by Federal, State and local officials. Additionally, due to environmental compliance and waste disposal issues, the cost of energetic materials is rapidly increasing. New technologies, energetic materials and ingredients that minimize any adverse environmental impact are being developed within the Navy's science and technology initiatives. These technologies are commonly referred to as "green" energetic materials. The efforts under this project will provide, validate, and transition technology for explosives, propellants and pyrotechnics using materials and compositions that have low adverse environmental impact in production and demilitarization, will meet insensitive munitions requirements and will have no reduction to combat performance.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS: NOT APPLICABLE

2. (U) FY 2001 PLAN:

- (U) (\$1.982) Continue the evaluation and demonstration of solventless processing of explosive molding powder. Demonstrate the recycle, recovery and reuse of hydrolyzable rocket propellant formulations. Identify and evaluate low cost thermoplastic elastomer binders. Evaluate properties of reclaimed energetic ingredients for use in Navy explosives and propellants. Evaluate and predict the environmental impact and associated life cycle costs for energetic materials and processes.

3. (U) FY 2002 PLAN: NOT APPLICABLE

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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA4	PROGRAM ELEMENT NAME AND NUMBER Conventional Munitions/0603609N	PROJECT NAME AND NUMBER ENVIRONMENTALLY SAFE ENERGETIC MATERIALS / S2611
<p>B. (U) OTHER PROGRAM FUNDING SUMMARY: NOT APPLICABLE</p> <p>(U) RELATED RDT&E:</p> <p>(U) PE 0601153N (Defense Research Sciences) (U) PE 0602111N (Surface/Aerospace Surveillance and Weapons Technology) (U) PE 0602314N (Undersea Surveillance and Weapons Technology) (U) PE 0602315N (MCM, Mining and Special Warfare Technology) (U) PE 0603216N (Aviation Survivability) Project W0592 Aircraft and Ordnance Safety (U) PE 0604603N (Unguided Conventional Air-launched Weapons)</p> <p>C. (U) ACQUISITION STRATEGY: NOT APPLICABLE</p> <p>D. (U) SCHEDULE PROFILE: NOT APPLICABLE</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 / BA4			Conventional Munitions/0603609N				ENVIRONMENTALLY SAFE ENERGETIC MATERIALS / S2611						
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	
Technology Development	WR	NSWC IH DIV	0	0.903	0.000	02/00	1.977	10/00	0.000	NA	0.000	2.880	NA
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				0.903	0.000		1.977			0.000	0.000	2.880	
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		
Remarks: Categories do not apply.													

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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 / BA4			Conventional Munitions/0603609N			ENVIRONMENTALLY SAFE ENERGETIC MATERIALS / S2611						
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			0.000			0.000						
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
<p>Remarks: This project, S2611, Environmentally, is a Non-ACAT program and a FY 99 Congressional plus-up. As such no formal, separate developmental or operational test and evaluation plans or efforts are included. Formal DT and OT is conducted once the concepts developed are transitioned to weapon development and product improvement programs.</p>												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support	WR	NSWC IH DIV	0.065	0.000	02/00	0.000	10/00	0.000	NA	0.000	0.065	
Travel						0.005	10/00				0.005	
Labor (Research Personnel)												
Overhead												
Subtotal Management			0.065	0.000		0.005		0.000		0.000	0.070	
<p>Remarks:</p>												
Total Cost			0.968	0.000		1.982		0.000		0.000	2.950	
<p>Remarks:</p>												

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Exhibit R-3, Project Cost Analysis
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