

CLASSIFICATION:

**UNCLASSIFIED**

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: <b>February 2000</b>			
APPROPRIATION/BUDGET ACTIVITY <b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY/BA-5</b>					R-1 ITEM NOMENCLATURE LIGHTWEIGHT TORPEDO DEVELOPMENT / 0604610N					
COST (\$ in Million:		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total PE Cost		8.952	9.245	9.347	8.772	4.014	3.664	1.668	CONT.	CONT.
Lightweight Hybrid Torpedo / V2234		8.952	9.245	9.347	8.772	4.014	3.664	1.668	CONT.	CONT.
Quantity of RDT&E Articles										
<p>A. (U) Mission Description and Budget Item Justification:                      The funding is to design, integrate and test the Lightweight Hybrid Torpedo (MK54 MOD 0). The torpedo will be comprised of hardware and software from the MK 46 Torpedo, MK50 Torpedo, and MK 48 ADCAP Torpedo. The Lightweight Hybrid Torpedo will provide performance improvements in shallow water, littoral, counter-measure filled environments. The Engineering Development Model (EDM) contract was awarded to Raytheon Systems Company (formerly Hughes Aircraft Company) in June 1996. Current contract to deliver twenty-one EDM units (delivery of test articles will be completed in early FY00) to support the in-water test program.</p> <p>FY 1999 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> <li>- (U) (\$2.321) Continued development and production of Ancillary Hardware, including Fleet Exercise Section (FES) and Automatic Test Equipment (ATE) to support LHT.</li> <li>- (U) (\$2.808) Continued development of tactical and signal processing software.</li> <li>- (U) (\$1.570) Conducted simulation and initiated in-water test program.</li> <li>- (U) (\$2.253) Performed Lightweight torpedo system engineering efforts.</li> </ul>										

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**Exhibit R-2, RDT&E Budget Item Justification**  
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APPROPRIATION/BUDGET ACTIVITY <b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY/BA-5</b>	R-1 ITEM NOMENCLATURE LIGHTWEIGHT TORPEDO DEVELOPMENT / 0604610N	
<p>FY 2000 PLAN:</p> <ul style="list-style-type: none"><li>- (U) (\$0.801) Continue development and production of Ancillary Hardware, including Fleet Exercise Section (FES) and Automatic Test Equipment (ATE) to support LHT.</li><li>- (U) (\$2.056) Continue development of tactical and signal processing software.</li><li>- (U) (\$4.026) Continue simulation and in-water developmental test program.</li><li>- (U) (\$2.362) Continue Lightweight torpedo system engineering efforts.</li><li>- (U) Note: \$0.018M represents that portion of the extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.</li></ul> <p>FY 2001 PLAN:</p> <ul style="list-style-type: none"><li>- (U) (\$0.668) Continue development and production of Ancillary Hardware, including Fleet Exercise Section (FES) and Automatic Test Equipment (ATE) to support LHT.</li><li>- (U) (\$1.557) Continue development of tactical and signal processing software.</li><li>- (U) (\$4.430) Continue simulation and in-water developmental test program.</li><li>- (U) (\$2.317) Continue Lightweight torpedo system engineering efforts.</li><li>- (U) (\$0.375) Support the LHT Command and Decision system software integration into DDG-51 class surface combatants.</li></ul>		

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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: <b>February 2000</b>						
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE							
<b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY/BA-5</b>	<b>LIGHTWEIGHT TORPEDO DEVELOPMENT / 0604610N</b>							
B. (U) Program Change Summary	FY 1999	FY 2000	FY 2001					
(U) FY 2000 President's Budget:	7.929	9.297	8.684					
(U) Appropriated Value:	8.106	9.297						
(U) Adjustment to FY 1999/2000 Appropriated Value/								
FY 2000 President's Budget:	0.846	-0.052	0.663					
(U) FY 2001 President's Budget Submit:	8.952	9.245	9.347					
Funding:								
FY99: Net increase of \$0.846M is due to a \$1.100M increase for FY99 Below Threshold Reprogramming (BTR) restoration of reprogrammed FY98 funds, a -\$0.235M decrease due to undistributed reductions, and a -\$0.019M decrease due to SBIR reduction.								
FY00: Net reduction of -\$0.052M is due to Congressionally directed across the board reduction.								
FY01: Net increase of \$0.663M due to a \$0.375M to support integration of LHT with DDG-51 class surface combatants, a \$0.058M decrease due to general undistributed reductions, and a \$0.346M increase due to Navy Working Capital Fund (NWCF) rate adjustments.								
Schedule: In-water engineering testing scheduled for third quarter FY99 was delayed two months to fourth quarter FY99 due to late receipt of contractor hardware necessary for engineering testing program. Engineering testing commenced in July 1999.								
Technical: Not applicable.								
C. Other Program Funding Summary (\$ in millions)								
	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	To Complete
Torpedo MK 46 MODS (WPN / PE 0204228N / BA3 / P-1 Item 321500)	0.015	28.593	7.141	27.387	34.411	37.124	38.680	CONT.
AN/SQQ-89(V) Surface ASW Combat Systems (OPN / PE 0204228N / BA2)								
Fire Control System Mods for MK54	23.177	31.736	14.291	23.283	39.712	58.570	63.454	CONT.
D. (U) Acquisition Strategy: The EMD contract is currently held by Raytheon Systems Company (formerly Hughes Aircraft Company). The contract was awarded as a Cost-Plus-Award Fee in June 1996 and was recently converted to Cost-Plus-Incentive Fee in December 1998.								

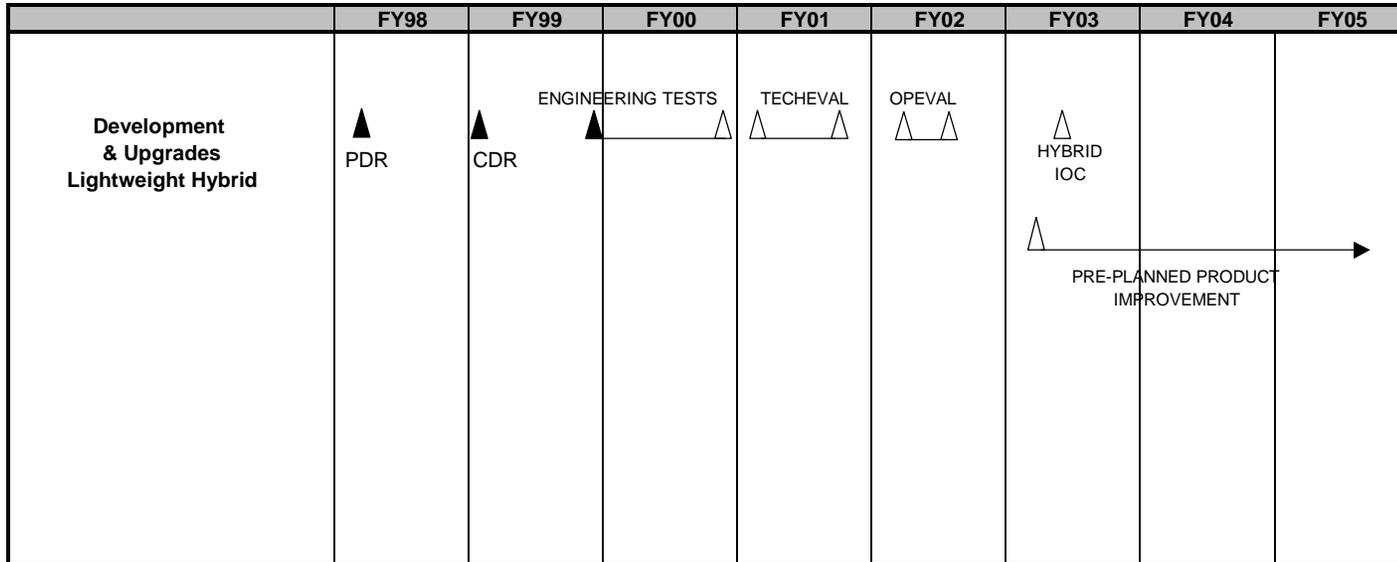
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EXHIBIT R-2, RDT&E Budget Item Justification	DATE: <b>February 2000</b>
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APPROPRIATION/BUDGET ACTIVITY <b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY/BA-5</b>	R-1 ITEM NOMENCLATURE LIGHTWEIGHT TORPEDO DEVELOPMENT / 0604610N
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E. Schedule Profile:



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**Exhibit R-2, RDT&E Budget Item Justification**  
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Exhibit R-3 Cost Analysis (page 1)							DATE: <b>February 2000</b>					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
<b>RDT&amp;E, N/BA-5</b>			<b>0604610N</b>			Lightweight Hybrid Torpedo / V2234						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 99 Cost	FY 99 Award Date	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C,CPIF	Raytheon Systems Compan	18.777	0.000		0.000	10/99	0.000	10/00	0.000	18.777	24.934*
Ancillary Hardware Development	WR	NUWC Newport/Keyport	CONT.	2.321	11/98	0.801	10/99	0.668	10/00	CONT.	CONT.	N/A
Systems Engineering	WR	NUWC Newport/Keyport	CONT.	1.738	11/98	1.832	10/99	1.757	10/00	CONT.	CONT.	N/A
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			CONT.	4.059		2.633		2.425		0.000	9.117	N/A
<p>Remarks: * A contract modification to the existing EMD contract was processed in December 1998 which exchanged \$6.1M (Consideration) for Government non-excess personal property (permitted under 40 USC 481 (C)). This exchange of non-excess torpedoes for consideration (\$6.1M) has been added to the current total cost of \$18.8M which increases the total estimated target value of the contract to \$24.9M.</p>												
Development Support Equipment											0.000	
Software Development	WR	NUWC Newport	CONT.	2.808	11/98	2.056	10/99	1.932	10/00	CONT.	CONT.	N/A
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Subtotal Support			CONT.	2.808		2.056		1.932		0.000	6.796	
<p>Remarks:</p>												

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**Exhibit R-3, Project Cost Analysis**  
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Exhibit R-3 Cost Analysis (page 2)								DATE: <b>February 2000</b>				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
<b>RDT&amp;E, N/BA-5</b>			<b>0604610N</b>			Lightweight Hybrid Torpedo / V2234						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 99 Cost	FY 99 Award Date	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	Cost to Complete	Total Cost	Target Value of Contract
System Test & Evaluation	WR	COMOPTEVFOR	CONT.	0.035	10/98	0.066	10/99	0.068	10/00	CONT.	CONT.	N/A
	WR	NUWC Newport/Keyport	CONT.	1.535	10/98	3.960	10/99	4.362	10/00	CONT.	CONT.	N/A
											0.000	
											0.000	
Subtotal T&E			CONT.	1.570		4.026		4.430		CONT.	CONT.	
Remarks: None.												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	Various	Various	CONT.	0.500	MISC.	0.500	MISC.	0.500	MISC.	CONT.	CONT.	
Travel			CONT.	0.015	MISC.	0.030	MISC.	0.030	MISC.	CONT.	CONT.	
Labor (Research Personnel)											0.000	
Overhead			CONT.	0.000	MISC.	0.000	MISC.	0.030	MISC.	CONT.	CONT.	
Subtotal Management			CONT.	0.515		0.530		0.560		CONT.	CONT.	
Remarks: None.												
Total Cost			CONT.	8.952		9.245		9.347		CONT.	CONT.	
Remarks:												

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**Exhibit R-3, Project Cost Analysis**  
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