CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **FEBRUARY 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-07**					R-1 ITEM NOMENCLATURE 0205620N Surface ASW Combat System Integration			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		**36.065**	**23.118**	**10.612**	**4.778**	**10.234**	**10.505**	**10.721**
0896 / ASW Combat Systems Integration		**0.000**	**0.000**	**0.000**	**1.259**	**5.321**	**5.427**	**5.537**
1916 / Surface ASW System Improvements		**36.065**	**23.118**	**10.612**	**3.519**	**4.913**	**5.078**	**5.184**

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The objective of this Program Element (PE) is to significantly improve existing Surface Ship Sonar System Capabilities as well as quickly and affordably develop and integrate emergent transformational technologies.

Project 0896, ASW Combat Systems Integration, will serve as the ASW "way ahead" in the Navy and will provide a clear transition path for emergent transformational ASW technologies to be quickly and affordably developed and incorporated, enabling the aggressive pursuit of improvements to system portability, extension of interoperability with multiple platforms, and opportunity to export these capabilities Navywide. Time phased insertion of ASW COTS improvements will address the entire combat system, including acoustics, fire control, contact management, performance prediction, and on-board training.

Project 1916, Surface ASW System Improvements, will improve AN/SQQ-89(V) Measures of Performance (MOP) by enhancing detection, tracking, classification, active and sonobuoy data processing and display capabilities, and increasing acoustic sensor frequency bandwidth. This Project will take advantage of the AN/SQQ-89(V) Open System Architecture and Acoustic Rapid COTS Insertion (ARCI) intiatives to develop and integrate a Multi-Function Towed Array (MFTA) with active sonar bistatics (Echo Tracker Classifier - ETC), an ARCI passive ASW processor, and torpedo defense capabilities (Forward and Aft sector coverage with Wake Homer protection). This COTS-based Surface USW combat system, the AN/SQQ-89A(V)15, is currently planned as a backfit program for both CG47 (as part of the Cruiser Modernization program) and DDG51 class ships (Flight IIA). Additionally, via a Peer Review Process (PRP) and Build-Test-Build program, this Project will continue to capitalize on the Open System Architecture of the AN/SQQ-89A(V)15 with the incorporation of emergent, transformational ASW technologies.

Defense Emergency Response Funds (DERF) Funds:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **FEBRUARY 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**	PROGRAM ELEMENT NUMBER AND NAME 0205620N Surface ASW Combat System Integration				PROJECT NUMBER AND NAME 1916 Surface ASW System Improvements			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**36.065**	**23.118**	**10.612**	**3.519**	**4.913**	**5.078**	**5.184**
RDT&E Articles Qty		**1**						

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Surface ASW System Improvements Project will support essential performance enhancements to AN/SQQ-89(V) and Surface Ship Sonar Systems. This Project, will improve AN/SQQ-89(V) Measures of Performance (MOP) by enhancing detection, tracking, classification, active and sonobuoy data processing and display capabilities, and increasing acoustic sensor frequency bandwidth. This Project will take advantage of the AN/SQQ-89(V) Open System Architecture and Acoustic Rapid COTS Insertion (ARCI) intiatives to develop and integrate a Multi-Function Towed Array (MFTA) with active sonar bistatics (Echo Tracker Classifier - ETC), an ARCI passive ASW processor, and torpedo defense capabilities (Forward and Aft sector coverage with Wake Homer protection). This COTS-based Surface USW combat system, the AN/SQQ-89A(V)15, is currently planned as a backfit program for both CG47 (as part of the Cruiser Modernization program) and DDG51 class ships (Flight IIA). This Project will fund the procurement of the AN/SQQ-89A(V)15 Pre-Production Prototype in FY 2003, with installation planned in FY 2004, and Developmental and Initial Operational Test & Evaluation events scheduled in FY 2004 and FY 2005 respectively. Additionally, via a Peer Review Process (PRP) and Build-Test-Build program, this Project will continue to capitalize on the Open System Architecture of the AN/SQQ-89A(V)15 with the incorporation of emergent, transformational ASW technologies such as data fusion, marine mammal detect and mitigation, Distant Thunder, new RAPTOR radar processor, and upgraded technologies such as algorithm improvements, increased passive narrow band (PNB) frequency, improved extended echo ranging (EER), and beamformer improvements. This Project will also develop the AN/SQQ-89(V) design and interface with the Light Airborne Multi-Purpose (LAMPS) Mk III Blk II system, integrating the LAMPS Mk III Blk II Common Airborne Undersea Sensor Software (CAUSS) and Ku Band on-board AN/SQQ-89(V) systems.

This PE reflects a Congressional Add in in FY 2003 to continue 'AN/SQQ-89(V) Surface Undersea Warfare Combat System sensor and signal processing improvements begun under SBIR N97-090'. Funds were used to improve war fighting capabilities on board Flight I and II DDG51 class ships by modernizing the AN/SQQ-89(V) Surface Undersea Warfare Combat System through COTS technical refresh initiatives not included in the Program of Record. Funding will be used to develop and build a system for land based testing as well as a system for roll-on/roll-off at-sea demonstration and testing and evaluation.

This PE reflects ASN(RDA) BTRs 03-40, 03-41 and 03-50 for $1.725M in FY 2003 to support the CNO chartered "Task Force ASW" team in recommending transformational technologies for ASW.

This PE reflects a Congressional Add in FY 2004 under Project 1916 for 'Surface Ship ASW R&D Improvements'. Funds will be used to complete the development of promising technologies for at-sea tests in representative warfighting environments. Once satisfactorily tested, technologies will be transitioned to variants of the AN/SQQ-89(V) USW Combat System.

This PE reflects a Congressional Add in FY 2004 under Project 1916 for 'Common Surface and Air Undersea Warfare - Implementation of an Air and Surface Ship Peer Review Process integration approach for replacement of legacy equipment'. Once the Peer Review team determines which legacy equipment to replace/upgrade, funds will be used to develop the Common Surface and Air USW integration system baseline that will be integrated and installed on a DDG51 class ship for testing and evaluation.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-07	0205620N Surface ASW Combat System Integration	1916 Surface ASW System Improvements

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Enhance SQQ-89A(V)15 Open System Architecture		4.511	5.155	7.844
RDT&E Articles Quantity				

Development of a common superset software baseline for AN/SQQ-89A(V)15. and AN/SQQ-89(V)15 w/ EC 200. Continue enhancement of the AN/SQQ-89A(V)15 Open System Architecture via the incorporation of transformation technologies through the PRP Build-Test-Build program. Items include Explosive Source integration with AN/SQQ-89(V) processes, rapid integration of Common Undersea Picture initiatives, simplification of displays and active processing, and development of improved torpedo detection algorithms to be incorporated into the Torpedo Recognition and Alertment Functional Segment (TRAFS) on AN/SQQ-89(V) platforms.

		FY 03	FY 04	FY 05
AN/SQQ-89A(V)15 Delivery and Installation		17.123	1.777	
RDT&E Articles Quantity		1		

FY03: Contracted for delivery of AN/SQQ-89A(V)15 Pre-Production Prototype, provided associated integration and production support, and coordinated installation efforts.
FY04: Contract for installation of AN/SQQ-89A(V)15 Pre-Production Prototype, provide associated Installation Checkout (INCO) support.

		FY 03	FY 04	FY 05
AN/SQQ-89A(V)15 Pre-Production Prototype DT/OT			3.312	2.200
RDT&E Articles Quantity				

FY04: Coordinate and conduct Developmental Test DT-IIIAQ of the AN/SQQ-89A(V)15 Pre-Production Prototype and coordinate plan for FY 2005 Initial Operational Test & Evaluation OT-IIIK.
FY05: Coordinate and conduct Initial Operational Test & Evaluation OT-IIIK of the AN/SQQ-89A(V)15 Pre-Production Prototype system.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-07	0205620N Surface ASW Combat System Integration	1916 Surface ASW System Improvements

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
LAMPS Mk III Blk II CAUSS & Ku Band Integration		0.540	1.000	
RDT&E Articles Quantity				

Continue the integration of the LAMPS Mk III Blk II Common Airborne Undersea Sensor Software (CAUSS) and Ku Band on-board AN/SQQ-89(V) platforms, including the AN/SQQ-89A(V)15.

		FY 03	FY 04	FY 05
AN/SQQ-89(V) Test & Evaluation Program		0.820	0.686	0.568
RDT&E Articles Quantity				

Provide AN/SQQ-89(V) test and evaluation planning support, update Test & Evaluation Master Plan (TEMP) to reflect AN/SQQ-89A(V)15 test program, coordinate and conduct roll-on roll-off tests of Torpedo Alertment Upgrade (TAU) version 5.0 and AN/SQQ-89(V) PRP systems, provide performance data and environmental analysis, Independent Verification & Validation (IV&V), and modeling and simulation using MOP and measures of effectiveness (MOE) methods.

		FY 03	FY 04	FY 05
MFTA Sea Test		0.335		
RDT&E Articles Quantity				

Coordinated and conducted test of MFTA performance at sea. Provided report and analysis of findings.

R-1 SHOPPING LIST - Item No. 177

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-07	0205620N Surface ASW Combat System Integration	1916 Surface ASW System Improvements

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
Task Force ASW		1.725		
RDT&E Articles Quantity				

The CNO established "Task Force ASW" to review and study options available for revamping the ASW mission by looking at the issue in a holistic approach. Funding supported the Task Force ASW team in recommending transformational technologies for ASW; taking advantage of emerging technologies, new processes, and various methods of monitoring submarine activity, including intelligence collection platforms.

		FY 03	FY 04	FY 05
AN/SQQ-89(V) Sensor/Signal Processing Improvements		11.011		
RDT&E Articles Quantity				

Congressionally added funds in FY03 continued AN/SQQ-89(V) Surface Undersea Warfare Combat System sensor and signal processing improvements begun under SBIR N97-090. These funds were used to improve war fighting capabilities on board Flight I and II DDG51 class ships by modernizing the AN/SQQ-89(V) Surface Undersea Warfare Combat System through COTS technical refresh initiatives not included in the Program of Record. Funding was used to develop and build a system for land based testing as well as a system for roll-on/roll-off at-sea demonstration and testing and evaluation.

		FY 03	FY 04	FY 05
Surface Ship ASW R&D Improvements			10.200	
RDT&E Articles Quantity				

FY 2004 reflects Congressional Add for 'Surface Ship ASW R&D Improvements' to complete the development of promising technologies for at-sea tests in representative warfighting environments. Once satisfactorily tested, technologies will be transitioned to variants of the AN/SQQ-89(V) USW Combat System.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-07	0205620N Surface ASW Combat System Integration	1916 Surface ASW System Improvements

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
Common Surface and Air Undersea Warfare			0.988	
RDT&E Articles Quantity				

FY 2004 reflects Congressional Add for 'Common Surface and Air Undersea Warfare' to develop the Common Surface and Air USW integration system baseline that will be integrated and installed on a DDG51 class ship for testing and evaluation.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: FEBRUARY 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-07	0205620N Surface ASW Combat System Integration	1916 Surface ASW System Improvements

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY04 President's Controls)	35.106	12.179	11.187
Current BES/President's Budget: (FY05 President's Controls)	36.065	23.118	10.612
Total Adjustments	0.959	10.939	-0.575
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions			
Congressional rescissions		-0.261	
SBIR/STTR Transfer	-0.760		
Economic Assumptions			-0.049
Reprogrammings *	1.725		-0.500
Other Navy/OSD Adjustments	-0.006		-0.026
Congressional increases		11.200	
Subtotal	0.959	10.939	-0.575

Schedule:

None

Technical:

None

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-07	0205620N Surface ASW Combat System Integration	1916 Surface ASW System Improvements

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
OPN BLI 2136/ AN/SQQ-89 Surface ASW Combat System	13.7	15.2	0.0	0.0	0.0	0.0	32.9	Continuing	Continuing
OPN BLI 9600/ Cruiser Modernization									
SCN BLI 2122/ DDG-51									

E. ACQUISITION STRATEGY:

- Complete AN/SQQ-89A(V)15 Pre-Production Prototype 1Q FY 2004, perform installation in 3Q FY 2004, conduct developmental test 3Q FY 2004 and initial operational test in FY 2005. Via PRP and Build-Test-Build process, incorporate evolutionary and transformational technologies into AN/SQQ-89(V) systems at scheduled intervals.

F. MAJOR PERFORMERS:

- Advanced Acoustic Concepts (AAC), NY - SBIR Phase III contract for common acoustic procesor, prime contractor for FY03 Congressional Add to continue AN/SQQ-89(V) sensor and signal processing improvements begun under SBIR N97-090
- Applied Hydro-Acoustics Research (AHA), MD - SBIR Phase III contract for common acoustic processor and beamformer processing for MFTA
- General Dynamics-AIS (formerly DSR), VA - SBIR Phase III contract for common acoustic processor
- Johns Hopkins University Applied Physics Laboratory (JHU/APL), MD - Design, development and integration of MFTA, Torpedo Detection Classification and Localization (TDCL) improvements, and emerging active sonar technologies into the AN/SQQ-89(V)
- Lockheed Martin, NY - Prime AN/SQQ-89(V) Production and Design Agent. This contract was competitively awarded in May 2002
- Naval Sea Systems Command, Newport, RI - AN/SQQ-89(V) Technical Design Agent support
- Naval Sea Systems Command, Dahlgren, VA - AN/SQQ-89(V) Technical Design Agent support

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)

DATE: **FEBRUARY 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-07**

PROGRAM ELEMENT: 0205620N Surface ASW Combat System Integration

PROJECT NUMBER AND NAME: 1916 Surface ASW System Improvements

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary H/W & S/W Development	C/CPFF	AAC, NY	2.222	7.910	12/02	0.404	01/04			0.000	10.536	
Primary H/W & S/W Development	C/CPFF	AHA, MD	3.666	2.008	11/02	0.108	02/04			0.000	5.782	
Primary H/W & S/W Development	C/CPFF	GD-AIS, VA	3.644	2.494	11/02	8.466	02/04			0.000	14.604	
Primary H/W & S/W Development	C/CPFF	JHU/APL, MD	6.669	2.269	10/02	0.079	01/04			0.000	9.017	
Primary H/W & S/W Development	C/CPAF	LOCKHEED MARTIN, NY	36.617	11.911	11/02	4.613	11/03	5.500	11/04	Continuing	Continuing	
Primary H/W & S/W Development	WR/WX	NAVSEA/DAHLGREN, VA	7.776	0.753	10/02	0.858	11/03	0.650	10/04	Continuing	Continuing	
Primary H/W & S/W Development	WR/WX	NAVSEA/NEWPORT, RI	26.829	1.872	10/02	0.547	11/03	0.927	10/04	Continuing	Continuing	
Primary H/W & S/W Development	Var.	Var.	28.221	5.488	10/02	3.505	10/03	0.457	11/04	Continuing	Continuing	
Subtotal Product Development			115.644	34.705		18.580		7.534		Continuing	Continuing	

Remarks:
Budgeted for award fees ($M): 0.292 in FY03, 0.294 in FY04, 0.230 in FY05 (Lockheed Martin, NY). Lockheed Martin's performance has been excellent, earning close to 100% of possible award fee for the most recent award fee periods.

Engineering & Technincal Svcs (ETS)	Var.	Var.	0.900							0.000	0.900	
Studies, Analyses & Evaluation (SAE)	Var.	Var.	1.500							0.000	1.500	
Subtotal Support			2.400	0.000		0.000		0.000		0.000	2.400	

Remarks:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **FEBRUARY 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**		PROGRAM ELEMENT 0205620N Surface ASW Combat System Integration				PROJECT NUMBER AND NAME 1916 Surface ASW System Improvements						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental & Operational T&E	Var.	Var.	4.164			3.312	11/03	2.200	11/04	Continuing	Continuing	
Miscellaneous T&E	Var.	Var.	3.422	0.820	10/02	0.686	11/03	0.568	11/04	Continuing	Continuing	
Subtotal T&E			7.586	0.820		3.998		2.768		Continuing	Continuing	
Remarks:												
Program Management Support	Var.	Var.	6.436	0.390	11/02	0.390	12/03	0.160	11/04	Continuing	Continuing	
Travel	Var.	Var.	1.154	0.150	11/02	0.150	11/03	0.150	11/04	Continuing	Continuing	
			7.590	0.540		0.540		0.310		Continuing	Continuing	
Remarks:												
Total Cost			133.220	36.065		23.118		10.612		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 177

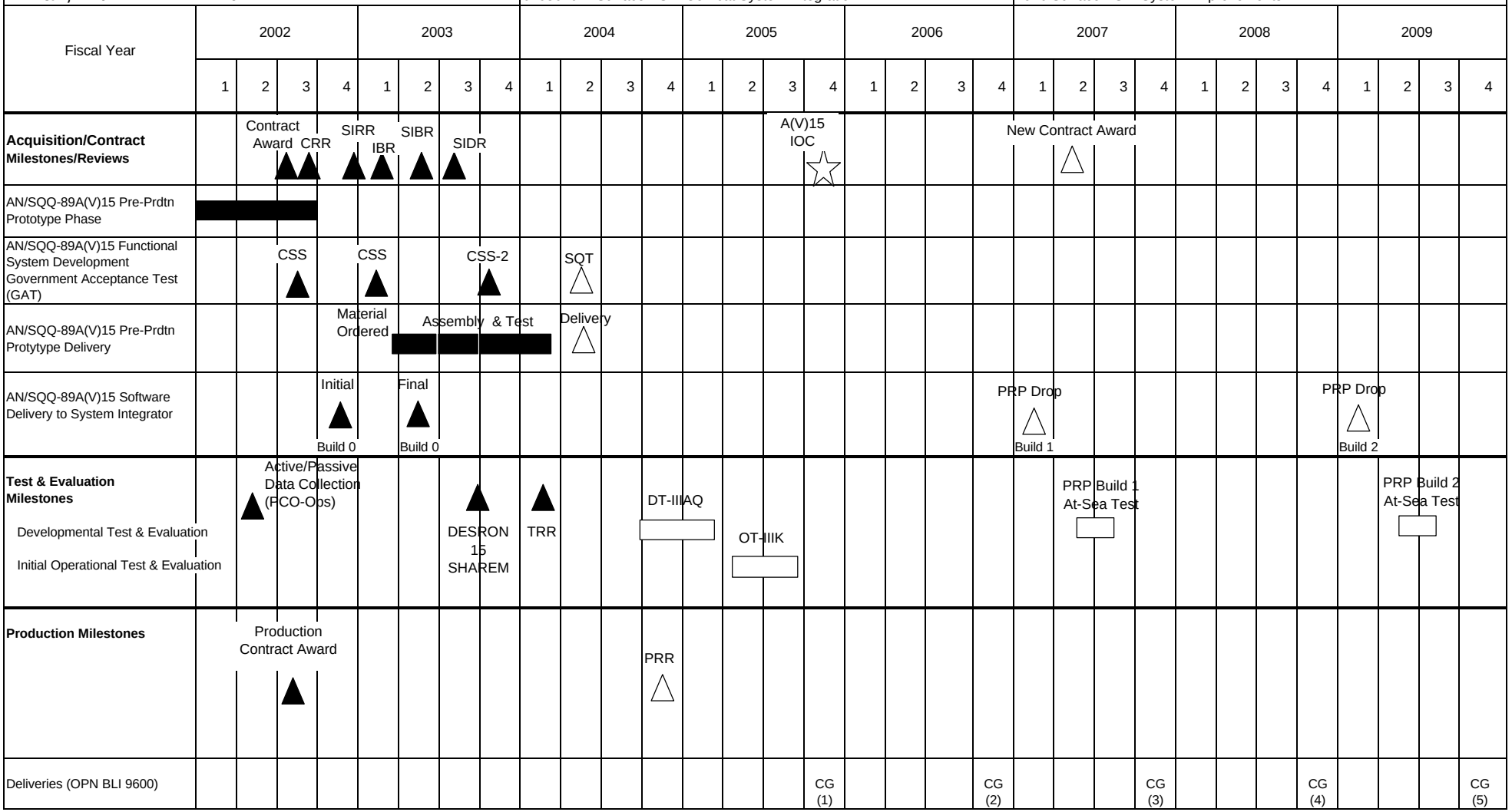
CLASSIFICATION:

EXHIBIT R4, Schedule Profile — DATE: **FEBRUARY 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-07**

PROGRAM ELEMENT NUMBER AND NAME: 0205620N Surface ASW Combat System Integration

PROJECT NUMBER AND NAME: 1916 Surface ASW System Improvements



R-1 SHOPPING LIST - Item No. 177

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: FEBRUARY 2004			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**	PROGRAM ELEMENT 0205620N Surface ASW Combat System Integration				PROJECT NUMBER AND NAME 1916 Surface ASW System Improvements			
Schedule Profile		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase								
Active/Passive Data Collection (PCO-Ops)								
Contract Award to Lockheed Martin								
Contracts Requirements Review (CRR)								
Initial Software Delivery to System Integrator								
System Integration Requirements Review (SIRR)								
Government Acceptance Test (GAT)		1Q, 4Q						
Integrated Baseline Review (IBR)		1Q						
Pre-Production Prototype Material Ordered		1Q						
System Integration Baseline Review (SIBR)		2Q						
Final Software Delivery to System Integrator		2Q						
System Integration Design Review (SIDR)		3Q						
Pre-Production Prototype Assembly Begins		3Q						
DESRON 15 SHAREM		3Q						
Pre-Production Prototype Test		4Q	1Q					
Test Readiness Review (TRR)			1Q					
System Qualification Test (SQT)			2Q					
Pre-Production Prototype Final Delivery			2Q					
Developmental Test DT-IIIAQ			3Q-4Q					
Preproduction Readiness Review (PRR)			4Q					
Initial Operational Test (OT-IIIK)				2Q				
Initial Operational Capability (IOC)				4Q				
(OPN) Production Delivery to CG47 Class Ship (1)				4Q				
(OPN) Production Delivery to CG47 Class Ships (2)					4Q			
Peer Review Process S/W / H/W Drop - Build 1						1Q		
New Contract Award						2Q		
PRP At-Sea Test - Build 1						2Q-3Q		
(OPN) Production Delivery to CG47 Class Ships (3)						4Q		
(OPN) Production Delivery to CG47 Class Ships (4)							4Q	
Peer Review Process S/W / H/W Drop - Build 2								1Q
PRP At-Sea Test - Build 2								2Q-3Q
(OPN) Production Delivery to CG47 Class Ships (5)								4Q

R-1 SHOPPING LIST - Item No. 177