

CLASSIFICATION:		UNCLASSIFIED					
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY RDTEN/BA 5		R-1 ITEM NOMENCLATURE 0604610N/LIGHTWEIGHT TORPEDO DEVELOPMENT					
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	33.047	26.502	50.732	35.311	20.766	21.899	22.330
2234 / Lightweight Hybrid Torpedo	33.047	26.502	50.732	35.311	20.766	21.899	22.330

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.

FY2007: Continued development of hardware/software improvements for Pre-Planned Product Improvement (P3I) program. Completed Mk54High Altitude ASW Weapons Concept (HAAWC) Demo. FY08: Continue development of hardware/software improvements for P3I program. Initiate development of MK54 high altitude launch capability from Maritime Patrol Aircraft (MPA). FY09:Continueddevelopment of hardware/software improvements for P3I program. Continue development of MK54 high altitude launch capability from Maritime Patrol Aircraft (MPA).

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EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)

DATE

February 2008

**APPROPRIATION/BUDGET ACTIVITY
RDTEN/BA 5**

**R-1 ITEM NOMENCLATURE
0604610N/LIGHTWEIGHT TORPEDO DEVELOPMENT**

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
FY2008 President's Budget	40.387	27.056	41.277
FY2009 President's Budget	33.047	26.502	50.732
Total Adjustments	-7.340	-0.554	9.455
Summary of Adjustments:			
Program Adjustments		0.000	9.700
Pricing Adjustment			0.042
Small Business Innovation Research (SBIR)	-1.022		
Undistributed General Reductions	-6.318	-0.554	-0.287
Subtotal:	-7.340	-0.554	9.455
Schedule:			
P5 Upgrade/Array moved to FY10 to align testing program with the Nose Array efforts to reduce testing costs. APB/ Spiral 5 added to FY13 to align with Heavyweight Torpedo commonality efforts.			
Technical:			
FY07: Loss of funds impacts the High Altitude Anti-Submarine Weapons Capability (HAAWC) development program by causing a delay of 1 year. FY09: Additional funding will fund new array development.			

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
Torpedo MK 46 MODS / MK54 MODS 0 (WPN / PE 0204228N / BA3 / BLI 321500)	85.560	84.942	77.782	165.006	167.159	177.338	175.697		

D. ACQUISITION STRATEGY:

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.

P3I spiral acquisition strategy is to award EDM contract's among qualified producers.

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APPROPRIATION/BUDGET ACTIVITY RDTEN/BA 5	R-1 ITEM NOMENCLATURE 0604610N/LIGHTWEIGHT TORPEDO DEVELOPMENT	
<p>E. MAJOR PERFORMERS: NUWC, Newport: MK54 System Engineering, System Integration, Software development, and Hardware Engineering development. 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. NSWC Indian Head: Warhead Development for torpedoes and VLA rocket motors. PEO-IWS 3, Dahlgren: VLA Integration: MK41 Vertical Launching System (VLS) Systems Integration and software development. PEO-IWS 5, Dahlgren: VLA Integration: ASW Fire Control system integration and software development. PMA 290: Development of MK54 high altitude launch capability. Lockheed Martin - Orlando: Development of MK54 high altitude launch capability. Progeny Systems: MK54 Hardware Development for array technology. Lockheed Martin - Akron: System Engineering for VLA integration.</p>		

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EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
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 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	33.047	26.502	50.732	35.311	20.766	21.899	22.330
RDT&E Articles Qty	0	1	0	2	0	0	2

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.

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EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION				DATE February 2008
APPROPRIATION/BUDGET ACTIVITY RDTEN/BA 5	PROGRAM ELEMENT NUMBER AND NAME 0604610N/LIGHTWEIGHT TORPEDO DEVELOPMENT	PROJECT NUMBER AND NAME 2234/Lightweight Hybrid Torpedo		
B. ACCOMPLISHMENTS/PLANNED PROGRAM:				
		FY 2007	FY 2008	FY 2009
MK54 Pre-Planned Product Improvement (incl.MK54 VLA Integr & HAAWC prog)		33.047	26.502	50.732
RDT&E Articles Quantity		0	1	0
FY 2007 Accomplishments:				
Continued MK54 Pre-Planned Product Improvement (P3I) hardware spiral development for the MK54 torpedo and Vertical Launch Anti-Submarine Rocket (ASROC) (VLA). The VLA efforts included hardware design, developed prototypes, hardware/software integration, and launched system integration. The MK54 torpedo effort included Torpedo Downloader System (TDS), Insensitive Munitions (IM) capability improvement, and MK54 Array replacement.				
Continued software upgrades development efforts; software development to include coding, and modeling and simulation.				
Completed High Altitude ASW Weapons Concept (HAAWC) Demo.				
FY 2008 Plan:				
Continue development of hardware/software improvements for P3I program.				
Initiate development of MK54 high altitude launch capability from Maritime Patrol Aircraft (MPA).				
Conduct DT/OT of VLA.				
Complete development of VLA Kit Integration.				
FY 2009 Plan:				
Continue development of hardware/software improvements for P3I program.				
Continue development of MK54 high altitude launch capability from Maritime Patrol Aircraft (MPA).				

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EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE		
										February 2008		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME					
RDTEN/BA 5		0604610N/LIGHTWEIGHT TORPEDO DEVELOPMENT					2234/Lightweight Hybrid Torpedo					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost (\$000)	FY 2007 Cost (\$000)	FY 2007 Award Date	FY 2008 Cost (\$000)	FY 2008 Award Date	FY 2009 Cost (\$000)	FY 2009 Award Date	Cost to Complete (\$000)	Total Cost (\$000)	Target Value of Contract
Hardware Development	WR	NUWC Newport/Keyport	2.818	11.522	OCT-06	11.608	OCT-07	21.985	OCT-08	CONT	CONT	0.000
Hardware Development	C/CPAF	Raytheon	1.412	2.118	JUN-07	0.000		0.000		CONT	CONT	0.000
Hardware Development	WR	NSWC Indian Head	0.062	0.050	OCT-06	0.000		0.000		CONT	CONT	0.000
Systems Engineering	WR	NUWC Newport/Keyport	9.175	2.590	OCT-06	3.664	OCT-07	12.746	OCT-08	CONT	CONT	0.000
Systems Engineering	SS/FP	Lockheed Martin - Akron - VLA	1.201	1.300	OCT-06	0.100	OCT-07	0.000		CONT	CONT	0.000
Systems Engineering	WR	PEO-IWS 3, Dahlgren	2.407	0.475	OCT-06	0.100	OCT-07	0.000		CONT	CONT	0.000
Systems Engineering	WR	PEO-IWS 5, Dahlgren	0.902	0.881	OCT-06	0.100	OCT-07	0.000		CONT	CONT	0.000
Systems Engineering	WR	NSWC PMA 290	0.000	0.600	OCT-06	0.675	OCT-07	3.361	OCT-08	CONT	CONT	0.000
Systems Engineering	WR	NAWCWD China Lake	0.379	0.000		0.000		0.000		0.000	211.379	0.000
Systems Engineering	WR	NOLSC	0.000	0.025	OCT-06	0.000		0.000		0.000	0.025	0.000
Hardware Development	SS/FP	Progeny Systems	0.000	8.912	AUG-07	1.820	JUN-08	7.130	JUN-09	CONT	CONT	0.000
Subtotal Product Development			18.356	28.473		18.067		45.222		CONT	CONT	0.000
Remarks:												
System Test & Evaluation	WR	NUWC Newport/Keyport	6.690	3.180	OCT-06	7.299	OCT-07	4.085	OCT-08	CONT	CONT	0.000
Subtotal Support Costs			6.690	3.180		7.299		4.085		CONT	CONT	0.000
Remarks:												
System Test and Evaluation	WR	Operational Test Support	0.290	0.226	OCT-06	0.687	OCT-07	0.700	OCT-08	CONT	CONT	0.000
System Test and Evaluation	WR	NUWC Newport/Keyport	1.947	0.833	OCT-06	0.000		0.266	OCT-08	CONT	CONT	0.000
Subtotal Test and Evaluation			2.237	1.059		0.687		0.966		CONT	CONT	0.000
Remarks:												
Program Management Support	Various	Alion Science	0.397	0.285	MAY-07	0.399	OCT-07	0.409	OCT-07	CONT	CONT	0.000
Travel	WR	NAVSEA	0.033	0.050		0.050		0.050		CONT	CONT	0.000
Subtotal Management Services			0.430	0.335		0.449		0.459		CONT	CONT	0.000
Remarks:												
Total Cost			27.713	33.047		26.502		50.732		CONT	CONT	0.000

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EXHIBIT R-4, SCHEDULE PROFILE

DATE

February 2008

APPROPRIATION/BUDGET ACTIVITY

PROGRAM ELEMENT NUMBER AND NAME

PROJECT NUMBER AND NAME

RD TEN/BA 5

0604610N/LIGHTWEIGHT TORPEDO DEVELOPMENT

2234/Lightweight Hybrid Torpedo

	FY07	FY08	FY09	FY10	FY11	FY12	FY13
MK54 Development							
MK54 Pre-Planned Product Improvement (P3I)							
Hardware Spirals		VLA54 ▲		P5 UPGRADE/ARRAY ▲			
Software Upgrades				BLOCK UPGRADE APB SPIRAL 4	▲	APB / SPIRAL 5 COMMON	▲
DT/OT		VLA54 DT VLA54 OT ▲ ▲		APB/P5J DT/OT	▲		
Unmanned Surface Vehicle (USV)				▲	DEMO	▲	
High Altitude Capability	DEMO ▲	▲			DT ▲	OT ▲	IOC ▲

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EXHIBIT R-4a, SCHEDULE DETAIL						DATE February 2008		
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 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
MK54 Development & Upgrades								
MK 54 FOT&E								
MK54 Pre-Planned Product Improvement (P3I)								
Hardware Spirals		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Software Upgrades		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
DT/OT			1Q-2Q			1Q-4Q	1Q-4Q	1Q-4Q
Unmanned Surface Vehicle (USV) Demo					1Q-4Q	1Q-4Q	1Q-2Q	
High Altitude Capability Demo		1Q-3Q						
High Altitude Capability			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q