

CLASSIFICATION:	UNCLASSIFIED
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EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION	DATE May 2009
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APPROPRIATION/BUDGET ACTIVITY RD TEN/BA 5			R-1 ITEM NOMENCLATURE 0604610N/LIGHTWEIGHT TORPEDO DEVELOPMENT				
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Total PE Cost	26.293	52.103	21.105				
2234 / Lightweight Hybrid Torpedo	26.293	50.507	21.105				
9999 / CONGRESSIONAL ADDS	0.000	1.596	0.000				

A. MISSION DESCRIPTION:

Lightweight Torpedo / 2234: The program designs, integrates and tests the Lightweight Torpedo (LWT, MK54). The Lightweight Torpedo provides performance improvements in shallow water, counter-measure environments. The Engineering Development Model (EDM) contract was awarded to Raytheon Systems Company in June 1996. The EDM contract has delivered twenty-one EDM units to support the in-water test program. Initial Operating Capability (IOC) achieved in 2004.

FY08: Continued development of hardware/software improvements for MK54 Pre-Planned Product Improvement (P3I) program including MK54 VLA Integration and development of the new array. Initiated development of MK54 high altitude launch capability from Maritime Patrol Aircraft (MPA).

(MPA).FY09: Continue development of hardware/software improvements for P3I program. Continue development of MK54 high altitude launch capability from Maritime Patrol Aircraft.

(MPA).FY10:Continue development of hardware/software improvements for P3I program. Continue development of MK54 high altitude launch capability from Maritime Patrol Aircraft.

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2008	FY 2009	FY 2010
FY09 President's Budget	26.502	50.732	35.311
FY10 President's Budget	26.293	52.103	21.105
Total Adjustments	-0.209	1.371	-14.206
(U) Summary of Adjustments			
Congressional Rescissions	0.000	0.000	0.000
Congressional Adjustments	0.000	1.458	0.000
SBIR/STTR/FTT Assessment	0.000	0.000	0.000
Program Adjustments	-0.209	0.000	-9.108
Rate/Misc Adjustments	0.000	-0.087	-5.098
Total	-0.209	1.371	-14.206

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EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY RDTEN/BA 5		PROGRAM ELEMENT NUMBER AND NAME 0604610N/LIGHTWEIGHT TORPEDO DEVELOPMENT			PROJECT NUMBER AND NAME 2234/Lightweight Hybrid Torpedo		
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Project Cost	26.293	50.507	21.105				
RDT&E Articles Qty	1	0	8				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Lightweight Torpedo / 2234: The program designs, integrates and tests the Lightweight Torpedo (LWT, MK54). The Lightweight Torpedo provides performance improvements in shallow water, counter-measure environments. The Engineering Development Model (EDM) contract was awarded to Raytheon Systems Company in June 1996. The EDM contract has delivered twenty-one EDM units to support the in-water test program. Initial Operating Capability (IOC) achieved in 2004. FY10 delivery includes four Proof of Design/Proof of Manufacturing (POD/POM) and four EDM units of the new array.

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EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION							DATE May 2009	
APPROPRIATION/BUDGET ACTIVITY RD TEN/BA 5		PROGRAM ELEMENT NUMBER AND NAME 0604610N/LIGHTWEIGHT TORPEDO DEVELOPMENT			PROJECT NUMBER AND NAME 2234/Lightweight Hybrid Torpedo			
B. ACCOMPLISHMENTS/PLANNED PROGRAM:								
		FY 2008		FY 2009		FY 2010		
MK54 Pre-Planned Product Improvement (incl.MK54 VLA Integr & HAAWC prog)		26.293		50.507		21.105		
RDT&E Articles Quantity		1		0		8		
<p>FY 2008 Plan:</p> <p>Continued development of P3I Program hardware/software improvements for Block Upgrade (BUG)/Classifier and Track (CAT) and Advanced Processor Build (APB) (\$9.360M).</p> <p>Continued development of P3I Program hardware/software for the new array (\$9.834M).</p> <p>Initiated development of MK54 high altitude launch capability from Maritime Patrol Aircraft (MPA) (\$6.434M).</p> <p>Conducted Developmental Testing (DT) of VLA54 and completed development of VLA Integration Kit. (\$0.665M).</p> <p>FY 2009 Plan:</p> <p>Continue development of hardware/software improvements for P3I program BUG/CAT and APB (\$10.477M).</p> <p>Continue development of P3I Program hardware/software for the new array (\$18.680M).</p> <p>Continue development of MK54 high altitude launch capability from Maritime Patrol Aircraft (MPA) (\$21.000M).</p> <p>Conduct Operational Testing (OT) of VLA54 (\$0.350M).</p> <p>FY 2010 Plan:</p> <p>Continue development of hardware/software improvements for P3I program BUG/CAT and APB (\$5.294M).</p> <p>Continued development of P3I Program hardware/software for the new array (\$3.811M).</p> <p>Continue development of MK54 high altitude launch capability from Maritime Patrol Aircraft (MPA) (\$12.000M).</p>								
C. OTHER PROGRAM FUNDING SUMMARY:								
Line Item No. and Name		FY 2008	FY 2009	FY 2010				
Torpedo MK 46 MODS- BLI WPN 3215		84.924	58.708	94.159				
D. ACQUISITION STRATEGY:								
<p>The EDM contract is held by Raytheon Systems Company. The contract was awarded as a Cost-Plus-Award Fee in June 1996 and was converted to Cost-Plus-Incentive Fee in December 1998. Sole Source Production Contract awarded in FY 2004 for MK48 ADCAP MODS/CBASS and MK54 Lightweight Torpedoes.</p> <p>P3I spiral acquisition strategy is to award EDM contracts among qualified producers.</p>								

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EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY RDTEN/BA 5	PROGRAM ELEMENT NUMBER AND NAME 0604610N/LIGHTWEIGHT TORPEDO DEVELOPMENT	PROJECT NUMBER AND NAME 2234/Lightweight Hybrid Torpedo
<p>E. MAJOR PERFORMERS:</p> <p>Naval Undersea Warfare Center (NUWC), Newport: MK54 System Engineering, System Integration, Software development, and Hardware Engineering development.</p> <p>Naval Undersea Warfare Center (NUWC), Keyport: MK 54 Torpedo preparation for in-water testing and safety and environmental engineering including Fleet Exercise Section and Automatic Test Equipment. VLA: System Engineering and Integration.</p> <p>Naval Surface Warfare Center (NSWC) Indian Head: Warhead Development for torpedoes and VLA rocket motors.</p> <p>PEO-IWS 3, Dahlgren: VLA Integration: MK41 Vertical Launching System (VLS) Systems Integration and software development.</p> <p>PEO-IWS 5, Dahlgren: VLA Integration: ASW Fire Control system integration and software development.</p> <p>PMA 290: Development of MK54 high altitude launch capability.</p> <p>Progeny Systems: MK54 Hardware Development for array technology.</p> <p>Lockheed Martin - Akron: System Engineering for VLA integration.</p> <p>Contractor TBD - to support hardware development for High Altitude Anti-submarine Weapon Concept (HAAWC)</p>		

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EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS								DATE			
								May 2009			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME					
RD TEN/BA 5		0604610N/LIGHTWEIGHT TORPEDO DEVELOPMENT				2234/Lightweight Hybrid Torpedo					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost (\$000)	FY 2009 Cost (\$000)	FY 2009 Award Date	FY 2010 Cost (\$000)	FY 2010 Award Date				
Hardware Development	WR	NUWC Newport/Keyport	17.263	9.419	OCT-08	2.465	OCT-09				
Hardware Development	C/CPAF	Raytheon	3.530	0.000		0.000					
Hardware Development	WR	NSWC Indian Head	0.282	0.200	OCT-08	0.200	OCT-09				
Systems Engineering	WR	NUWC Newport/Keyport	12.492	1.674	OCT-08	2.894	OCT-09				
Systems Engineering	SS/FP	Lockheed Martin - Akron - VLA	2.501	0.000		0.000					
Systems Engineering	WR	PEO-IWS 3, Dahlgren	2.882	0.000		0.000					
Systems Engineering	WR	PEO-IWS 5, Dahlgren	2.013	0.250	OCT-08	0.000					
Systems Engineering	WR	NSWC PMA 290	1.275	3.361	OCT-08	0.555	OCT-09				
Systems Engineering	WR	NAWCWD China Lake	0.379	0.000		0.000					
Systems Engineering	SS/FP	SPA Inc.	0.590	0.000		0.000					
Hardware Development	SS/FP	Progeny Systems	15.662	5.511	JUN-09	0.000					
Hardware Development	C/CPAF	TBD for HAAWC	1.192	16.246	OCT-08	6.900	OCT-09				
Software Development	WR	NUWC Newport/Keyport	2.930	6.657	OCT-08	3.667	OCT-09				
Systems Engineering	WR	Naval Operational Logistics Support Center (NOLSC)	0.025	0.000		0.000					
Subtotal Product Development			63.016	43.318		16.681					
Remarks:											
System Test & Evaluation	WR	NUWC Newport/Keyport	14.543	4.822	OCT-08	3.824	OCT-09				
Subtotal Support Costs			14.543	4.822		3.824					
Remarks:											
System Test and Evaluation	WR	OPTEVFOR	0.400	0.700	OCT-08	0.150	OCT-09				
System Test and Evaluation	WR	NUWC Newport/Keyport	11.353	1.200	OCT-08	0.000					
Subtotal Test and Evaluation			11.753	1.900		0.150					
Remarks:											
Program Management Support	Various	Alion Science	1.001	0.409	OCT-07	0.400	OCT-09				
Travel	WR	NAVSEA	0.134	0.058	OCT-08	0.050	OCT-09				
Subtotal Management Services			1.135	0.467		0.450					

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EXHIBIT R-3
RDT&E PROJECT COST ANALYSIS

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EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS							DATE May 2009			
APPROPRIATION/BUDGET ACTIVITY RD TEN/BA 5		PROGRAM ELEMENT NUMBER AND NAME 0604610N/LIGHTWEIGHT TORPEDO DEVELOPME			PROJECT NUMBER AND NAME 2234/Lightweight Hybrid Torpedo					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost (\$000)	FY 2009 Cost (\$000)	FY 2009 Award Date	FY 2010 Cost (\$000)	FY 2010 Award Date			
Remarks:										
Subtotal System Engineering			0.000	0.000		0.000				
Remarks:										
Total Cost			90.447	50.507		21.105				

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EXHIBIT R-3
RDT&E PROJECT COST ANALYSIS

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EXHIBIT R-4, SCHEDULE PROFILE

DATE

May 2009

APPROPRIATION/BUDGET ACTIVITY

PROGRAM ELEMENT NUMBER AND NAME

PROJECT NUMBER AND NAME

RD TEN/BA 5

0604610N/LIGHTWEIGHT TORPEDO DEVELOPMENT

2234/Lightweight Hybrid Torpedo

	FY08	FY09	FY10
MK54 Pre-Planned Product Improvement (P3I)	VLA54		TI-1 UPGRADE/ARRAY
HARDWARE SPIRALS	▲		▲
SOFTWARE UPGRADES			→
DT/OT	VLA54 DT	VLA54 OT	→
HIGH ALTITUDE CAPABILITY	▲		→

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EXHIBIT R-4a, SCHEDULE DETAIL						DATE May 2009	
APPROPRIATION/BUDGET ACTIVITY RD TEN/BA 5		PROGRAM ELEMENT NUMBER AND NAME 0604610N/LIGHTWEIGHT TORPEDO DEVELOPMENT			PROJECT NUMBER AND NAME 2234/Lightweight Hybrid Torpedo		
Schedule Profile		FY 2008	FY 2009	FY 2010			
MK54 Development & Upgrades							
MK54 Pre-Planned Product Improvement (P3I)							
Hardware Spirals		1Q-4Q	1Q-4Q	1Q-4Q			
VLA Kit Integration delivery		3Q					
TI-1 Upgrade/Array delivery				4Q			
Software Upgrades		1Q-4Q	1Q-4Q	1Q-4Q			
DT/OT		1Q	2Q-3Q				
High Altitude Capability		1Q-4Q	1Q-4Q	1Q-4Q			

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EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION				DATE May 2009
APPROPRIATION/BUDGET ACTIVITY RDTEN/BA 5	PROGRAM ELEMENT NUMBER AND NAME 0604610N/LIGHTWEIGHT TORPEDO DEVELOPMENT	PROJECT NUMBER AND NAME 9D89A/Torpedo Composite Homing Array		
B. ACCOMPLISHMENTS/PLANNED PROGRAM:				
		FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost		0.000	1.596	0.000
RDT&E Articles Quantity		0	0	0
FY09 Plan: Initiate development of Torpedo Composite Homing Array (\$1.596M)				