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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Navy **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY			R-1 ITEM NOMENCLATURE								
1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 6: <i>RDT&E Management Support</i>			PE 0604258N: <i>Target Systems Development</i>								
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	72.110	66.066	44.700	-	44.700	41.374	37.117	38.049	38.623	Continuing	Continuing
0609: <i>Aerial Target System Dev</i>	53.628	49.456	33.252	-	33.252	18.364	12.834	13.139	13.342	Continuing	Continuing
0610: <i>Wpn Sys T&E Trng Dev/Proc</i>	17.312	15.190	10.067	-	10.067	21.609	22.850	23.447	23.791	Continuing	Continuing
0612: <i>Surface Targets Development</i>	1.170	1.420	1.381	-	1.381	1.401	1.433	1.463	1.490	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element funds the development and procurement of aerial targets, sea surface targets, control systems, and associated Target Augmentation and Auxiliary Systems needed to represent real world threat systems. These capabilities are key enablers to the successful execution of the developmental and operational test and evaluation of naval combat weapons systems and to the satisfaction of advanced fleet training requirements.

B. Program Change Summary (\$ in Millions)

	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	79.273	66.066	52.874	-	52.874
Current President's Budget	72.110	66.066	44.700	-	44.700
Total Adjustments	-7.163	-	-8.174	-	-8.174
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-4.500	-			
• SBIR/STTR Transfer	-2.292	-			
• Program Adjustments	-	-	-7.583	-	-7.583
• Section 219 Reprogramming	-0.369	-	-	-	-
• Rate/Misc Adjustments	-	-	-0.591	-	-0.591
• Congressional General Reductions Adjustments	-0.002	-	-	-	-

Change Summary Explanation

Technical: Not applicable.
Schedule: Not applicable.

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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
0609: <i>Aerial Target System Dev</i>	53.628	49.456	33.252	-	33.252	18.364	12.834	13.139	13.342	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Aerial target systems, Target Control (TC), and associated Target Augmentation and Auxiliary Systems (TA/AS) are developed to support test & evaluation and advanced fleet training for Joint Strike and Littoral Warfare Systems required to defend fleet surface and air units in a hostile environment.

This project includes

- Subsonic Targets. Subsonic Aerial Target (SSAT) development. The SSAT primarily represents subsonic anti-ship cruise missile threats in direct support of the test & evaluation (T&E) of major combat weapons systems programs and fleet training.
- Supersonic Targets. Supersonic Sea Skimming Target (SSST), Multi-Stage Supersonic Target (MSST), and supersonic high-diver capability development. The family of supersonic target capabilities represents supersonic anti-ship cruise missile threats in direct support of Developmental Test and Evaluation (DT&E), Operational Test and Evaluation (OT&E) and Live Fire Test and Evaluation of major combat weapons systems programs in development.
- TC and TA/AS development. TC provides command and control of targets to enable the execution of threat representative mission profiles. TA/AS enables each target to be uniquely configured for specific mission profiles. TA/AS-configured targets are used for radar acquisition test, electronic countermeasures (jamming) evaluation, infrared measurement and testing, radar cross section evaluation, decoy effectiveness testing, maneuver analysis, electronic warfare evaluation, warhead effectiveness testing and evaluation of fleet tactics. TA/AS scoring capabilities include both surface and airborne scalar and vector scoring systems.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2010	FY 2011	FY 2012
Title: Supersonic Targets	39.864	29.207	16.387
Articles:	0	0	0
Description: MSST emulates a two-stage anti-ship cruise missile. The MSST will have a bus stage that will tumble and fall into the sea, and a sprint stage that continues flight to impact. The fielded system will provide threat representation in support of DT&E and OT&E and will identify deficiencies in shipboard air defense systems. Funding will continue GQM-163 SSST upgrades/ evolutionary development to keep pace with evolving threat characteristics. Efforts include continuing to establish operational capability at Pacific Missile Range Facility, developing performance envelope characteristics to include flight termination performance, and continuing development of high-diver capability.			
FY 2010 Accomplishments: Held the program's Systems Functional Review. Held the program's Systems Software Review. Held the program's Preliminary Design Review (PDR). Participated in the Technology Assessment Review. Held quarterly Program Management Reviews (PMRs) and quarterly Schedule Risk Assessments (SRAs).			
FY 2011 Plans:			

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
<p>Test the Engineering Evaluation Unit #2 and hold the program's Critical Design Review. Begin T&E training, conduct the program's Integrated Readiness Review, conduct the program's Test Readiness Review, hold quarterly PMRs, and hold quarterly SRAs.</p> <p>FY 2012 Plans: Conduct Flight Readiness Review and conduct Engineering Development Model Test Flights One through Three. Conduct Integrated Logistics Assessment and conduct rocket motor qualifications. Conduct quarterly PMRs and hold quarterly SRAs. Develop Low Rate Initial Production Request For Proposals (RFP) package.</p>				
<p>Title: Subsonic Targets</p> <p align="right">Articles:</p> <p>Description: Continue SSAT development to keep pace with evolving threat requirements. Incorporate configuration control requirements into RFP and the System Engineering Plan. Conduct source selection for the Engineering and Manufacturing Development (EMD) phase. Manage the execution of the EMD phase and conduct and support reviews and development decisions.</p> <p>FY 2010 Accomplishments: Released RFP, conducted source selection. Award steps not completed in FY10 due to additional time required to perform the technical evaluation.</p> <p>FY 2011 Plans: Will award development contract. Conduct EMD. Conduct PDR. Commence effort on Developmental Test I.</p> <p>FY 2012 Plans: Conduct EMD.</p>		7.407 0	13.300 0	11.316 0
<p>Title: TC and TA/AS</p> <p align="right">Articles:</p> <p>Description: Continue to support TC and TA/AS capable of supporting T&E and fleet training activities. TC involves the improved command and control systems capable of controlling multiple targets simultaneously while delivering adequate fidelity of T&E telemetry data. Augmentation and Auxiliary systems must be capable of augmenting targets in support of radar acquisition test, electronic countermeasures (jamming) evaluation, infrared measurement/test, radar cross section evaluation, decoy effectiveness, maneuver analysis, electronic warfare, warhead effectiveness and evaluation of fleet tactics, readiness and training.</p> <p>FY 2010 Accomplishments:</p>		6.357 0	6.949 0	5.549 0

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Awarded Filthy Buzzard Advanced Digital Radio Frequency Modulator (DRFM) by using a Phase III Small Business Innovative Research contract for first article development quantities. Continued Measure and Set System development and subscale aerial target integration. Initiated Millimeter Wave (MMW) Offboard System - development of two prototypes planned. FY 2011 Plans: Filthy Badger DRFM - incremental upgrade planned. MMW Threat Emitter - development of two prototypes planned. MMW Antennas - development of two prototypes planned for each of the six different types required. Ongoing intelligence gathering and exploitation will be accomplished. FY 2012 Plans: Filthy Badger DRFM - continue incremental upgrade efforts. E-F Band Radio Frequency Deck - development of two prototypes planned. Dual Band System - development of two prototypes planned. Continue Millimeter Wave Threat Emitter development. Ongoing intelligence gathering and exploitation will be accomplished.			
Accomplishments/Planned Programs Subtotals	53.628	49.456	33.252

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u> <u>Base</u>	<u>FY 2012</u> <u>OCO</u>	<u>FY 2012</u> <u>Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• WPN 22800: <i>Aerial Targets</i>	47.549	43.988	46.359	0.000	46.359	85.296	70.544	71.924	73.117	Continuing	Continuing
• WPN 612020: <i>Spares and Repair Parts</i>	0.820	1.422	1.072	0.000	1.072	1.560	1.485	1.560	1.583	Continuing	Continuing

D. Acquisition Strategy
N/A

E. Performance Metrics

EFFORT	PERFORMANCE REQUIREMENT	OBJECTIVE	THRESHOLD	TEST RESULT
SSAT	Maximum Speed at Low Altitude	0.95 M @ 6.6 ft @	0.90 M @10.0 ft @	TBD
EMD	[Mach (M) at feet (ft) above wave	Sea State 5	Sea State 3	

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program	crest at WMO Sea State conditions]				
MSST EMD	Speed of separated sprint vehicle	Mach 2.2 to Mach 3.5	Threshold=Objective	TBD	
TC-TA/AS TTSP	Microwave power module - Second Source	100 Watts output power	Threshold=Objective	TBD	

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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
0610: <i>Wpn Sys T&E Trng Dev/Proc</i>	17.312	15.190	10.067	-	10.067	21.609	22.850	23.447	23.791	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project provides for the development and procurement of aerial targets and associated systems used exclusively for test and evaluation of naval weapons systems which closely represent current and projected threats to fleet units in the Joint Strike and the Littoral Warfare environments. These representations must include characteristics related to size, performance envelope, and electromagnetic and infrared signatures. As threats change, changes must be made to keep the targets threat representative in response to changes in the test requirements of the developers of naval weapons systems.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2010	FY 2011	FY 2012
<p>Title: Air Superiority Target (AST)</p> <p align="right">Articles:</p> <p>Description: The AST is being developed as the follow-on to the current Full Scale Aerial Target (FSAT). The AST will be a supersonic, high altitude, remote-controlled aerial target. This target will have full command and control capability through normal flight maneuvers.</p> <p>FY 2010 Accomplishments: Engineering and Manufacturing (EMD) contract has been awarded and development begun.</p> <p>FY 2011 Plans: Continue conduct of EMD.</p> <p>FY 2012 Plans: Continue conduct of EMD.</p>	<p>6.500</p> <p>0</p>	<p>4.000</p> <p>0</p>	<p>7.442</p> <p>0</p>
<p>Title: QF-4 FSAT</p> <p align="right">Articles:</p> <p>Description: The FSAT is a supersonic, high altitude, remote-controlled aerial target. This target has full command and control capability through normal flight maneuvers. The continued program will include engineering and logistics support for the FSAT, including Aviation Depot Level Repairables, procurement of kit material and conversion of F-4 aircraft into FSAT targets (QF-4). QF-4 procurements support aircraft and weapons systems testing and development, including that of the Joint Strike Fighter, AIM-9X Sidewinder missile, Advanced Medium-Range Air-to-Air Missile, and Standard Missile 6.</p> <p>FY 2010 Accomplishments:</p>	<p>9.772</p> <p>0</p>	<p>9.894</p> <p>0</p>	<p>2.625</p> <p>0</p>

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)				FY 2010
				FY 2011
				FY 2012
<p>FY 2010 QF-4 Target procurement has been reduced to a quantity of two because of significant unit cost increases primarily in the contract for conversion to robotic operation. Project Order was issued for organic effort, commercial contract award made and effort begun.</p> <p>FY 2011 Plans: Plan to maintain and operate the fielded inventory earmarked for the Navy. Plan to procure two QF-4 aircraft targets versus previously-planned due to unit cost increases.</p> <p>FY 2012 Plans: Plan to maintain and operate the fielded inventory earmarked for the Navy.</p>				
<p>Title: Target Augmentation and Auxilary Systems (TA/AS) and Scoring Systems</p> <p align="right">Articles:</p> <p>Description: Continue to support Target Control (TC) and TA/AS capable of supporting T&E activites. TC involves the improved command and control systems capable of controlling multiple targets simultaneously while delivering adequate fidelity of T&E telemetry data. TA/AS must be capable of augmenting targets in support of radar acquisition testing, infrared measurement and test, decoy effectiveness testing, maneuver analysis, warhead effectiveness testing, and evaluation of fleet tactics. Scoring systems include both surface and airborne scalar and vector scoring.</p> <p>FY 2010 Accomplishments: Planned to complete the design/development, First Article Testing, and Qualification Testing for the telemetry antenna on the Multi-Stage Supersonic Target (MSST).</p> <p>FY 2011 Plans: Continue pursuing alternative test set repair sources.</p>				<p>1.040</p> <p>0</p>
				<p>1.296</p> <p>0</p>
				<p>-</p>
Accomplishments/Planned Programs Subtotals				<p>17.312</p>
				<p>15.190</p>
				<p>10.067</p>
C. Other Program Funding Summary (\$ in Millions)				
N/A				
D. Acquisition Strategy				
N/A				
E. Performance Metrics				
EFFORT	PERFORMANCE REQUIREMENT	OBJECTIVE	THRESHOLD	TEST RESULT

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QF-4 Full Scale Target	Flight Termination Sys.- Reliable & effective auto & manual failsafe fast destruct, orbit destruct, & destruct receiver capability	Achieve requirement	Threshold=objective	Satisfactory
AST - Air Superiority Target (QF-16)	Capable of carrying, operating and monitoring required payloads	Achieve requirement	Threshold=objective	TBD

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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
0612: <i>Surface Targets Development</i>	1.170	1.420	1.381	-	1.381	1.401	1.433	1.463	1.490	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project develops seaborne targets and their related target augmentation systems in support of air-to-surface and surface-to-surface weapons test and evaluation and fleet training.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2010	FY 2011	FY 2012
Title: Surface Targets Development	1.170	1.420	1.381
Articles:	0	0	0
FY 2010 Accomplishments:			
Created, tuned, and tested navigation algorithms and modes for SeaCAN targets, including waypoint modes and formation control.			
Monitored developments in Command & Control (C2)			
Reviewed capabilities of inventory with regard to threat, weapons test schedules and Fleet training requirements.			
Re-baselined Radar Cross Section (RCS) for High Speed Maneuverable Seaborne Target and Ship Deployable Seaborne Target (SDST) with augmentation			
Developed packages to tailor RCS			
Developed a realistic human target, including InfraRed (IR) signature and vulnerability			
Performed signature characterization of all powered targets, including IR and Electro-Optical regimes			
Investigated building tow targets from polyethylene			
Developed deployable tow for SDST			
Developed steerable tow as force multiplier			
FY 2011 Plans:			
Monitor developments in C2			
Portable C2 Unit (PCCU) software baseline update and testing			
Review capabilities of inventory with regard to threat, weapons test schedule and fleet training requirements			
Rebaseline RCS for various powered and towed targets with augmentation			
Develop packages to tailor RCS			
Realistic human target, including IR signature and vulnerability testing			
Small baseline HARPOON target development and testing			

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Real-time target sea state measurement and operator feedback SeaCAN printed circuit boards obsolete replacement Polyethylene tow target testing Deployable tow target testing and offset tow target testing			
<i>FY 2012 Plans:</i> Monitor developments in C2 PCCU software baseline update and testing Review capabilities of inventory with regard to threat, weapons test schedules and fleet training requirements Re-baseline RCS for various powered and towed targets with augmentation Develop packages to tailor RCS Develop signature management techniques to address evolving threats			
Accomplishments/Planned Programs Subtotals	1.170	1.420	1.381

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• OPN/5455: ASW Range SE	7.234	7.121	7.842	0.000	7.842	9.038	7.994	7.129	7.275	0.000	53.633

D. Acquisition Strategy
N/A

E. Performance Metrics
Review capability of inventory with respect to threat, weapons test schedules and fleet training requirements. OBJECTIVE: Available inventory of seaborne targets to meet fleet requirements.